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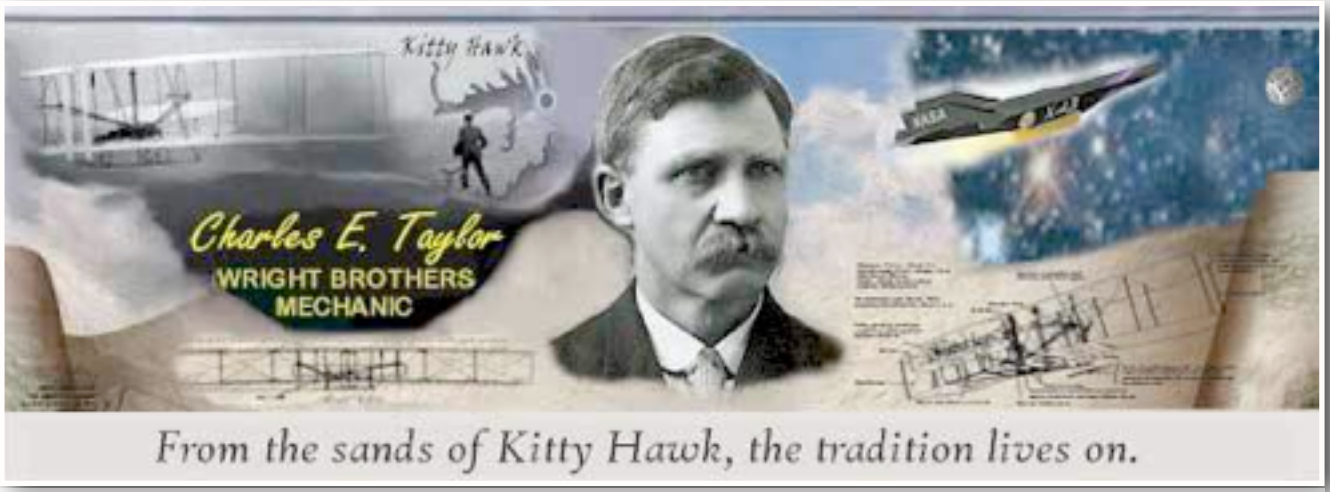

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In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:

Inside This Issue

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

Human Factors training is just common sense... Or is it?

Gordon Dupont - System Safety Services

Many times over the years, I have had class participants tell me that they don't need human factors training because it is just common sense.

Nothing could be farther from the truth. For example, look at the picture of the plumbing fittings on the right. It is just common sense that even your grandmother would know to tighten every single one of those fittings. Yet in my seven years of accident investigation I have met all too many very qualified, conscientious and loaded with common sense maintenance personnel who have left a line loose on an aircraft.

Human Factors training is nothing more than training the person on how to avoid the error they never intended to make. It calls for providing the person with information on what can set him/her up to make an error and more importantly, what "safety nets" the person can put in place in order to prevent an error from occurring or to prevent any error from becoming a accident. What is a "Safety Net"? A safety net is a regulation, a policy, a procedure or a practice which if in place, might break a link or prevent a link from forming. An example is: developing the habit to always go back three steps in your work after being distracted. In Human Factors training you are taught that your mind can work faster than your hands and thus you may think and believe you have completed a task when in fact you have not. Now take a look at our plumbing lines, a safety net of always using TorqueSeal to mark lines as you tighten each fitting would let you and others know that each fitting is correctly tightened. A dual inspection by a second person would also help ensure no lines were left loose.

To error is human ever since Eve made the error of eating the forbidden apple, we humans have been making human errors. To lessen errors being made we have tried to "Murphy-proof" everything we have come into contact with. For example; you can't start your car unless it is in neutral or park or you can't retract the landing gear on the ground. We also have come up with rules, laws and regulations to reduce human errors. I.e., You must stop at a red light even though common sense tells you there is no one around and it would be safe to not do so. If you do make an error we have put up warnings to prevent it from causing an accident or at least lessen its consequences. I.e., A warning horn to let you know that you forgot to lower the landing gear before you land or a seat belt to keep you Safer if you choose to ignore the horn.

