Aviation Human Factors Industry News

Volume XIII. Issue 05, March 05, 2017

Hello all,

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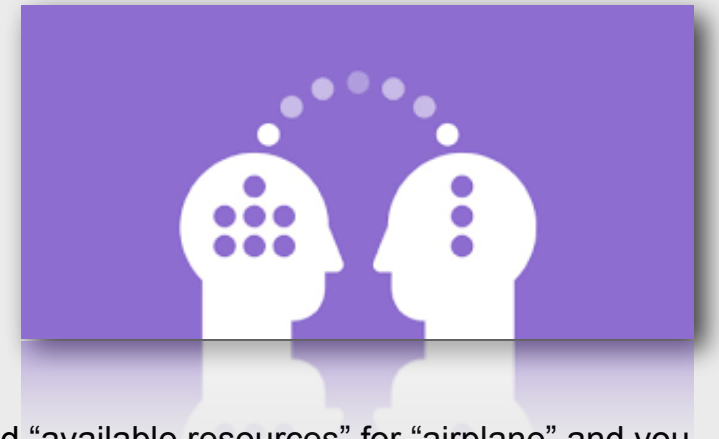
In this weeks edition of *Aviation Human Factors Industry News* you will read the following stories:

What the Fire Service can Learn from the Aviation Industry



"In so many areas of life, you need to be a long-term optimist but a short-term realist. That is especially true given the inherent dangers in aviation. You cannot be a wishful thinker. You have to know what you know and don't know, and what your airplane can and can't do in every situation." That quote is from Captain Chesley "Sully" Sullenberger.

Substitute "firefighting" for "aviation" and "available resources" for "airplane" and you have a quote that would serve any incident commander at a fire scene well.Aviation has transitioned from a daredevil pastime to the safest mode of transportation. Yes, there are still terrible air crashes, but overall, commercial aviation is the safest way to travel. According to *Flight Global*, an industry newsletter, in 2014 aviation was twice as safe as it was in 2004. It is 5 times safer than it was in 1984, 10 times as safe as in 1974, and 300 times safer than in 1950. I think you would agree that this is an amazing *aggressive* record of risk reduction

Are there risk management lessons that the fire service can learn from aviation? Aviation changed its culture to make this safety improvement.

The fire service has already adopted some concepts from aviation. Many of you are no doubt are familiar with Crew Resource Management and Situational Awareness as they apply to the fire service. Check the Suggested Reading section at the end of this article for more information.

The fire service needs clear rules of engagement for high-risk operations. Aeronautical engineering informs flying; Fire science needs to inform fireground operations

Pilots get frequent check rides to monitor their proficiency. Why not the same for incident commanders? The purpose of proficiency checks is to identify needed training, not to discipline.

Aviation is a highly regulated industry with procedures that need to be followed carefully before an aircraft moves. Freelancing is definitely not allowed. Imagine a pilot taxiing an airliner to the runway without clearance. The fire service needs to have a zero tolerance for freelancing.

The top three priorities of flying are aviate, navigate and communicate. Three priorities of fireground command are manage, plan and communicate. Management of the incident includes span of control, accountability and scene safety. Planning includes gathering information, making forecasts of future events, and planning actions using strategic tools. Communicate includes making sure that everyone is aware of the plan and safety zones.

When things start going wrong in the air, remember to fly the aircraft. When things start to go wrong on the fireground, remember to manage the incident.

Captain Sullenberger had a fortune from a fortune cookie taped neatly in his Jeppesen Airway manual for years. It read: *"Better a delay than a disaster."* In trying to meet the response guidelines of NFPA 1710 and 1720, some firefighters do not wear seatbelts or complete PPE and figure they don't have time to do a 360. Would it make you feel secure if the captain of your flight skipped checklists in order to maintain an on-time schedule?

Crew resource management

The road to a safer aviation industry began in earnest after the worst air disaster in history. On March 27, 1977, two 747's crashed in Tenerife, Canary Islands. A KLM 747 was cleared to hold on the only runway while a Pan Am 747 taxied on that runway. The KLM captain thought he was cleared for take-off. The co-pilot apparently did not want to contradict a senior captain. As a result, 583 people died. Out of the tragedy came crew resource management (CRM), which gave flight crews the ability to question the actions of a captain without fear of retribution. Previously, the captain was beyond question in the hierarchy. Substitute fire chief for captain and you have the structure of some fire departments. CRM is a team approach to danger recognition and workload allocation. Initially, some pilots derided it as "charm school" but it has proven itself a very effective tool for accident reduction. What would things look like if the incident commander and another senior officer were trained to manage the scene together within the hierarchy like a captain and first officer?

