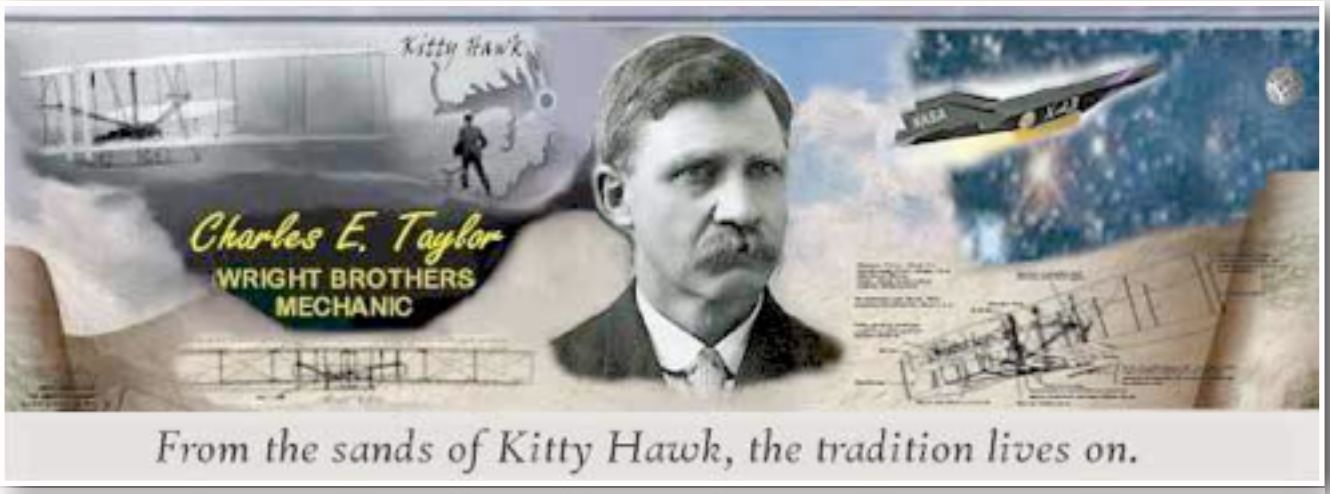
Aviation Human Factors Industry News

Volume XII. Issue 13, July 03, 2016



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:

Aviation MX
HUMAN FACTORS
QUARTERLY
JUNE 2016
Vol 4, Issue 2

SMS Relies on FAA HF Research and Development Products

William B. Johnson

About the Author: *Dr. William Johnson is the FAA Chief Scientific and Technical Advisor for Human Factors in Aircraft Maintenance Systems. His comments are based on nearly 50 years of combined experience as a pilot, mechanic, airline engineering and MRO consultant, professor, and FAA scientific executive.*

INSIDE THIS ISSUE:

Introduction

When I joined the FAA, in 2004, the senior leadership that interviewed me insisted that FAA research must create and support products that can be used in government and industry. Of course, they expected FAA Technical Reports and Newsletter articles like this one. They also respected that selected basic scientific research helped to validate the ultimate applied products. Much of this short article, also appeared in the May, 2016 AMT Magazine but this version has more elaboration.

A key component, or guiding principle, of today's continuing aviation safety is the concept of Safety Management Systems. SMS has significantly raised the awareness towards the human factors hazards in maintenance. Increasingly, industry is capitalizing on the last decades of products/practices generated from FAA's Maintenance Human Factors Program. A few examples are described below.

SMS Implementation Requires Tools for Thinking and for Acting

The regulations currently require that Part 121 operators have a Safety Management System in place. That is clearly happening. The industry is embracing SMS for more reasons than mere regulatory compliance. I have observed that the word "required" is hardly used when industry personnel talk about SMS. I see enthusiasm for the recognized value in a structured approach to spot trends and to recognize and address hazards before they cost money, injure a worker, or threaten the continuing safety of flight for airline operators. The good news is that there is a large "trickle down" approach where Part 121 operators are asking their suppliers to establish and capitalize on a SMS. Of course, a supplier is not likely to have the same requirement for a large SMS that a 7/24/365 airline has. Each SMS is different and matched to organization needs. These organization-

(continued on page 2)

Written by maintenance human factors professionals dedicated to identifying and optimizing the factors that affect human performance in maintenance and inspection. Past newsletters @ humanfactorsinfo.com

https://www.faa.gov/about/initiatives/maintenance_hf/fatigue/publications/

Drowsy Driving Kills 6,400 Americans Annually

Charles Czeisler talked about the dangers of drowsy driving at a recent Harvard T. H. Chan School of Public Health Forum called Asleep at the Wheel, reports Scientific American."And we just finally got a consensus group, the first consensus panel of experts, to agree that if an individual has had less than two hours of sleep in the previous 24 hours that that's the equivalent of being negligent and should be added to the statutes. It's just like drunk driving.