Today we have "human-proofed" the aircraft to the extent that we have a whole new set of problems. The pilots and crew on many occasions don't even know what the aircraft is doing. We also have so many rules nowadays that there are rules for the rules and because there are so many, few of us can remember them all. But the fact still remains that human error is still our biggest problem and in order to lower human error we must provide the correct training to all humans in the organization because EVERY human can make a mistake even with years and years of experience.

But what is the correct training?

We believe that by providing training that each participant believes in, can understand and easily apply to his work, to be the correct training. There are some terrible training courses out there. Courses that pilots call "Charm School" and maintenance call "Hug a Tree 101". These courses are simply a waste of time and money.

Human factors training for everyone (maintenance and pilots included) center around the "Dirty Dozen." The Dirty Dozen consist of 12 contributing factors that can set you up to make an error. While human factors (HF) training will help lower human error we must also provide a work environment that is resistant to human error.

This is the role of a Safety Management System (SMS) of which HF training is a part of. HF training will help ensure the success of any SMS and is an integral part of any SMS seeking to lower human error to as low as reasonably practical. (ALARP).

http://system-safety.com/

The Human Factors Ladder Still Needs To Extend Higher

We have certainly come a long way in respect to human factors training for aircraft maintenance technicians. I have had the opportunity to work with organizations around the world teaching and helping to develop customized human factors programs. I have measured both quantifiable and qualifiable changes in attitudes and behaviors as a direct result of human factors training. That is the good news. Then there is the not so good news. I have also observed a somewhat disappointing common trend throughout many organizations—the lack of management participation in many of those human factors courses.

We understand the basic tenet that human factors training really does require participation from all levels, including all levels of management, if it is to be truly effective. The same can be said about Safety Management Systems (SMS). Yet, I have observed a number of situations where the opposite is true. Upper-level management believe that they do not need to participate in human factors training because, "We don't need it, it's only for mechanics," "We don't make mistakes,"

and, "We just don't have the time for this kind of training." Well guess what? Managers do make mistakes. In fact, some of the most vivid aviation accidents have been precipitated by management errors that occurred at the very highest levels of the organization (sometimes referred to as latent errors, see Reason's Swiss cheese model). But even as history repeats itself over and over again there still appears to be an element of "error insulation" for those in management positions. And this type of management mindset has been one of the remaining impediments to successful human factors programs.

When this type of management attitude permeates an organization it can have negative consequences. First, it can negatively affect an organizations' safety culture. Management is not only about making strategic business decisions and watching out for the bottom line—it also serves as a model of safety behavior that is clearly visible to employees at all levels of the organization. Thus if employees see that management is not buying into, or attending, human factors courses then it will certainly diminish the importance of human factors training to line employees. Managers need to not only "talk the talk" but also "walk the walk." Second, it can lead to a disseverance in organizational safety philosophies. This is where line employees and management may have divergent views on how things get done. It is also how negative norms are propagated. "Them versus us" is not an admirable (or profitable) organizational virtue.

To put this in perspective, one of the most memorable human factors courses I taught was so positively received by the aircraft maintenance technicians that they wished the training lasted a few more days! Yet, in general, they were disappointed (but not surprised) that the highest level managers did not attend the course. When speaking with a few of the aircraft maintenance technicians individually it was quite apparent that they thought the training would be futile because of management's lack of interest and participation in the course.

In summary, the purpose of this article was to highlight one of the ongoing weaknesses in the progression of human factors training programs both in the United States and around the world.

High-level managers need to understand that they can, and do, make mistakes. After all, to err is human. Management should attend a human factors class not only to learn about their own human performance limitations but also to understand what their aircraft maintenance technicians are learning in order to > reduce errors and thus reduce error-related expenditures. Once we truly have management commitment and it is more than organizational “lip service” then, and only then, can we say that we have reached the highest step on the human factors ladder.