In the cockpit, there is a clear division of functions. The Pilot Flying (PF) is responsible for flying the aircraft, even if the autopilot is on. Any functions other than flying the aircraft are handled by the Pilot Monitoring (PM). The transfer of roles is done verbally with confirmation. The PF looks at the PM and says "your aircraft." The PM responds "my aircraft."

What might this look like on the fireground? The IC Managing would turn over control to the IC Supporting any time he or she needed to do something other than actively managing the scene. This may be as simple as taking a bathroom or food break. "Your fireground" and "my fireground" would positively transfer control. At smaller incidents, the Incident Safety Officer could fill this role.

Of course, the functions of the ISO still need to be done. At a larger incident, someone who has no other responsibilities would fill this position. In the cockpit, the flight plan is the agreed upon course and on the fireground it's the incident action plan.

Human factors analysis

After every aviation accident, there is an investigation that goes beyond what happened and looks at why it happened. What was the crew's state of mind prior to the accident? Did fatigue, distraction, or any other human factors play a role. Saying that the aircraft was too low and struck the mountain is not sufficient any more then saying that firefighters were in the fire building when it collapsed without looking at why they were there at that time.

Five dangerous attitudes

The FAA commissioned a study by Embry Riddle Aeronautical University. They discovered that five attitudes keep showing up in incidents involving poor pilot decision-making. I have added examples of similar attitudes that some in the fire service have and the antidote to those attitudes.

***Anti- Authority**: "You can't tell me what to do!"*
Fire Service: "Forget what they told you at the academy, kid, we'll teach you how we do things here!"
Antidote: "We are disciplined professionals."

***Impulsivity**: "Do something quickly!"*
Five Service: Quick attack mode without doing 360 first.
Antidote: Gather information quickly and make an informed decision

***Invulnerability**: "It can't happen to me (us)"*
Fire Service: "We have been doing it this way for years without any problems."
Antidote: "It can happen to us! We need to always be looking for ways to manage risk better."

***Macho**: "I can do this!"*
Fire service: "We can do anything!"
Antidote: "Let's see how we can do this safely."

***Resignation**: "What's the use?"*
Fire Service: "This is a dangerous job, we just have to accept 100 LODDs a year, and we can't do anything about it."
Antidote: "We can protect our own better. There is always room for improvement."

Confirmation bias

Confirmation bias is the human characteristic of searching for, and interpreting information in a way that confirms one's preconceptions. On September 3, 1989, Varig flight 254 to Belem ran out of fuel and crashed in the Amazon jungle. The crew had entered the wrong heading into the flight computer and ignored any evidence that they were not where they thought they were, including common sense observations such as the location of the setting sun. They were convinced that they were close of Belem, when in fact they were 600 miles away. The parallel in the fire service is being convinced that the fire is on the ground floor when in fact, it is in the basement.

Checklists

Before the crew of an aircraft moves from the gate, takes off, or lands, a checklist is completed. They are also used in any emergency. Would the fireground be a safer place if the IC and Co-IC completed a quick checklist before committing firefighters to an interior attack? A little known fact is that even before he became famous for the Miracle on the Hudson, Captain Sullenberger was consulting with hospitals on crew resource management and checklists to make surgical procedures safer.

High-reliability organizations

One of the characteristics of a *High-Reliability Organization* (HRO) is the preoccupation with failure. Pilots are constantly checking instruments and looking for a place to land if the engine(s) suddenly quit. Would the fireground be safer if the command team was always thinking about what could go wrong and what they would do about it?

The fire service is historically not an HRO. Reading NIOSH fatality reports reveals a small cluster of issues that are repeated over and over. Following a tragic airline disaster, imagine the airline industry saying: “Catastrophic airline crashes are the unfortunate cost of doing business in a high-risk environment.” Raise your hand if you would be comfortable flying your family across the country.

Every time there is a crash, it is thoroughly investigated, even going so far as to rebuilding the aircraft in a warehouse. The FAA, the manufacturer, and the airline unite with a single mission: *To make sure what caused the crash never happens again.* It is this attitude, that passenger fatalities are unacceptable, that has made air travel as safe as it is. The other component is that after the cause is determined, action is taken. The aircraft manufacturer may change the design of a part or system, change a maintenance procedure, or make some other modification that will make their aircraft safer. Airlines will change crew training and supervision because of an accident. The FAA will send out Safety Alert for Operators (SAFO) as needed.