Listen to the podcast at www.scientificamerican.com

Report: TransAsia ATR-72 Stalled After Engine Failure

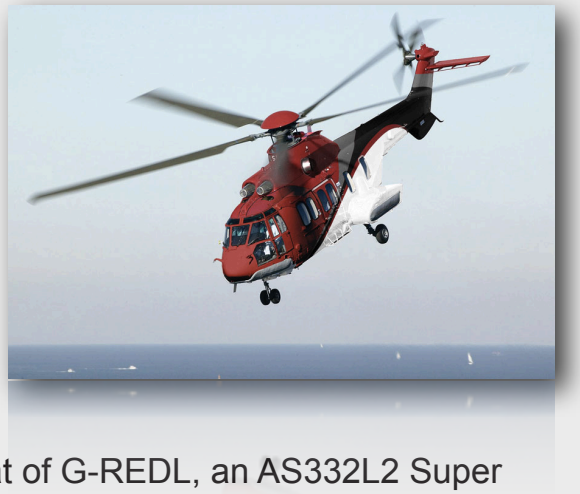
The crew of the TransAsia Airways turboprop that crashed in Taiwan in 2015 failed to follow procedures for an engine malfunction and then stalled the aircraft, investigators found. The Taiwan Aviation Safety Council's report, released Thursday, also confirmed previous reports that the captain of the ATR 72-600 shut down the working engine when the other failed just after departing the Taipei airport. Forty-three of the 58 people on board were killed when the ATR struck a bridge and crashed into the river below in February 2015.The council's report said an inconsistent electrical signal in the No. 2 engine's auto-feather unit likely caused an uncommanded feathering, which started the accident sequence.

The captain then reduced power to the other engine. The aircraft's stick shaker and pusher activated before the crash. If the crew had responded correctly to the engine failure and stabilized the aircraft, "the occurrence could have been prevented," the report said. Investigators also reported it found inconsistencies and gaps in training procedures at the airline, including those for the captain. He had failed a simulator check and passed a second before his promotion to captain, but was found to need more emergency training, with "engine flame out at take off and single engine operations" specified in the report.

http://www.avweb.com/avwebflash/news/Investigators-ATR-Pilot-Shut-Down-Wrong-Engine-224370-1.html

http://www.asc.gov.tw/main_en/docaccident.aspx?uid=343&pid=296&acd_no=191

Main Gearbox Fatigue Likely Cause of Airbus H225 Crash



The fatal accident of an Airbus Helicopters H225 (EC225LP), registered as LN-OJF, on April 29 off the coast of Norway, near Turoey outside Bergen, was "most likely" the result of a fatigue fracture in one of the main gearbox's second-stage planet gears. According to AIBN, Norway's accident investigation bureau, the fatigue phenomenon appears to have its origin on the inner surface of the gear, propagating toward the web of the gear teeth. The failed component shows "clear similarities" with that of G-REDL, an AS332L2 Super Puma that crashed in 2009. At the time, indirect fatigue detection was already in place and measures (using magnetic sensors) were taken to detect the spalling caused by a crack. However, the failure mode seen on LN-OJF "seems to differ from what was expected during certification."

Norway's AIBN believes that a subsurface crack propagated without creating a significant amount of magnetic debris from spalling. It is now looking for what initiated the fatigue fracture.

The gearbox was involved in a road accident in 2015 and, although a repair was conducted before installation on CHC's helicopter, the investigators have not ruled out the event as a factor.

http://ea.ecn5.com/Clicks/SE9xRzFndnM5OWcya05qNTBLeEZ6b3FtOHFNUTFQZERWUWEvcUkzYzlHeTlZTHFJc1Z6SjR4VWJ3bXNFaTRVYQ%3d%3d

NTSB Reminds Pilots To Report Weather

It might seem that in an age of instant online weather, the need for pilot reports, or pireps, would be a thing of the past, but that's far from true, according to a recent NTSB forum. "Pireps done right have enormous untapped potential to make aviation safer for pilots, passengers, and people on the ground," said board member Robert Sumwalt, in opening remarks. The two-day forum gathered a panel of experts to explore the status of the FAA's pireps system and share ideas for improving it. "We at the NTSB have investigated numerous accidents that illustrate a complex set of relationships in the pirep system as it presently – or doesn't function," Sumwalt said. "And I don't think any of us think our pirep system is functioning optimally." Pilot reports can be the best source of information about critical weather such as icing, but they also can be inaccurate, and the pilots who need them may not get them on a timely basis.Matthew Tucker, an air traffic controller in Atlanta, said some controllers have been taking action on their own to solicit pireps and improve the system. "Fort Worth Center has been emphasizing pireps and their numbers have gone way up … [they] are pushing to double or better the numbers," he said in his presentation.