Dr. Robert Baron is the President and Chief Consultant of The Aviation Consulting Group. He performs extensive work in his core specializations of Human Factors (HF), Safety Management Systems (SMS), Crew Resource Management (CRM), and Line Operations Safety Audit (LOSA). He consults with, and provides training to, hundreds of aviation organizations on a worldwide basis.

Timely Air Taxi Safety Investigation from Our Neighbor to the North

by John Goglia

As all of us in aviation know, much government, industry, and media time has been spent on the two Boeing 737 Max accidents that took the lives of 346 people in less than a five-month period between October 2018 and March 2019. In addition to so many lives lost, the accidents have called into question Boeing’s safety culture and whether the Federal Aviation Administration’s delegations of authority to manufacturers have limited its ability to perform effective oversight.

At the same time, the accidents have shone a harsh light on pilot training in developing countries, with many aviation experts believing that notwithstanding the issues identified with the aircraft's certification, >

better-trained pilots would have been able to save the aircraft from their fatal descents. Analyses of these accidents will continue for many months and years. The economic fallout on Boeing and the airlines whose fleets relied heavily on the 737 Max will also continue for months and even years, as will passenger impacts from delayed and canceled flights.But while the 737 Max story continues to be written, other intractable aviation issues remain that also deserve focused attention by government and industry. For that reason, I was glad to see Canada's recent Transportation Safety Board (TSB) special report on air-taxi safety issues. The Transportation Safety Board of Canada—officially the Canadian Transportation Accident Investigation and Safety Board—is Canada's equivalent of the U.S. National Transportation Safety Board. Its mission—like our NTSB's—is to conduct independent accident investigations and provide safety recommendations. Like the NTSB, it does not assign fault or determine liability for an accident.

Air-taxi accidents continue to be a concern, both in the U.S. and in Canada. The NTSB's Most Wanted List for the years 2019-2020 includes the entry, "Improve the Safety of Part 135 Aircraft Flight Operations." Because air-ambulance, air-taxi, charter, and on-demand operations are not required to adopt formal safety management systems (as Part 121 operators are) the NTSB recommends "all Part 135 operators should implement safety management systems and flight data monitoring programs that address the unique risks associated with their operations, and the FAA should ensure compliance with standard operating procedures." As of the latest update, all but one of the specific NTSB recommendations remain open.

Much as the Part 135 safety record remains a concern in the U.S., the same is true in Canada where, according to this latest report, "the air-taxi sector has more accidents and more fatalities than all other sectors of commercial aviation in Canada." While, of course, there are differences between flying air taxis in Canada and the U.S., the Canadian findings and conclusions might have a bearing on U.S. accidents and are worth considering if you operate an air taxi or work for one.

According to the report, the TSB's analysis of the period between 2000 and 2014 found that the type of occurrences that resulted in the highest numbers of aircraft fatalities—fixed-wing and helicopter—were flights that >

"began in visual meteorological conditions but proceeded to a point where the pilot lost visual reference with the ground." While this is not a particularly surprising finding, what was of particular interest to me was that the pilots in these accidents had a combined average of 5,000 hours of experience. As the TSB concluded, it does not appear that pilot experience is a mitigating factor in preventing these types of accidents. I am familiar with NTSB accident investigations where experienced pilots knew the weather along their route of flight was changing, even changing rapidly, and yet made the fatal decision to take off anyway, whether under company pressure or driven by their own desire to reach the destination.

And talking about experience not necessarily being synonymous with safe operations reminds me of the Gulfstream IV crash five years ago at Hanscom Field in Massachusetts. As I wrote about before, one of the most shocking findings I had ever seen in an NTSB report was that not only had the crew on the fatal flight failed to perform a flight control check before takeoff (and thus took off with the gust lock system engaged) but that it failed to perform complete flight control checks on 98 percent of its previous 175 flights. The pilot-in-command had more than 11,000 hours.