The purpose of all of these measures is to make sure that everyone affected knows what to do in order to make sure that the accident isn't repeated. The fire service has a way to go in this regard. Battalion Chief. Mark Emery looked at NIOSH reports and found that the same causes were present over and over again ("13 Fireground Indiscretions," *Firehouse,* March 2006). There are no new ways to crash an airplane. There are no new ways to kill a firefighter.

Chief Eric Tomlinson wrote an excellent article in the April 2016 issue of *Firehouse* about using aviation-like accountability on the fireground. There are clearly more things that can crossover.

Call to action

Quote from *Highest Duty* by Captain Sully Sullenberger:

"*I am trained to be intolerant of anything less than the highest standards of my profession. I believe air travel is as safe as it is because tens of thousands of my fellow airline and aviation workers feel a shared sense of duty to make safety a reality every day. I call it a daily devotion to duty. It's serving a cause greater than ourselves."*

The old days of cowboys in the cockpit were certainly more exciting and fun than today with compliance being the criteria upon which pilots are judged. That being said, I don't think anyone would seriously advocate for a return to "the good-old days." Across the fire service, we need to make sure that we are, at all times, disciplined professionals. No more freelancing cowboys or non-compliance with safety rules. Adapt CRM whole-heartedly. Make training and recertification mandatory. Just because someone has been doing something for 30 years does not automatically make it a best practice.

How can you be an agent for change? Gandhi said, "Be *the change you want to see in the world.*"

Firefighters: Wear your PPE and fasten your seatbelt. Know and follow your departments SOPs. Do not speed or race other companies to the call. Be prepared to respectfully point out safety concerns to company officers and chiefs. Seek out training opportunities.

Company officers: Use Crew Resource Management principles. Make sure your crew follows SOPs. Lead by example. Bring up safety concerns immediately.

Chief officers: Make sure that cultural practice is in accordance with your SOPs; if not change one or the other. You are responsible for your department's culture—own it!

One of the maxims of aircraft accident investigation is: "There is always more than one cause." Generally, there is a chain of events that lead to an accident.

If any one of them had not occurred, the accident would not have happened. Redundancy, checklists, warning systems and constant monitoring are employed to break the chain that could lead to an accident. An example of this we already use is cross-checking your partner's PPE before entering the hazard area. Review your department's procedures to see if you can insert other chain breakers into your operations.

Everyone should review Close Calls and NIOSH reports to see what you can do to prevent a repeat. Initiative and creative problem solving should be encouraged. The question you should be asking yourself before making a decision is: *Will this action increase or decrease firefighter safety?*

Is the fire service ready to make the same evolutionary change? The job is exciting and fun without rounding safety corners. We owe it to those who are counting on us at home, at the fire station, and on the streets to make sure that every call is a roundtrip for everyone.

http://www.firehouse.com/article/12170764/aviation-like-accountability

Improper installation of oil filter adapter brings down Bellanca

During the approach at night, the Bellanca 17-30A experienced a total loss of engine power, and the pilot performed a forced landing into trees near Monroe, Ga., seriously injuring two.Subsequent examination of the engine revealed that the oil filter adapter was loose and that it was installed incorrectly with two copper crush gaskets rather than with one copper crush gasket and one fiber gasket per the manufacturer's installation instructions.

The fiber gasket would have held the required torque for the fitting; however, the copper crush gasket did not hold the required torque.

Because the oil filter adapter was loose, oil leaked from the engine, which led to the failure of the Nos. 4 and 5 connecting rods due to a lack of oil lubrication.

The oil filter adapter was not original equipment on the engine. Although it could be installed under a supplemental type certificate, a review of maintenance and aircraft records did not reveal any entry or record pertaining to the installation of the oil filter adapter.

The airplane had been operated for about 70 hours since its most recent annual inspection, which was performed about a year before the accident.

It could not be determined when the oil filter adapter was incorrectly installed.

Although the pilot stated that he had fueled the airplane with 100 low-lead aviation gasoline, automobile gasoline was recovered from the fuel tanks.

The higher-compression ratio engine was not designed or approved to operate on automobile gasoline, and engine examinations revealed that it had been operating at higher temperatures due to the use of automobile gasoline.

If the engine had not failed due to oil starvation, it is likely that it would have soon begun to detonate due to the use of the improper fuel.

The NTSB determined the probable cause as the improper installation of the oil filter adapter at an unknown time, which resulted in an oil leak and subsequent oil starvation to the engine.

NTSB Identification: ERA14LA436

This September 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.