Mike Glasgow, of Lockheed Martin, said it's possible for pilots to electronically submit pireps, but many pilots are unaware of the service and it's underutilized. Presentations from the forum are online, and a full webcast of the two-day event can be accessed online for the next 90 days.

http://www.ntsb.gov/news/events/Pages/2016_pirep_FRM_agenda.aspx

http://ntsb.capitolconnection.org/

Pilots 'very likely' to misjudge flying conditions due to irrational decisions

'Pretty much all the pilots we tested fall prey to these biases'

Pilots in the study consistently showed the "anchoring effect", "confirmation bias" and "outcome bias" when making decisions

Pilots are prone to making poor decisions while flying in bad weather because of irrational thinking habits, according to new research.

Three kinds of "cognitive bias" lead even the most experienced pilots to misjudge bad flying conditions in ways that could cause their plane to crash.
Like all humans, researchers told The Independent, pilots had a tendency to lean towards the first information that is presented - even if it isn't the most authoritative.

That impulse, and the urge to ignore negative advice, plays an important role in whether pilots choose to risk tricky landings or persevere through clouds, the team of experts in New Zealand said.

The "anchoring bias", "confirmation bias" and "outcome bias" have all been identified as irrational psychological impulses that stop pilots turning back during a flight when in reality they should.

Andrew Gibley, senior lecturer in aviation at Massey University, said these tendencies can be found in all kinds of professions - but the consequences in flying can be much more serious.

"Pretty much all the pilots we tested fell prey to these biases," Dr Gilbey said.

"And when they do they're likely to continue a flight into deteriorating weather conditions, when in reality they should be taking a diversion or turn back."

Controversy has long surrounded the cause of the plane crash into Mount Erebus in New Zealand in 1979, in which 257 passengers and crew were killed, with both pilots and technology being blamed.

The study published in Applied Cognitive Psychology asked 754 mostly male pilots to assess the safety of flying situations.

It found that when pilots are initially told the weather seems good, they tend to rate the atmospheric conditions as better for flying, and when they hear the weather is bad, they then rate them less favorably - despite the conditions being the same in both cases.

This "anchoring effect" describes a human tendency to allow the very first piece of information heard to have an undue influence on how a situation is thought about afterwards, the authors said.

Meanwhile the "confirmation bias" sees pilots be as likely to give weight to positive information, such as "it seems safe to land", as negative information, such as "the visibility is very low", when making a decision.

This shows that people will rely on reassuring evidence as much as on discomforting evidence, when in fact in high-risk scenarios such as flying they should give more weight to the problematic information.

Finally, pilots are likely to assess their flying decision as the correct one if they are told the flight went "well" afterwards, and their decision as dangerous if told that it ended up "crashing".

This "outcome bias" shows that people judge their own decision on what happens afterwards, rather than on the information available at the time.

According to Dr Gilbey, no method has yet been found to prevent these poor thinking habits.

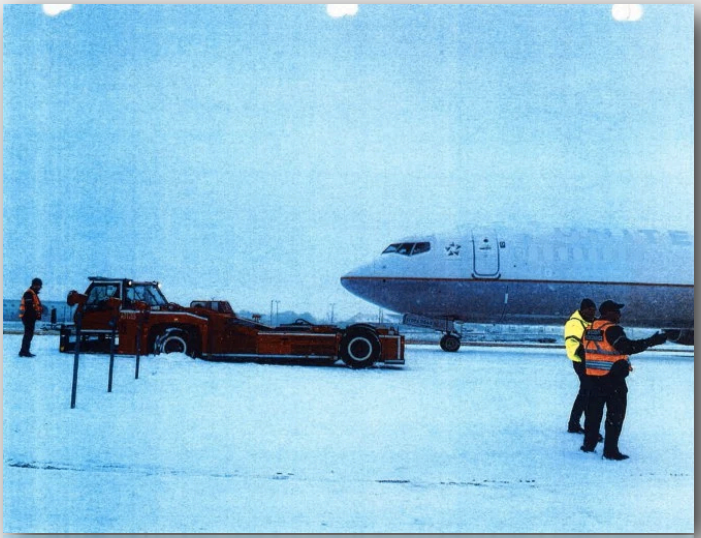
"Only a small minority are an exception to these rules," he said.

"We've tried several interventions, including telling people about these biases and what is going on, but it all has pretty much no effect at all.

"It's just a very human thing to do."

He added that these sorts of situations occurred rarely and were more likely in small than large passenger aircraft.