Back to the TSB report. The report further concluded that air-taxi accidents fell broadly into these categories:

- ***acceptance of unsafe practices*** *(e.g., flying overweight, flying into forecasted icing, not recording defects in the aircraft log, flying with unserviceable equipment, "pushing the weather," and flying with inadequate fuel reserves)*
- ***inadequate management of operational hazards*** *(e.g., inadequate response to aircraft emergencies, inadequate crew coordination contributing to unstable approach, visual flight rules flight at night, loss of visual reference in marginal weather conditions, scales not available for weight and balance calculations*).

While these are broad categories, I think they summarize well safety issues prevalent in so many aircraft accidents I have either worked on or accident reports I have reviewed. Not surprisingly, the report contains numerous recommendations to address these findings. While the recommendations are too numerous to spell out here,

I recommend reading the full report for insights that might be of help to your specific operations. Among the many important observations in the report, the role that clients and passengers have in the safety equation is significant and different from their role in other aviation sectors. And this is an area where charter associations and charter travel agents could play a role in educating air-taxi users not to apply undue pressure to pilots to launch a flight they're uncomfortable with.

While the complete list of recommendations from the TSB is too lengthy to repeat here, there is one I thought was worth highlighting. Not surprisingly, perhaps, the Canadian TSB also recommends that all commercial aviation operators be required to adopt a safety management system.

Sound familiar? Indeed, implementing SMS in Part 135 operations is on the NTSB's Most Wanted List for 2019-2020.

https://www.ainonline.com/john-goglia

http://tsb-bst.gc.ca/eng/rapports-reports/aviation/etudes-studies/a15h0001/a15h0001.html

https://www.ainonline.com/aviation-news/blogs/torqued-gulfstream-iv-crash-corporate-aviations-wakeup-call

Flight Deck Extra - Do You See What I See

Listen as aviation professionals discuss how critical it is not just to understand weather but also to understand how to know the limits of weather depiction. As you will hear, that can vary depending on where you are sitting.

In this conversation we will hear multiple points of view from:

- Dan Boedigheimer—Business aviation pilot and CEO of Advanced Aircrew Academy
- Dan McCabe—FAA air traffic controller based at Atlanta Center
- John Kosak—NBAA manager of weather programs, based at the FAA Air Traffic Control Command Center in Warrenton, Virginia

LISTEN TO THE EPISODE

Commitment vs. Compliance: How to get your team from "I have to do it" to "I want do it!"

By Jim Lara
Principal and Founder, Gray Stone Advisors

As a business aviation leader, how do you help each of your team members choose to be totally committed vs. simply being compliant—or worse yet, non-committal or ambivalent?

If you take a look at the Hierarchy of Commitment chart, a truly committed team member passionately says, “I will do it!” A compliant team member unenthusiastically says, “I can do it if I am told to.”
And a non-compliant person says, “I will not do it.”

The difference between commitment and compliance is about your team being “all in!” vs. “simply going through the motions.”

It’s about achieving stellar results vs. just getting buy-in.
Think of it as taking on a quest for excellence as opposed to just meeting the minimum performance requirements. Unfortunately, there’s no magic bullet to motivate everyone to be committed. It will take work and focus on your part.
Let’s examine some of the most critical ingredients to inspire your team members to perform in the “totally committed zone.”

Create a “Culture of Commitment”

You likely realize that, as a high-performance leader, you must motivate the members of your organization to perform in their areas of responsibility. You can’t do all the work yourself.

The inspiration to perform must come from within. To achieve that, you need to create a “culture of commitment.” This begins with letting your own personal values —your behavior and commitment—become a model for your team members. Remember, to be a leader, you must have followers and people won’t choose to enthusiastically follow and commit to people who are disingenuous. In short, you must “walk the talk.”