Airline safety questioned: Six out of 10 Pilots are falling asleep in Europe

Pilots are responsible for hundreds of passengers. Their life depends on the man in a cockpit of an aircraft when flying. The 18th February 2017 marks exactly one year of European airlines flying under the new EU Flight Time Limitations (FTL) rules – which were introduced to prevent pilot fatigue from endangering flight safety. However, widely differing interpretations of the rules, lack of official guidance on correct implementation, immature Fatigue Risk Management (FRM) systems in the airlines, and persistent fatigue problems in Europe's cockpits are the current state-of-play. Aviation stakeholders are therefore called upon to jointly address these shortcomings.This 1st anniversary confirms that the complexity of the new EU FTL rules results in them being widely (mis)interpreted and incorrectly implemented.

Many airlines and National Aviation Authorities (NAAs) are struggling how to interpret the rules and how to integrate essential points of the regulation into flight operations. As a result, some are opting for interpretations that simply fit their operations, schedule and productivity targets, irrespective of the fatigue impact on their crews.

"Particularly at risk are night flight duties of 10 hrs or more, extended flights of 14 hours, and standby-flight combinations with pilots being awake for more than 18 hours – but being expected to land their aircraft and passengers safely after such duties," says ECA President Capt. Dirk Polloczek. "Although we have new rules, the old problem persists: many fatigued pilots in Europe's cockpits."

“Half of airline pilots report fatigue which could jeopardize passenger safety” warned just 2 months ago the London School of Economics (LSE) – a key finding of a new Safety Culture study, carried out jointly with EUROCONTROL. It highlights that fatigue strikes 6 out of 10 European pilots – but that only 2 out of 10 pilots think that fatigue is taken seriously by their airline. This confirms previous surveys among pilots, which showed that fatigue is a reality in Europe’s cockpits.

“These findings are serious enough to serve as a wake-up call for European and national aviation authorities,” continues Polloczek. “But the problem is that many national authorities have insufficient resources and knowhow to properly oversee the new rules and their correct application. This is why EASA – the European Aviation Safety Agency – has a central role to play: one of guiding the work on a harmonized interpretation and implementation. We therefore call upon EASA to be more active and to provide clear interpretation guidelines to authorities, airlines and aircrew alike.”

This 1st anniversary also shows that proactive Fatigue Risk Management (FRM) systems need to play a more prominent role in airlines’ efforts to reduce crew fatigue. FRM is, in its essence, complementary to the prescriptive FTL rules, allowing airlines to ‘customize’ some aspects of the regulation. Those two components taken together were supposed to reconcile adequate fatigue protection and flexibility for airlines to operate efficiently.

“In reality, however, Fatigue Risk Management remains either misunderstood, poorly handled, inadequately overseen or simply used as a smokescreen to cover ongoing malpractice,” says Philip von Schöppenthau, ECA Secretary General. “Our own benchmarking among almost 30 airlines shows that too few operators have actually implemented a functional and effective system to manage their crews’ fatigue risk. It is therefore crucial that EASA and the NAAs invest more in training and auditing of the operators. Otherwise, FRM risks remaining a paper-tiger exercise with no real effect on fatigue.”

This 1st anniversary is also the start of a new scientific review of Europe’s FTL rules. Next month, a consortium of research institutes will kick-off their work, which is expected to result in a final report in Feb. 2019.

"This is review is crucial," says von Schöppenthau, "because already several years ago leading scientific fatigue experts had warned that the new FTL rules would be insufficient to counter the safety risks associated with pilot fatigue. We therefore welcome this study and hope it will help EU regulators to finally close the safety lacunae of today's rules."

Pilot Error Common Thread in Recent Marine Corps Crashes: General

In the last 12 months, the Marine Corps has sustained a troubling nine major aircraft crashes, resulting in 14 fatalities -- most of which occurred in a tragic January 2016 helicopter collision -- and 11 lost aircraft.

While many of these incidents remain under investigation, the head of Marine Corps aviation said findings so far reveal human components to the mishaps.

"I look at them all in great detail," Lt. Gen. Jon Davis told reporters in Washington, D.C., on Wednesday. "We are not seeing a material failure component to those aviation mishaps. It's mainly human error."

The January 14, 2016, collision of two CH-53E Super Stallion helicopters that resulted in the deaths of all 12 Marines aboard was the result of failure to maintain adequate distance during the night training flight, according to an investigation released in October.

The findings of other mishap investigations have yet to be released, but Davis said it appears they involved aircraft that were in fine flying condition.

In December, two crashes occurred within days of each other in the Pacific. On Dec. 7, an F/A-18C Hornet crashed off the coast of Iwakuni, Japan. Its pilot, Capt. Jake Frederick, ejected but did not survive. On Dec. 13, an MV-22 Osprey disintegrated off the coast of Okinawa after crash landing in shallow water. The five-Marine crew survived with varying injuries.