BGA: Pilot fatigue, error raised in 'overrun' on O'Hare runway



The pilots of a United Airlines plane that slid off the end of an O'Hare Airport runway last December had been awake for 23 hours or more and had spoken of feeling "fatigued" even before departing Seattle for Chicago with more than 160 passengers on board, newly obtained Federal Aviation Administration records show. The pilots of the Boeing 737 also thought they were landing on a different, longer runway at O'Hare and might have made a series of braking errors while trying to bring the jetliner to a stop on a landing strip "obscured by snow," according to a two-page FAA document.

The paperwork — released by the federal agency in response to a public records request — doesn't cite a cause for the runway "overrun," which United says could be the result of a number of factors, including "runway conditions."

"It is a very small piece of a larger investigation," FAA spokeswoman Elizabeth Isham Cory says, describing the document as "non-decisional."

The FAA says the incident, which didn't result in any injuries or major damage to the plane, remains under investigation.

The incident was one of three similar overruns at O'Hare on the same runway last winter. There have been at least nine "excursions" from O'Hare runways and taxiways since 2010, city records show.

It was a snowy morning, with temperatures in the 20s, when United Flight 1977 touched down on Runway 9 Left/27 Right a little after 7:30 a.m. Dec. 30. The runway, which stretches 7,500 feet, opened in 2008 as part of O'Hare's ongoing expansion and reconfiguration.

An FAA air-traffic controller had cleared the United jetliner for landing and said "braking action" was reported as "good" — meaning not too slippery, according to a copy of radio transmissions.

But soon one of the pilots reported, "Be advised, braking action was nil" — meaning the jet's tires weren't catching on the pavement very well.

The aircraft slid off the end of the runway, according to records from Mayor Rahm Emanuel's city Department of Aviation, which operates O'Hare and Midway airports.

City crews had been standing by to conduct a "friction" test and, if necessary, clear snow and ice.

The FAA record says the captain of Flight 1977 was awake for 25 hours "at the time of the incident," and the first officer — the second pilot — had been awake for 23 hours.

"Crew discussed being fatigued at length prior to departure from [Seattle] but felt compelled to complete the mission," the document says. "Crew discussed napping as a fatigue-mitigation strategy en route."

Also, according to the FAA document:

• The pilots "thought they were landing on the longer of the parallels [runways] but in fact were landing on the shorter."

• The pilots might have "inadvertently selected" a less-powerful brake setting and did not account for the runway being "obscured by snow."

• "Despite being fatigued, [the] Captain decided to hand fly" the plane from 10,000 feet to arrival, rather than rely on the autopilot.

The FAA requires pilots to have a "10-hour minimum rest period prior to the flight duty period," with "an opportunity for eight hours of uninterrupted sleep within the 10-hour rest period."

"Rest" doesn't have to mean "sleep," though, aviation experts say, and an "opportunity" for sleep also doesn't necessarily mean actual snoozing.

FAA rules put great responsibility on pilots to not fly if they're overly tired, according to Embry-Riddle Aeronautical University's Bill Waldock, a pilot who created the university's aviation safety programs and teaches accident investigation.

Before takeoff, pilots "have to positively affirm that they are fit for duty," Waldock says.

The FAA document doesn't say what rest the United pilots got. But it does say that one or both of the United pilots "will receive" training in, among other things, "cold-weather ops" and "fatigue risk management."

United spokesman Charles Hobart declined to discuss that. He would say only that the airline is still conducting its own "internal review" and that "there may be other contributing factors involved," including "possible runway conditions," the weather and air-traffic control.

Critical decision making in an emergency

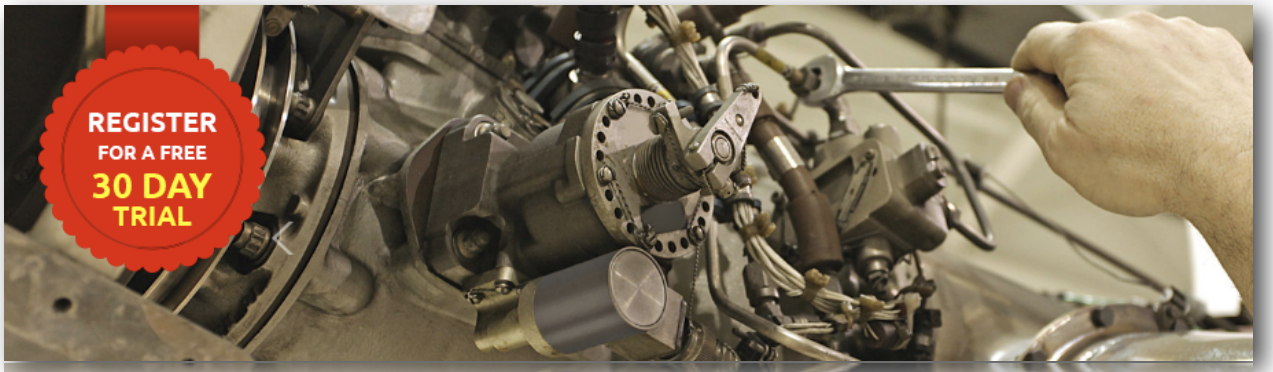
Do you set personal minimums and have a plan for dealing with emergencies?