To create a “culture of commitment,” you need to clearly establish the direction and objectives of the organization. And, to be truly effective, the direction and objectives must be inspirational—almost larger than life. They need to offer real meaning and purpose to the work of your team.

As a result, your team members will be able to see that their individual and collective contributions play key roles, and are vital to realizing the organization's vision and mission.

Of course, merely defining direction isn't nearly enough. You will also have to provide the requisite resources: budget, your time, political capital, coaching, etc. And, you must also offer your team the third key ingredient: the removal of obstacles and barriers to their performance.

Assess "Fit" vs. "Fitness"

The engine of this "culture of commitment" is, of course, the people on your team. Here, the most important ingredients are "fit" and "fitness."
Whether a person is the right fit for the organization can only be assessed, whereas fitness can be both assessed and developed. If the fit isn't there from the onset, don't kid yourself–it won't get better with time. The individual simply doesn't belong on your team. Be decisive, and make the call early and honestly.
Remember that the other members of your team will be assessing you based upon the skill you demonstrate in choosing highly capable and compatible team members.

You should expect that each one of your team members will require some level of development to enhance their fitness. However, your failure to confront poor performance is one of the lethal threats to your organization.

Design Individual Performance Plans

Performance targets are always becoming more rigorous. Every team member will be expected to perform at higher and higher levels. Thus, designing and implementing Individual Development Plans (IDPs) is absolutely critical to the sustained success of the entire team. By investing in this effort, you'll be rewarded with your team members' commitment to you as their leader.

Inspire "Followership"

The final element that will influence the powerful commitment of your team is your prowess as a leader. Focus upon these seven components of leadership and you will inspire "followership" from the team!

1. **Know yourself**
   Have the courage to take that pragmatic and honest look in the mirror. If you don't truly know yourself, leading others will be virtually impossible.

2. Know each of your leadership team members

When you align the passions and interests of your people with the goals and objectives of the organization, your toughest task will be to stay out of the way.

3. Know what's going on

Stay connected with your team members. When you are interacting with them on an individual or group basis, stay completely in that moment. Develop a laser-like focus that will block out all tangential thoughts or activities.

4. Develop your team

Commit resources to help them develop their full potential. Commitment generates commitment.

5. Create a positive environment

Fear and distrust shuts down human creativity and limits our ability to think beyond the "survival mode."

6. Engage both your EQ and IQ

To motivate superior, committed performance, you have to win your team members' hearts and minds. The emotional quotient (EQ) of great leaders eclipses the intelligence quotient (IQ) every time. Your people must select you as their leader, an act that's driven by their passions and interests and how they perceive them to be in synch with your own.

7. Trust

It must flow both ways between you and the team. Without this critical element, making a big leap from compliance to being totally committed is simply impossible. So, there you have it. It certainly sounds simple and straightforward. But, in reality, it's neither.

Leading an organization to perform consistently in the "totally committed zone" requires, at a minimum, all of the elements highlighted above. You have to devote your total focus and commitment. The rewards of doing so, however, will be a highly aligned organization, functioning at peak performance levels. And, coincidentally, everyone will love what they are doing!

172 Lands Safely Missing Much Of A Wing

The NTSB has released its factual report on a 2018 incident that ended with the pilot of a Cessna 172 coaxing the aircraft ten miles to a safe landing missing four feet of the left wing and most of the trailing edge.

The pilot was uninjured. The aircraft was on a pipeline patrol south of Abilene, Texas, on Dec. 21, 2018, when it hit a tower guy wire. The pilot was able to maintain control of the plane and land at Abilene.

