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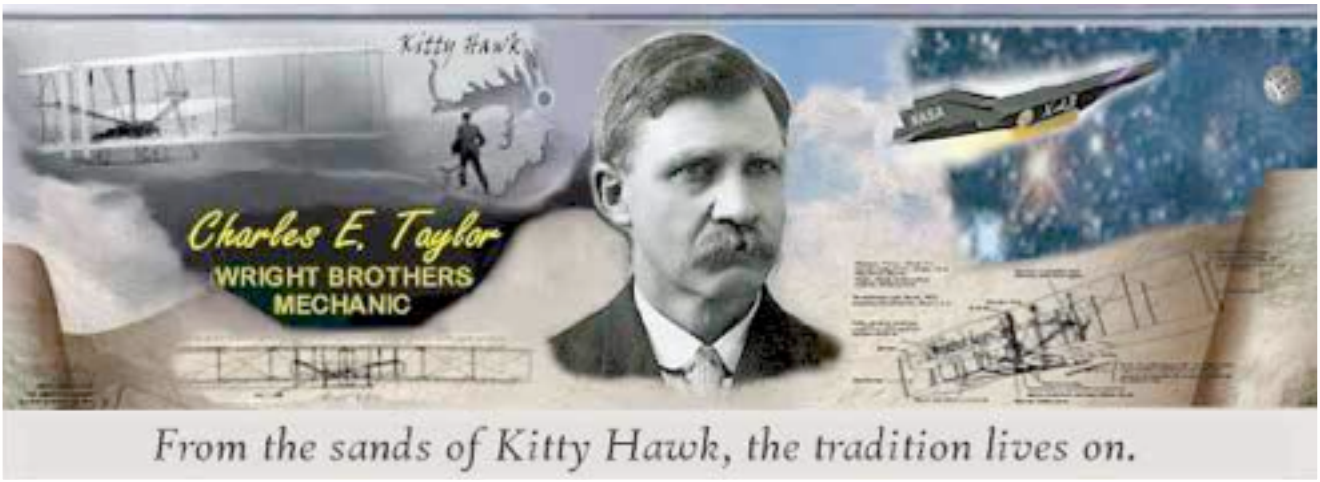


From the sands of Kitty Hawk, the tradition lives on.

Hello all,
To subscribe send an email to: rhughes@humanfactorsedu.com
In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:

Computer Failures Are Probed in Jet Crash

In a photo from Brazil's navy, a diver stands on a piece of debris from Air France Flight 447, as searchers troll a vast area of the Atlantic Ocean for the plane's 'black box' flight recorders.

Aviation investigators, running out of time to find the "black boxes" with key information on the crash of Air France Flight 447, suspect a rapid chain of computer and equipment malfunctions stripped the crew of automation today's pilots typically rely on to control a big jetliner.

An international team of experts is building a scenario in which it believes a cascade of system failures, seemingly beginning with malfunctioning airspeed sensors, rapidly progressed to what appeared to be sweeping computer outages, according to people familiar with the probe. The Airbus A330, en route from Rio de Janeiro to Paris, crashed into the Atlantic Ocean during a storm 26 days ago, killing all 228 aboard.

Based on initial physical evidence and information from automatic maintenance messages sent by the aircraft, these people said, the plane bucked through heavy turbulence created by a thunderstorm without the full protection of its flight-control systems -- safeguards that experts say pilots now often take for granted.

Relying on backup instruments, the Air France pilots apparently struggled to restart flight-management computers even as their plane may have begun breaking up from excessive speed, according to theories developed by investigators.

The investigators stress it is too early to pinpoint specific causes. But whatever the eventual findings, the crash already is prompting questions about how thoroughly aviators are trained to cope with widespread computer glitches midflight.

If such emergencies do occur on today's increasingly automated jetliners, many industry safety experts wonder how proficient the average crew may be in trying to rely on less-sophisticated backup systems.

"The difficulty is, they're rare enough that pilots can be unprepared, but likely enough to pose a real threat," according to Bill Voss, president of the Flight Safety Foundation, an industry-supported group based in Alexandria, Va. "We need to examine how to deal with automation anomalies."