Accident Case Study: Emergency Management reveals how flawed decision making and lack of a conservative approach to an in-flight emergency contributed to the unfortunate outcome of this flight.

ATC audio and radar data reconstruct the mistakes, miscommunications, and missed opportunities that eventually led to the pilot's spatial disorientation. Watch the video, brought to you by AOPA Insurance.

Watch Now

When do you use an aircraft maintenance engineers' logbook?



by Andy Woan

The aircraft maintenance engineers' logbook has been around for years, but in what ways do the engineers' use their logbooks?

There are still some engineers, technicians and mechanics working in aviation maintenance that do not regularly update and maintain a record of their aircraft maintenance experience. There are some that don't even own a logbook. Why?

Some of these maintenance personnel work for companies whose quality departments issue company approvals after the engineer sits a technical board. Other engineers work for companies who use an internal computerised system that can generate a list of the engineers technical log entries on request, AMOS for example. A disadvantage of only relying on these systems is that the personal record is less portable and the data entries cannot be personalised into presentations. They also have to be printed and filed which introduces its own problems of storage; they could get damaged or lost, and it is not environmentally friendly in the 21st century to keep reams and reams of paper.

So how do the aircraft maintenance engineers that own a logbook update theirs? Our research shows that aircraft maintenance engineers update their logbooks in four different ways.

The first are the aircraft maintenance engineers who update their logbooks every couple of years. This is usually when they have to as a company approval or maintenance licence is due for renewal. The problem of using a logbook this way is that the engineer usually has to trawl though mountains of paperwork records trying to find copies of technical logs or job cards that match with an approval number. These records can often run over two years or more. But how does he find the ATA specific entries? What about that rare component change and when exactly was this? What about all the troubleshooting?

All this usually ends up, after countless hours, with a pile of paperwork that requires counter-signatures by supervisors and line managers who then have to review and compare shift plans and technical logs / job cards.

The next way an aircraft maintenance engineers' logbook is used is for the recording of on-the-job training (OJT) in preparation for an application for a new aircraft type rating. This can be a record of specific aircraft type related tasks that maybe component location; functional test; servicing; removal / installation.

Some quality departments provide printed sheets of tasks required, but again this brings back the amount of paperwork that is generated and postage costs too in many cases.

Another and a lot better way of maintaining an aircraft maintenance engineer's logbook is to update every few weeks or couple of months using quiet or down time to review recent daily work records or shift hand-overs; And in doing so keeping on top of the recent tasks.

From experience though we have found that updating a personal logbook is best carried out as soon as possible after the job / task / CRS has been signed and completed. Many engineers now have to enter technical logs or work-orders into a company database soon after the task has been completed. Taking just a minute longer to update the aircraft maintenance engineer's logbook there and then will save hours later on.

And if you don't have to enter the task details into a company database, why not take a photo of the paperwork with a smart phone or tablet and update your logbook during your next coffee break?

www.aviationlogbook.eu provides you with the tools that make the up keeping of an aircraft maintenance personal logbook as simple as possible.

Dying by accident

Fatal mishaps are on the rise: Every four minutes an American dies from an unintentional injury, the National Safety Council reports, making accidents the nation's fourth-leading-killer - surpassing stroke, Alzheimer's disease, diabetes, flue and suicide. The research, based on federal statistics, found that more than 136,000 people in the U.S. met an accidental death in 2014 - a 4.2 percent jump from the previous year and 15.5 percent more than a decade earlier. Opioid and heroin abuse is fueling the trend, the report says, as overdoses and poisonings have increased 78 percent since 2005.

Meanwhile, an aging population may help explain why deadly falls surged 63 percent over the past 10 years.

(On a note, motor vehicle deaths dropped 22 percent, in part because of improved auto safety technology.) The report argues that society isn't taking precautions against unintentional injury - doctors, for example, should be more careful when prescribing painkillers. "Every accident is preventable," the safety council's Ken Kolosh tells *NPR.org.* "But it's not necessarily the [fault] of the victim.