The aircraft was on an inspection flight from Temple, Texas, to Snyder, Texas, and had been in the air almost two hours when the pilot, who did not have an observer with him, felt the plane "pull to the left," according to the NTSB report. He later said he was looking down at the time, writing observation notes, when the incident occurred. He said he never saw the wire. The impact took off the section of wing just outboard of the left aileron and the trailing edge peeled inboard almost to the fuselage. The pilot later reported that in the absence of a second crew member to note observations, he could have waited to make his notes.

https://app.ntsb.gov/pdfgenerator/ReportGeneratorFile.ashx?EventID=20181223X85212&AKey=1&RType=Final&IType=LA

Poor maintenance fatal for Quicksilver pilot

The non-certificated pilot was departing in the experimental light sport airplane when the engine lost power. He attempted to return to the runway, but the Quicksilver hit trees and a fence west of the departure end of the runway at the airport in Cleburne, Texas. The pilot died in the crash.

Examination of the airplane revealed that the fuel line between the fuel tank and engine was brittle and cracked and had broken. Both carburetor bowls were dry.

Additionally, putty was found at the fuel tank outlet connector, consistent with a repair to prevent or fix a fuel leak, and the engine air filter was dirty.Although no maintenance records were located, the condition of the engine and its components suggested that it was not being properly maintained.

It is likely that the engine experienced a total loss of power due to fuel starvation as a result of the broken fuel line. The loss of engine power prevented the pilot from reaching a suitable landing area.

Probable cause: An engine loss of power due to fuel starvation from a broken fuel line between the fuel tank and the engine, which prevented the pilot from reaching a suitable landing area. Contributing to the accident was the inadequate maintenance of the engine and its components.

NTSB Identification: CEN17LA368

This September 2017 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.

Audit: FAA needs to improve oversight to address maintenance issues at Allegiant Air

Following an audit, the Office of Inspector General concluded that the FAA needs to improve its oversight to address maintenance issues impacting safety at Allegiant Air.

Low cost airline Allegiant Air, the 11th largest passenger airline in the United States, grew faster than the airline industry as a whole in 2018 by carrying approximately 14 million passengers. However, incidents at this air carrier - including a series of in-flight engine shutdowns, aborted takeoffs, and unscheduled landings - have raised concerns about its maintenance practices. The Office of Inspector General (OIG) of the U.S. Department of Transportation thus initiated an audit in 2018 to assess FAA's processes for investigating improper maintenance practices at Allegiant Air. Specifically, FAA's (1) oversight of longstanding maintenance issues impacting safety at Allegiant Air and (2) process for ensuring Allegiant Air implemented effective corrective actions to address the root causes of maintenance problems.

The OIG found that since 2011, FAA inspectors have not consistently documented risks associated with 36 Allegiant Air in-flight engine shutdowns for its MD-80 fleet or correctly assessed the root cause of maintenance issues. This was because inspectors did not follow FAA's inspector guidance that requires them to document changes in their oversight once they have identified areas of increased risk.

Also, FAA's Compliance Program and inspector guidance do not include key factors related to carriers' violations of Federal regulations. Specifically, they do not contain provisions for inspectors to consider the severity of outcomes when deciding what action to take following a non-compliance. As a result, FAA is missing opportunities to address maintenance issues and mitigate safety risks in a timely manner.

Nine **safety recommendations** were issued to the FAA.