Maintenance Error Caused Ohio Plane Crash

Scene of a small plane crash in West Carrolton Wednesday June 17. Leonard Notek, a 37-year-old commercial pilot and graduate of Wright State University and Beavercreek High School, was flying a Helton Lark 95 to Reno, Nev., where a buyer had purchased the aircraft.

Improper installation of spark plugs during an annual inspection caused the plane crash that killed a local graduate last year, according to The National Transportation Safety Board. The lack of suitable terrain during the forced landing was also a contributing factor, the board determined.

The accident occurred June 17, 2008, on the first flight after the inspection.

Leonard Notek, a 37-year-old commercial pilot and graduate of Wright State University and Beavercreek High School, was flying a Helton Lark 95 to Reno, Nev., where a buyer had purchased the aircraft. Notek was a resident of Castle Rock, Colo., and a pilot for Frontier Airlines.

Notek's girlfriend, Nikki Romero, was also aboard the plane when it crashed. She was taken by CareFlight to Miami Valley Hospital for her injuries. She was a flight attendant for Frontier Airlines at the time.

The post-accident inspection of the plane and engine showed the number four cylinder sustained impact damage in the area to the top spark plug. The top spark plug on this cylinder was found separated from the engine, and the top spark plugs on the remaining cylinder were loose.

Shortly after takeoff from the Moraine Airpark on the morning of June 17, 2008, the plane's engine lost power and the plane clipped a utility pole and rolled into a yard on Catherine Avenue.

Notek was pronounced dead at the scene.

FAA Safety Alert Focuses On Tire Pressure

Basic Item May Have Caused A Fatal Crash

While this particular Safety Alert For Operators stemmed from a fatal involving a Learjet Model 60, it's good advice for us all. And it's more critical than improving gas mileage. This SAFO emphasizes the necessity for operators of all aircraft, and especially the Learjet Model 60, to maintain the correct tire pressure. This is done by checking cold tire pressure at the intervals recommended by the manufacturer.

On September 19 of last year, a Learjet Model 60 departing the Columbia South Carolina Airport overran the runway when the crew attempted to reject the takeoff. The two crewmembers and two of the four passengers were fatally injured, the other two passengers suffered serious injuries. The aircraft was destroyed by extensive post-crash fire. The initial investigation revealed tire debris and portions of the airplane's components on the runway. It is possible that low tire pressure could have led to a tire failure.

The tires on the Lear Model 60 are designed to carry heavy loads at high speeds. Problems caused by incorrect tire pressure can lead to catastrophic failure of the tire(s). Over inflation of a tire can cause uneven tread wear, reduced traction, make the tread more susceptible to cutting, and can increase the stress on aircraft wheels. Under inflation of a tire can cause uneven tire wear and greatly increases stress and flex heating in the tire, which shortens tire life and can lead to tire blowouts.

It is imperative pilots understand the dangers of improperly inflated tires. Pressure checks of tires are most meaningful at ambient temperature when tires have been at rest for at least two hours since their last use. When tire pressure is checked with a gauge, the gauge must be calibrated.

The FAA recommends all pilots become familiar with this SAFO, and be sure to check tire pressure as recommended. In other words, don't just "kick the tires and light the fires."

Gas Trimmer Torches C-182

Although it happened almost a year ago, the photos are just making the of the Internet now and the lesson they carry are timeless. This almost-new Cessna 182 was destroyed last September at Munising, Mich., after gasoline in-line trimmer being carried on board ignited.

According to the NTSB report the pilot put the weed whacker on the back seat for a short and uneventful flight but that all changed on arrival at Munising.

The pilot, who was alone in the aircraft, told investigators that after he landed he smelled a strong odor of gasoline. While he was taxiing, the engine end of the trimmer fell off the back seat and into the rear footwell--right where the pilot's cellphone was charging.

As the pilot wrestled the machine back onto the seat "something caused it to ignite," he is quoted by the NTSB as saying. Probable cause of the destruction is listed as "inadequate preflight planning/preparation by the pilot to carry a hazardous material aboard an airplane that resulted in a fire during an after-landing taxi."