Guns n' Rotors

Part of our risk management was ensuring that procedures were completed correctly with an emphasis on attention on detail and safety

HSL-42 Detachment Nine had its share of maintenance challenges while deployed to the Fourth Fleet area of responsibility onboard USS Nicholas (FFG 47), none more difficult than completing a Phase "D" maintenance inspection while underway. With multiple deployments onboard aircraft carriers, I thought I had seen it all, but I was definitely wrong. In the dynamic environment of carrier operations and its related maintenance, things happen fast and you learn to expect the unexpected. On a carrier, each night you can walk down the hangar bay and see every embarked squadron's maintenance personnel busy turning wrenches to provide mission capable aircraft for the following day's flight schedule. Some are working on removing ejection seats, others doing an engine change, while right next to them an aircraft could be on jacks ready for a drop check. Each community has its own challenges, regardless if it is a jet, E-2C, or helicopter. Small deck maintainers are no different; the Naval Aviation Maintenance Program (NAMP) applies to all Naval Aviation communities including independent deployers.

The Phase “D” inspection is a challenge because it entails removing all main rotor blades and spindles for subsequent rebuild and replacement. This task is difficult ashore and even more challenging while underway.
Imagine doing this in a hangar bay the size of an oversized garage, add violent motion caused by pitch and roll found only on a small deck ship, and you have yourself an Operational Risk Management (ORM) conundrum. To make matters worse, you have to complete all this while traversing the aircraft in and out of the hangar to rotate the blades and utilize the overhead pulley system to remove these blades. But just like any big deck maintainer, a task this big gets conquered by sweat and elbow grease. You tell a good maintainer how difficult a task will be and he will inform you how big a hammer he is going to use. Our Navy is blessed with many hard charging maintainers who go to great lengths to complete the mission and provide combat ready aircraft. Detachment NINE’s maintenance team was no different.

We were able to overcome this ORM puzzle by employing sound maintenance practices and using effective risk management throughout the evolution. First, we briefed every phase of the evolution, ensuring we identified the risks involved and how we would mitigate them. Then we ensured safety supervisors were in place to safeguard the established safety procedures. In every maintenance evolution there are risks and associated safety controls. More often than not, these controls become second nature and happen intuitively. The safeguards include using proper personal equipment, tool control, and established maintenance procedures. They all contribute to the success of the maintenance process. In our case we had previously removed a blade early in the deployment and learned from this valuable experience. We learned that the helicopter position in relation to the overhead hoist is critical. Also, it is important to keep in mind that certain parts come at a premium with no embarked intermediate maintenance department or aviation supply division. Procedures need to be done right the first time, every time. Part of our risk management was ensuring that procedures were completed correctly with an emphasis on attention to detail and safety.

In the end we completed the phase inspection ahead of schedule. Our first Functional Check Flight (FCF) ground turn following the inspection resulted in main rotor head vibrations reading of 0.13 inches per second on the Automatic Track And Balance Set (ATABS), a value well within the established parameters. Success like that does not happen by accident; you do not achieve that by luck. Those low vibration levels are a result of good maintainers who do excellent work, pay attention to detail, and take pride in their job. Detachment Nine Guns n’ Rotors had a successful deployment Combating Trans-National Organized Crime (CTOC), all on the shoulders of an outstanding group of maintainers who consistently did what every maintainer loves, turning wrenches to put aircraft in the sky.

Improper maintenance results in Cirrus pilot pulling the chute

The flight instructor reported that he and the pilot receiving instruction had completed a local instructional flight and were returning to the airport in Burlington, Mass.While the Cirrus SR22 was about 1,700 foot mean sea level, the engine began running roughly and subsequently lost all power.

The pilot receiving instruction immediately handed over the flight controls to the flight instructor.

The flight instructor attempted to maneuver the airplane to a field for a forced landing, but realized that the airplane would not be able to reach the field, so the pilots activated the ballistic parachute system.

After the parachute deployed, the airplane touched down in an area of dense vegetation.

An examination of the engine revealed that the crankshaft had fractured at the No. 2 main journal and that the camshaft had fractured between the No. 2 and No. 3 main bearing supports.

The No. 2 main bearing had shifted, and fretting was present on the main bearing supports, consistent with a loss of clamping load on the crankcase, which resulted in movement of the No. 2 bearing and excessive loading on, and the ultimate failure of, the crankshaft.

The nuts securing the No. 5 cylinder to its two crankcase through bolts had less torque than that specified by the engine manufacturer's installation guidance, and it is possible that the loss of clamping load on the crankcase was due to a loss of torque to the adjacent No. 5 cylinder crankcase through bolts.

According to maintenance records, the No. 5 cylinder had been removed and replaced about four months, or 27 flight hours, before the accident.

Although the logbook entry indicated that the through bolts were torqued “from each side to [the engine manufacturer’s] specifications,” it is likely that, while replacing the No. 5 cylinder, maintenance personnel did not properly torque the cylinder crankcase through bolts, which resulted in displacement of the No. 2 bearing and the catastrophic failure of the engine.