New Animation Added to Runway Safety Simulator

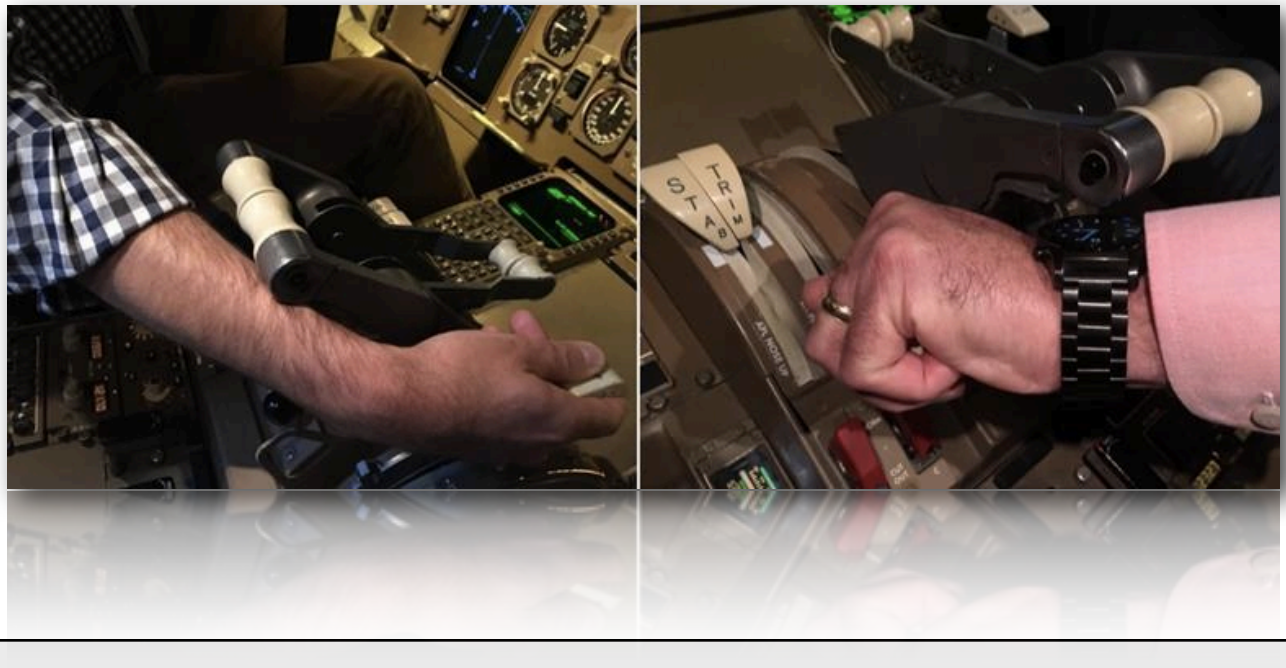
A new animation titled “Heads Up, Eyes Out” was released this week on the Runway Safety Pilot Simulator (www.runwaysafetysimulator.com). The animation highlights the importance of planning the taxi in a way that enables your continued vigilance. The simulator site also now contains a link in the Resources Tab to the new Runway Safety Simulator course (ALC-573), on www.faasafety.gov. By the Runway Safety Pilot Simulator through this course, you can achieve WINGS credit!

http://www.runwaysafetysimulator.com/

http://www.faasafety.gov/

Try the course today: https://faasafety.gov/gslac/ALC/course_content.aspx?enroll=true&cID=573

Atlas 767 crash probe considers whether pilot nudged crucial switch



Captain reaching for the flaps (left) and the first officer for the speedbrake (right)

Investigators have carried out a series of observations to examine whether pilots of an Atlas Air Boeing 767-300 freighter could have accidentally activated a go-around switch while operating other flight controls.
The 767 entered go-around mode while descending for approach to Houston on 23 February, apparently triggering an in-flight upset during which the aircraft was pushed into a steep dive.

While the US National Transportation Safety Board has not conclusively established the reason for the go-around activation, it has examined various human factors scenarios using a 767 simulator in Miami.

Along with the NTSB, representatives from Boeing and Atlas Air took part in the simulations which replicated the aircraft's approach path to Houston.

Part of the study monitored various hand and arm positions of the captain and the first officer as they operated controls – including the captain's reaching behind the throttles to grasp the flap lever on the right, and the first officer's similarly reaching to activate the speedbrake on the left.

The tests considered not only accidental interference from the pilots' arms but also the possibility that a go-around switch – located on the rear of the thrust levers – could have been brushed by a wristwatch, or bumped during turbulence.

No specific evidence has emerged of such a scenario, but the inquiry notes that air traffic control had instructed the aircraft to expedite a descent to 3,000ft about 2min before the go-around mode activation, and that the speedbrake was subsequently extended.