"They're still being investigated, but there was nothing wrong with those airplanes, mechanically," Davis said. "These were -- they were qualified, they were proficient -- these were crews that had been flying a fair bit, flying in some pretty challenging conditions."

Davis acknowledged that the wreckage of the crashed Hornet had yet to be recovered, adding complexity to the investigation and making it difficult to rule out a mechanical cause.

In an earlier mishap that occurred Sept. 22, an AV-8B Harrier went into a spin during a combat training exercise and crashed off the coast of Okinawa, the pilot ejecting successfully. The crash prompted Lt. Gen. Larry Nicholson, the commander of III Marine Expeditionary Force, to briefly ground all Harriers in the Pacific.

In that case, Davis said, the aircraft had been "perfectly serviceable" and the incident had prompted him to instruct Harrier pilots not to fly with heavy drop tanks during air combat training.

"The airplane's supposed to be very spin-resistant," Davis said. "I've never spun a Harrier, and I've got 3,300-some hours flying a Harrier."

These crashes in October and December, along with a mid-air collision of two F/A-18A Hornets off the coast of San Diego in November, all came after Marine Corps officials said they had made changes to increase pilot flight hours and proficiency.

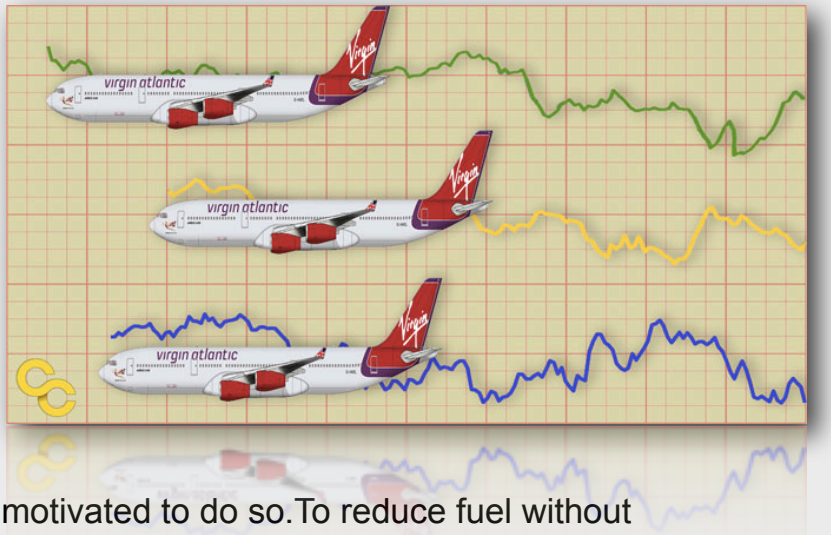
"We're about three hours per pilot per month better than we were [in May 2015], but that's not good enough," Davis said. "We're still shy of our target. [But] I was surprised with the mishaps we had in October."

Davis said the Corps has taken steps to be more structured and provide better supervision for sortie planning and execution, among other changes.

In addition to efforts to produce more ready basic aircraft for pilots to train on to meet their flight hour targets, he said, he has stressed to commanding officers that "we have a group of aviators who have not flown as much as we did when we were growing up, and we just have to be more structured and more pedantic about how we fly."

Virgin Atlantic experiment has pilots conserving fuel

Researchers find that it's surprisingly easy to motivate pilots to meet fuel-saving targets.



Air travel has soared in recent years, and all those flights create global warming pollution. By saving fuel, pilots can help reduce emissions … and research shows they're easily motivated to do so.To reduce fuel without compromising safety, pilots can avoid over-fueling, adjust speed and altitude, and shut down extra engines while taxiing.

Grosnell: "So we approached Virgin Atlantic with an idea that could improve environmental efficiency and also maximize airlines' profits."

That's Greer Grosnell of the London School of Economics. She says that Virgin Atlantic pilots were divided into four groups.

A control group received information about the study, but no other support. Other pilots got data about their fuel use. Some were given goals and encouragement. And the last group had an incentive: money would go to charity if they met their fuel-saving targets.

The pilots who received goals saved the most fuel. And those also given a charitable incentive reported better job satisfaction. But all the groups cut back on fuel … even the control.

Grosnell: "Simply knowing their efficiency was being monitored led to drastic improvements in fuel efficiency."

That, she hopes, is a lesson other airlines can learn from.

5 Sleep-Deprived Disasters

We tend to think of being very sleepy as, well, just being very sleepy. But if you're in a position of serious responsibility—really bad things can happen. Here are a few examples.