Watch Out! NTSB Updates Report On Runway Incursion At Logan

Construction Crew Crossed Active Runway

The NTSB has released a preliminary report for a runway incursion, in which a construction vehicle crossed an active runway at Boston's Logan International Airport as a USAirways Airbus A320 was on its takeoff roll.

According to the NTSB report:

On Thursday, June 18, 2009 at about 0636 eastern daylight time, a runway incursion occurred at the General Edward Lawrence Logan International Airport (BOS), Boston, Massachusetts involving a USAirways Airbus and a construction vehicle. The construction crew crossed runway 15R at taxiway M without approval as the Airbus was on departure roll.

According to the Federal Aviation Administration (FAA), the operator of a Ford Explorer, was not in radio communication with BOS tower air traffic controllers and had not been cleared to cross runway 15R. The Airbus rotated approximately 500 feet from the intersection of runway 15R and taxiway M as the vehicle cleared the runway edge southbound on taxiway M. The FAA stated that it appeared the tower controller was aware of the vehicle operating on taxiway M but not its intension to cross. The ground radar alerted the controllers of the event.

Taxiway M is currently under construction and runway 15R is occasionally closed due to the construction. The Airport Authority designates the runway closure with signage which was not in place during this event indicating that the runway was an active runway. The Airport Authority also indicated that all personnel were briefed that the runway was active. The driver of the vehicle indicated that he had not been briefed to that fact.

The driver has been suspended from driving on the airport pending an investigation.

Emirates incident highlights electronic flight bag human factors

The recent near-catastrophe in which an Emirates Airbus A340-500 was lost on take-off after the first officer miss-entered the aircraft's weight by a single digit in the electronic flight bag has highlighted the human factors issues associated with this new technology.

That incident at Melbourne was only the latest of several known cases involving widebodies, and insiders say similar errors on narrowbodies are even more common but go unreported because of their greater performance margins.

Dan Pendergast of Arinc says: "Regarding Emirates or any other case, even though certain technology was involved, usually there are multiple factors and you cannot point at any one part as a major factor.

"One of the roles of the EFBs is to improve safety - to try to automate as many things as possible that could be subject to human error and could contribute to an accident.

"I think the industry in general should view this technology as a way, just like ACARS [datalinking], to reduce pilot workload and we have to be very careful as an EFB is implemented, in how it is presented to the crew and how much work they have to do on it. It is a powerful tool."

Joe McGoldrick, chief executive of Aircraft Management Technologies, stresses the importance of cross-checking, saying that, with his company's software, "at key points in the flow the captain has to sign off what the first officer entered".

Lufthansa Systems highlights the robustness generated by a heavily integrated EFB, which makes it more likely that a data error will be caught due to its incompatibility with other data. Marc Szepan, senior vice-president airline operations solutions, says: "In our take-off performance module, if you enter a weight value that is not possible or the aircraft is not certified then the module would not allow it.

"The value of the EFB, if you have a fully integrated EFB solution in which everything talks to each other, is that there is much richer potential for cross-checking. If you have a fully integrated EFB then in the take-off performance module where you entered, say, 250t instead of 280t, it will cross-check with the weight and balance module which has determined that related to the zero-fuel weight and the number of passengers it would not work and the warning will flash up.

"We have tried in as many ways as possible to leverage that possibility with some fairly sophisticated cross-checks that provide the maximum degree of check against values that are not realistic."

Diligence in Mundane Things

Let's say you want your doctors and surgeons to provide a higher level of health care, compared to doctors and surgeons at other hospitals. Dr. Atul Gawande, M.D., surgeon, and author of the book Better: A Surgeon's Note on Performance has studied how organizations with difficult missions learn to do their jobs better, and save lives. Dr. Gawande has examples of incredible successes in the past 10 years. Specifically, Dr. Gawande looked at a very wide spectrum of medical improvements: battlefield trauma care in Iraq, a center of cystic fibrosis care, and cancer hospitals, and hospital fighting deaths from hospital-induced infections, and more.