Atlas Air's crew operating manual recommends that the flying pilot should keep their hand on the speedbrake while in use, to prevent its being left extended when no longer required.

The inquiry says the speedbrake was recorded as retracting a few seconds after the go-around mode activation, and just before the crew reacted with initial exclamations over the aircraft's unexpected behavior.

Atlas Air has not received any safety reports, prior to the accident or since, describing inadvertent activation of go-around mode on the 767. The carrier's crew operating manual does not have specific procedures for inadvertent selection of a go-around switch.

Investigators obtained provisional information on other inadvertent go-around selection incidents through a request to NASA's aviation safety occurrence database. While the extent of such events is not clear, the request returned data on 11 incidents involving various aircraft types.

The inquiry is still analyzing the findings from the simulator human factors study.

Simulation exercises were also carried out to assess the forces needed to override the autopilot and stop trim activation during an inadvertent go-around, check autopilot and autothrottle indications, and document stall-recovery techniques.

NHS hospitals to employ safety experts to tackle thousands of avoidable mistakes

New nationwide effort is aiming to save 928 lives and £98.5m across the NHS

Hospitals will be required to employ patient safety specialists from next April as part of efforts by the health service to reduce thousands of avoidable errors every year.

NHS trusts will be told to identify staff who will be designated as the safety specialist for each organization.

These workers, who will get specific training and work as part of a network across the country, will help to tackle a fragmentation in the way safety issues are dealt with in the NHS and ensure nationwide action on key safety risks is coordinated.

The proposals are part of a national patient safety strategy which is aiming to save 928 lives and £98.5m across the NHS, as well as reducing negligence claims by £750m by 2025.

The specialists will be identified from existing staff, with part of the role focused on embedding a so-called "just culture" approach to safety. This means reducing blame, supporting staff who make honest errors and tackling systemic causes of mistakes.

The safety specialists will also be expected to bring a "human factors" approach to safety in the NHS. Human factors is a field of safety science used in other industries such as aviation industry, where human behavior in certain situations is examined to try and engineer solutions that make it less likely people will make mistakes.

Hospitals are also being told to reform how they respond to national patient safety alerts, issued by national organizations after mistakes where a potential solution has been found.

Despite the system operating since 2001, the NHS sees more than 2 million incidents reported every year with more than 10,000 errors leading to severe harm and death to patients.

Many incidents are repeated despite previous warnings and recommendations of action.

Each of the new safety specialists will be expected to "coordinate and implement actions required" from safety alerts and to record when those actions have been completed.

Under the plans, out for consultation, NHS England said it "envisages the establishment of a network of patient safety specialists, one in each provider, to lead safety improvement across the system"

It added: "We therefore propose to include a requirement on each provider to designate an existing staff member as its patient safety specialist."

The NHS's national director for patient safety, Aidan Fowler, has said he wants to be more "directive" over safety actions in the NHS and reduce the variability in how the system responds.

The changes are part of the NHS's response to a report by the regulator, the Care Quality Commission (CQC), which examined why mistakes were not being prevented.

In a report last year, the CQC's chief inspector of hospitals, Professor Ted Baker, said the NHS needed a culture change, adding: "Too many people are being injured or suffering unnecessary harm because NHS staff are not supported by sufficient training, and because the complexity of the current patient safety system makes it difficult for staff to ensure that safety is an integral part of everything they do."

He added: "Staff know that what they do carries risk, but the culture in which they work is one that views itself as essentially safe, where errors are considered exceptional, and where rigid hierarchical structures make it hard for staff to speak up about potential safety issues or raise concerns."

A spokesperson from the NHS told *The Independent:* "The NHS is committed to being a world leader in patient safety, and developing a specialist contact point in hospitals and mental health trusts should drive forward improvements and learning by knitting together local and national efforts to keep patients as safe as possible."

A Healthy and Joyous New Year to All !