1. SPACE SHUTTLE CHALLENGER

Disaster: On January 28, 1986, the NASA space shuttle Challenger exploded 73 seconds after taking off from Cape Canaveral, Florida, killing all seven crew members on board.

Sleep Deprivation: The night before the disaster, NASA officials held a call with officials from Morton Thiakol, the company that designed the shuttle's rocket boosters. One of Thiakol's engineers recommended canceling the launch, due to the cold weather forecast for the next day, telling NASA officials that cold temperatures could adversely affect equipment in the boosters—which could cause an explosion. NASA declined to cancel the launch. An investigation into the disaster found that it was indeed caused by the cold weather. The investigation also found that sleep deprivation, caused by a culture of overwork at NASA, played a critical role in the decision by the managers to ignore the engineer's advice: two of the top managers involved in the conference call had been awake for 23 hours straight at the time of the call, and they had slept for only three hours the previous day.

"The willingness of NASA employees in general to work excessive hours, while admirable," the official report into the disaster said, "raises serious questions when it jeopardizes job performance, particularly when critical management decisions are at stake."

2. AIR FRANCE FLIGHT 447

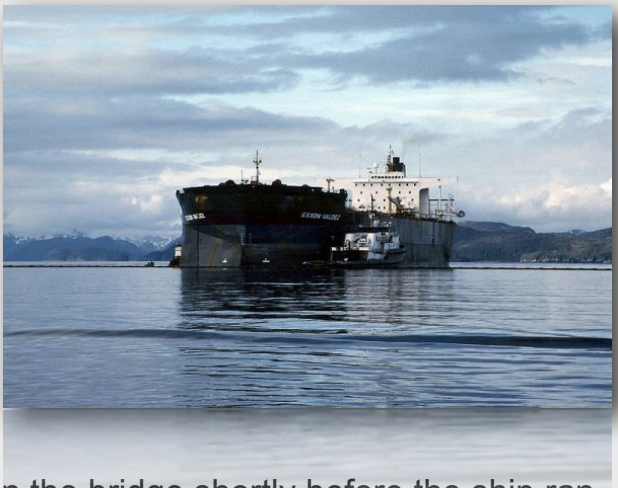
Disaster: On June 1, 2009, during a flight from Rio de Janeiro, Brazil, to Paris, France, Air France 447 crashed into the Atlantic Ocean, killing all 228 people on board.

Sleep Deprivation: Captain Marc Dubois, 58, the pilot on the flight with the most experience by far, had just one hour of sleep the night before. "I didn't sleep enough night," he can be heard saying early in the flight on the plane's cockpit voice recorder (which wasn't recovered until May 2011). "One hour, it's not enough." And when his two younger copilots encountered trouble about three hours into the flight, Dubois was asleep in a bunk located just behind the cockpit. It was, it must be noted, a scheduled nap, because all pilots on especially long flights are required to take naps. But when the copilots started experiencing problems—including "STALL!" warnings blaring in the cockpit—and called for Dubois on the plane's intercom, it took Dubois more than a minute to respond. And when he finally did get to the cockpit, he seemed confused and failed to take control of the situation, which a pilot of his experience should have been able to do. (The least experienced of the copilots, for example, was pulling back on the control stick during the ordeal—the exact opposite of what's supposed to be done during a stall.) The plane crashed into the ocean less than three minutes after Dubois got to the cockpit. The time it took him to respond to the calls for help, and his subsequent inability to figure out what was going on, were determined by investigators to have been caused by fatigue.

3. EXXON VALDEZ

Disaster: Just after midnight on March 24, 1989, the oil tanker Exxon Valdez ran aground on a reef just a few hours after leaving port in the town of Valdez, in Prince William Sound on the south coast of Alaska.

Sleep Deprivation: We've written about the Exxon Valdez disaster before and reported, as others have, that the main fault lies with the ship's captain, Joseph, who had at least three vodkas (and possibly more) just a few hours before setting off from Valdez, Alaska. But there's more to the story: investigators found that fatigue, once again caused by a culture of overwork, also played a significant role in the disaster. Hazelwood had left the third mate, Gregory Cousins, alone on the bridge shortly before the ship ran aground—a violation of regulations, which state that at least two officers must be on the bridge at all times—so that he could sleep off his intoxication. Cousins had been awake for more than 18 hours when he took the wheel, and he'd had only five hours of sleep the night before that. Because of his drowsiness, investigators said, Cousins failed to notice that the enormous, 987-footlong ship had gone dangerously off course…until it was too late to stop it, leading to the ship's striking a reef, and the subsequent spilling of 10.8 million gallons of crude oil into Prince William Sound.