The NTSB determined the probable cause as a loss of clamping load of the No. 5 cylinder crankcase through bolts due to maintenance personnel’s failure to properly torque the through bolts during recent maintenance, which resulted in displacement of the No. 2 bearing and the subsequent catastrophic engine failure.

NTSB Identification: ERA14IA301

This June 2014 accident report is provided by the National Transportation Safety Board. Published as an educational tool, it is intended to help pilots learn from the misfortunes of others.

Gogo and The Weather Company to improve aircraft turbulence safety

US-based in-flight broadband internet provider Gogo Business Aviation has partnered with The Weather Company to help provide real-time turbulence reports and alerts directly to pilots, dispatch and other operations personnel.

With the aim of improving flight safety, the deal will see Gogo use The Weather Company's patented Turbulence Auto PIREP System (TAPS) turbulence detection algorithm on their aircraft-based communications server.

The TAPS software will be deployed on Gogo's server, which provides access to the data generated by the aircraft to create reports of turbulence intensity.

"Our ability to provide access to real-time data through our network will help pilots and operations teams improve flight planning."

Gogo said that its US-based air-to-ground and global satellite communication network is used to send the reports for instant action in flight operations and weather forecasting. Gogo Business Aviation connected aircraft services vice-president Andrew Kemmetmueller said: "In this increasingly connected world, it's no longer just about passenger connectivity, we have to consider all the other ways we can leverage the available technology to enhance the overall flight experience and improve safety such as a connected aircraft.

"Our ability to provide access to real-time data through our network will help pilots and operations teams improve flight planning, and ultimately, help airlines deliver the best in-flight customer experience throughout a flight."

The company noted that each year, turbulence incidents cost airlines around $100m due to crew and passenger injuries, unscheduled maintenance, operational inefficiencies, as well as revenue lost while planes are out of service.

Studies have also revealed that aircraft encounters with turbulence are the main cause of non-fatal injuries in the commercial airline industry.

In the conventional method, flight operators, pilots and aviation meteorologists received coded verbal reports with limited information on flight conditions, also known as PIREPS.

Due to various reasons such as lack of cockpit data connectivity, pilots were unable to receive real-time updates.

With the Gogo network, pilots in the cockpit will now be able to access real-time turbulence reports and forecaster created alerts through The Weather Company's flight planning and operations applications, including WSI Fusion and WSI Pilotbrief, as well as aircraft communication displays.

FAA Assessing Runway Status Lights Program

The FAA is seeking input on its runway status lights (RWSL) program as the agency looks to expand the advisory system to more airports. RWSL, operational at 15 of the nation's busiest airports, alerts pilots and vehicle operators when it is unsafe to enter a runway or taxiway.RWSL taps into the airport's surface surveillance system to monitor current and future traffic on runways and taxiways. Red lights embedded in runway and taxiway pavement illuminate when other traffic makes it dangerous to enter or cross a runway, or begin takeoff, the FAA said. In 2013, the FAA announced plans to expand the scope of the program to 17 airports. All 17 are to be operational next year. The agency said it is considering installing the system at more airports.

The FAA has developed a survey to assess whether the program is meeting expectations about cost, performance, schedule and benefits, according to NBAA, which noted that the findings will be compiled in a report accompanied by any potential recommendations for changes to the program.

"NBAA fully supports the FAA's effort to gather this information to improve the RWSL program in support of airport safety," said Bob Lamond, NBAA director of air traffic services and infrastructure. "The RWSL program represents an important positive step in improving runway safety and avoiding runway incursions."

http://ea.ecn5.com/Clicks/UUY2WlgzQnIrblNwdFJMRlJWOTNTWXF1ZEd2OU1NY0VFcWhaSng5OHJ6UE9vb0tNNExZd1ArNnFUb2NVNS9hVQ%3d%3d

Research: Sleep-Deprived Leaders Are Less Inspiring

Christopher M. Barnes

Leaders have demanding schedules, and often find themselves trading sleep for more work time – effectively trading away work quality to get more work quantity. Some of my recent research indicates that this idea of compromising quality applies to the concept of leadership as well, with important implications for the performance of your team.In a previous HBR article, I highlighted how a leader's poor sleep quality can increase the odds of being a jerk the next day, which in turn decreases team engagement. In this piece, I focus more on the positive side of leadership:charismatic leadership, in which leaders inspire followers, fostering an impression that the leader and the mission are extraordinary. Charismatic leadership is a powerful skill for any leader who wants to increase the performance of their teams.