Dr. Gawande found a common thread. New discovery? New procedure? More technology? More doctors? Younger or older doctors? Better pay and benefits? More assistance? No! What works is diligence. Nothing matters as much as simple diligence in the mundane things.

What's diligence? Diligence means: Do the little, everyday, well-known things the right way, every time as soon as possible.

Battle field deaths are down by a factor of 3. One center's cystic fibrosis longevity is doubled. One hospital reduced hospital-induced infections by 90%.

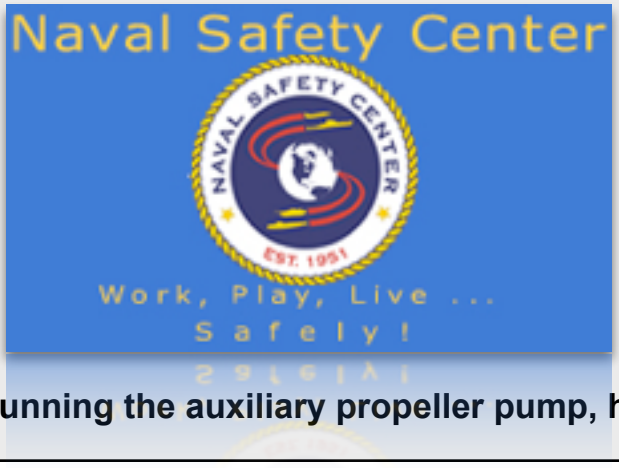
The winning programs did nothing new. They just did the well-known things with more diligence. Small improvements on the margins yielded huge overall successes.

I'd compare airframe, engine and avionics technicians to doctors. We think we're kinda like brain surgeons but only our patient is the aircraft. Maybe we can get better the same way the best doctors get better. So how do we get to be safer maintainers? Since the alternative is violations, incidents, and accidents, the best answer is important. It boils down to sweating the small stuff so you don't have to sweat the big stuff.

The small stuff consists of diligently working on habits that promote safe and compliant behavior. Abide by all the 'cautions' and warning's' while performing the task. Know the capabilities of all the crewmembers working with you. Take nothing for granted and be assertive to speak up when in doubt. Ensure you have your human factors safety nets along with you as you work in the 'region of risk.'

The FAA's AMT Personal Minimums Checklist are excellent safety nets to use before starting and after the completion of your task. Be diligent to do the little, everyday, well-known things the right way, every time, every task. Just for today and everyday – ZERO ERROR!

Maintenance Mishap Summary



Our first mishap reminds me of the poster that depicts 'BC' removing the from a tree branch followed by the tree branch whacking BC over head, with the caption reading "if you don't know what it is, don't mess with it". In our first scenario, we have an aviation electrician's mate troubleshooting a propeller that would not feather/unfeather. After running the auxiliary propeller pump, he

attempted to verify the servicing level of the propeller control unit. Doing so, he removed the pressurized cap on the prop control vice the unpressurized cap. Once the cap was removed, the hydraulic fluid shot out at with force, splashing the technician in the eyes and face. Fortunately, the technician didn't fall off the maintenance stand or sustain serious injury to the eyes. The technician was able to walk to an eyewash station to flush eyes with no further medical attention needed.

Although our next incident doesn't involve personal injury, a training sortie was lost due to inattention to detail and lack of communication in this next scenario.

A hornet squadron inducted a set of night vision goggles (NVG) for scheduled preventative maintenance (PM) to the local Fleet Readiness Center (FRC). While conducting the scheduled maintenance the FRC had replaced the lenses on the suspect NVG and returned it RFI to the activity. Subsequently, the NVG was then issued to the pilot for his night bomb and strafe flight after the NVG was operationally checked in the work center.

Once airborne, the NVG was powered on the hornet's HUD (heads up display) then became non-visible. The pilot troubleshot the system, but was not able to get the NVG to work properly. At that point, the pilot had no choice but to abort his training mission and return to base. It was later determined that the FRC had installed helicopter lenses instead of the required hornet lenses when PM was perform. Further investigation revealed that improper lenses where placed on order for replacement.