4. METRO-NORTH

Disaster: On the morning of December 1, 2013, a crowded Metro-North Railroad passenger train derailed in the New York City borough of the Bronx. The crash killed four people and injured another 61, and caused $9 million worth of damage.

Sleep Deprivation: An investigation by the National Transportation Safety Board (NTSB) concluded that the train had jumped the tracks as it sped around a sharp curve at 82 mph. (The speed limit was 30 mph.) Why was it going so fast? The, William Rockefeller, had fallen asleep at the controls. Rockefeller, the investigation revealed, had been reassigned from the afternoon shift to the morning shift just two weeks prior to the crash, and had not yet adjusted to his new sleep pattern.

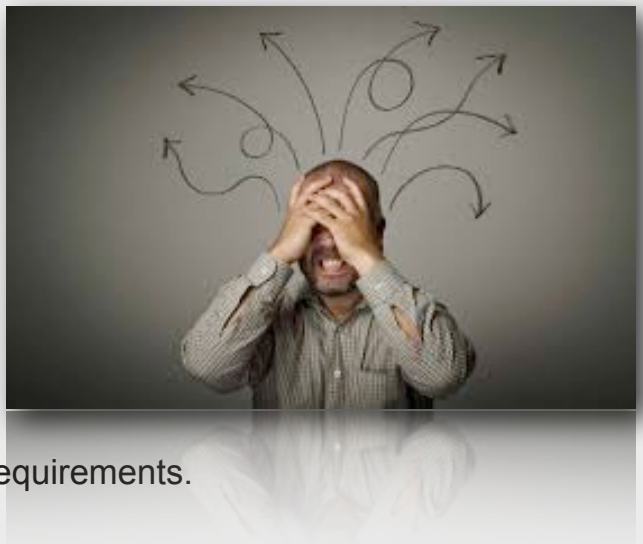
In addition, Rockefeller was later diagnosed with a severe form of the disorder sleep apnea, which causes high carbon dioxide levels in the bloodstream and can result in fatigue and slow reaction time. Rockefeller was also found to have taken an antihistamine at some point prior to the crash, which also could have contributed to his sleepiness. (Authorities considered filing criminal charges against Rockefeller, but ultimately decided not to.)

5. UPS FLIGHT 1354

Disaster: In the early morning hours of August 14, 2013, an Airbus A300 cargo plane owned by UPS Airlines (the airline of the United Parcel Service) crashed during its approach into Birmingham-Shuttlesworth International Airport in Alabama. Two pilots were on board; both were killed.

Sleep Deprivation: The investigation into the crash by the NTSB found that both pilots made a series of errors during their approach into the airport. They failed to properly configure the plane's computer for a landing, they descended too rapidly, they failed to abort the landing attempt when it was clear that it was not safe—all of which led to the plane clipping treetops before the runway, which in turn caused the plane to crash into a hillside and explode. The mistakes were attributed to fatigue. In the days leading up to the crash, both pilots, Captain Cerea Beal, 58, and First Officer Shanda Fanning, 37, had complained of being overworked. Beal told a colleague, "These schedules over the past several years are killing me." And when the plane's cockpit voice recorder was recovered the day after the crash, both pilots could be heard talking about their demanding work schedules, about how tired they were—and even implying that UPS was more interested in saving money than in pilot safety. "These people," Beal said, "have no clue." (Nobody at UPS Airlines was disciplined for the crash, but the NTSB required the airline to update their fatigue management plans.)

Industry Asks FAA To Clear Up Drug-testing Confusion



A group of aviation organizations and businesses are asking the U.S. FAA to clarify the applicability of drug and alcohol testing requirements to workers who are involved in receiving items for stock. Sixteen organizations wrote the FAA on February 15 for a legal interpretation after reports surfaced that some FAA auditors viewed receiving responsibilities as safety-sensitive functions and thus covered under drug and alcohol testing requirements.