There are two sides to the charismatic leadership coin: the leader and the follower. In my newest research (conducted with Cristiano L. Guarana, Shazia Nauman, and Dejun Tony Kong), I examine how sleep deprivation can undermine both sides of that coin. Our focus is on the role that emotions play in charismatic leadership.

Previous research indicates that when leaders show their teams positive emotions, it increases the odds that those individuals will also experience positive emotions, which in turn leads them to attribute charisma to their leader. In other words, leaders who smile often tend to have happy and inspired teams.

There are two ways that leaders can display positive emotions; either through the expression of their naturally occurring positive moods, or through a process of managing their emotions to improve their own mood (often by thinking of something happy or distracting one's self from whatever is making one unhappy). Both can potentially help a leader be more charismatic.

Unfortunately, sleep deprivation undermines both the experience of positive emotion as well as the regulation of emotion. As a result, sleep-deprived leaders are less likely to show positive emotion to their teams, and sleep-deprived team members will be less likely to experience positive emotion. Our hypotheses predicted that sleep deprivation of both leaders and team members can undermine attributions of leader charisma. In other words, sleep-deprived leaders are less inspiring, and sleep-deprived team members are harder to inspire.

My coauthors and I tested these hypotheses with a pair of laboratory experiments. Drawing from the idea of leader communication as a vector for charismatic leadership, in Study 1 (with 88 total participants), we assigned research participants to play the role of a study body leader giving a speech in a commencement ceremony. We gave students time to prepare their speeches, and then recorded them delivering the speech in the laboratory. Half of these students had a normal night of sleep before coming to the study (control condition). We partially sleep deprived the other half, such that they had about two hours less sleep than the participants in the control condition. We then had three evaluators rate the charisma displayed in the speech.

Consistent with our expectations, the sleep-deprived participants were lower in charisma than those in the control condition, and a failure in emotion regulation was a causal factor in the effect. In other words, sleep-deprived leaders are less effective at regulating their displays of positive emotion, and are therefore perceived as less charismatic.

In Study 2, we examined the flip side of the equation. Similar to Study 1, we had a control condition and a partially sleep-deprived condition (with 109 total participants). However, in Study 2, we put the students in the role of being a subordinate to the leader delivering a speech. We then had these participants watch some of the speeches from Study 1, and evaluate the charisma of the speaker. We found that sleep-deprived subordinates were lower in positive emotion, and because of this attributed less charisma to the leader giving the speech. In other words, sleep-deprived subordinates are grumpier and more difficult to inspire.

In sum, we found evidence that sleep-deprived leaders tend to be less charismatic (meaning they will have a harder time inspiring their teams), and sleep-deprived team members attribute less charisma to their leaders (meaning that they are more difficult to inspire).

This is important because many leaders *are* sleep deprived most of the time. Moreover, leaders often create sleep depriving conditions for the people they lead, such as requiring them to check their smartphones late at night. Thus, many leaders are sabotaging their own ability to effectively lead their teams. The bottom line is this: if you want to inspire, you and the people you lead all need to do your best to get a good night of sleep.

https://www.youtube.com/watch?v=z8rpaCSm708

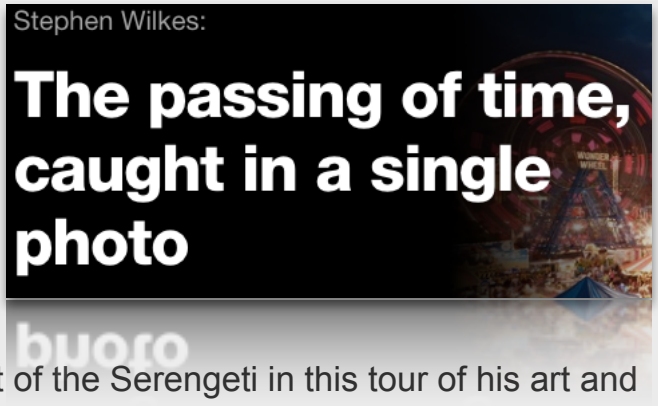
https://hbr.org/2014/11/research-your-abusive-boss-is-probably-an-insomniac

https://www.psychologytoday.com/blog/cutting-edge-leadership/201210/what-is-charisma-and-charismatic-leadership

http://psycnet.apa.org/psycinfo/2016-22728-001/

TED: Ideas Worth Sharing

Photographer Stephen Wilkes crafts stunning compositions of landscapes as they transition from day to night, exploring the space-time continuum within a two-dimensional still photograph. Journey with him to iconic locations like the Tournelle Bridge in Paris, El Capitan in Yosemite National Park and a life-giving watering hole in heart of the Serengeti in this tour of his art and process.



https://www.ted.com/talks/stephen_wilkes_the_passing_of_time_caught_in_a_single_photo