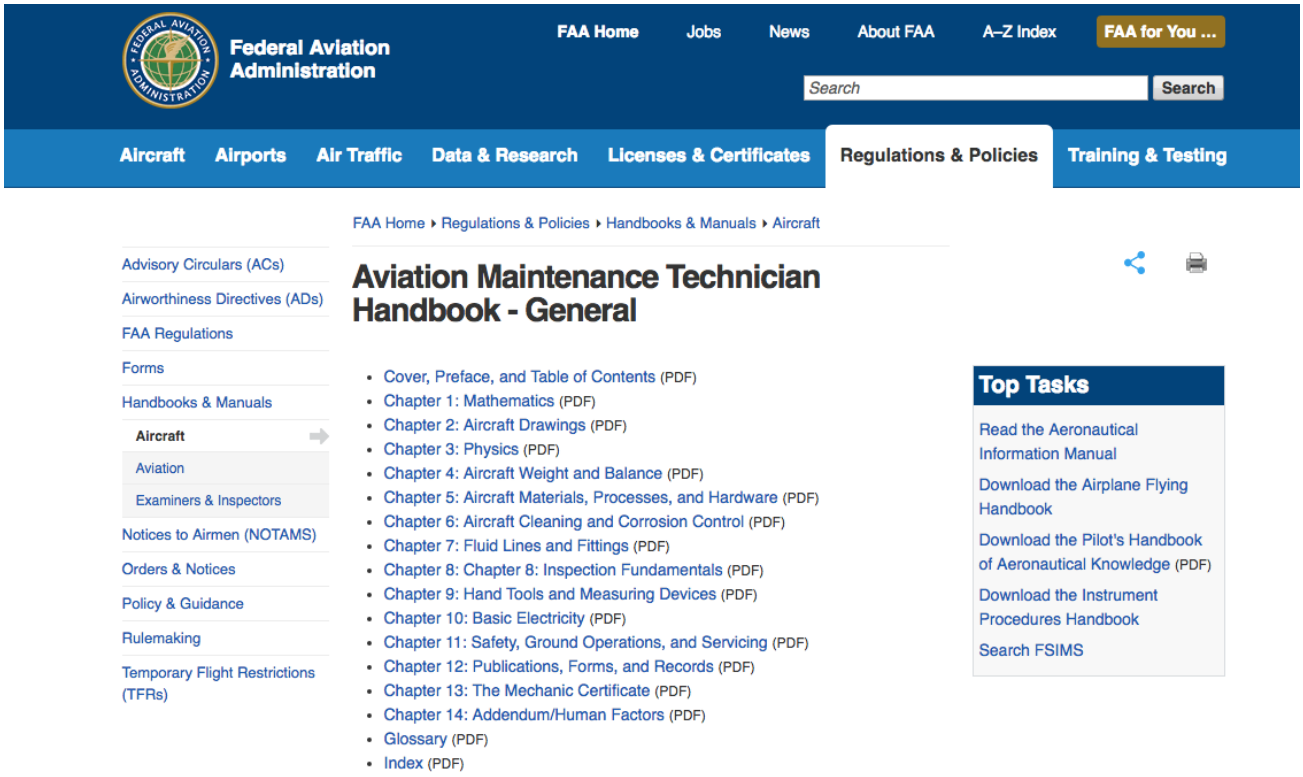
“A receiving process simply verifies that incoming parts or materials are what they purport to be and that there are no obvious reasons to question a previous determination of airworthiness,” said the letter, which was signed by organizations such as the Aeronautical Repair Station Association, National Air Transportation Association and General Aviation Manufacturers Association, as well as companies such as Honeywell and Gulfstream.

The letter adds that receiving activities do not require the creation of a maintenance record. “Therefore, they are not safety-sensitive functions under [the drug and alcohol testing requirements of 14 CFR] Part 120.” Historically, agency guidance has not included either distributing or receiving parts in maintenance or preventive maintenance duties, the organizations agreed.

But the letter noted auditors who “have informally opined that personnel conducting tasks associated solely with receiving items for stock are performing maintenance and are therefore engaged in safety-sensitive functions,” and added, “This expansive interpretation would result in the misclassification of employees, thereby diluting random testing pools with non-safety-sensitive personnel.”

Aviation Maintenance Technician Handbook - General

Addendum Human Factors



https://www.faa.gov/regulations_policies/handbooks_manuals/aircraft/media/AMT_Handbook_Addendum_Human_Factors.pdf

https://www.faa.gov/regulations_policies/handbooks_manuals/aircraft/amt_handbook/

An-12 fire inquiry reveals doubts over APU maintenance

German investigators have been unable to determine the precise cause of an uncontained auxiliary power unit fire which destroyed an Antonov An-12 freighter preparing for departure from Leipzig.

But doubts have emerged over the maintenance record of the APU at the time of the accident on 9 August 2013.

Investigation authority BFU says the crew had started the APU and both outboard engines of the Ukraine Air Alliance transport, which was parked on stand 207, when they were alerted by a “dull bang” and the APU fire-warning indicator.

The APU was mounted behind the left main landing-gear. BFU’s inquiry found the fire originated in the APU and was not contained, propagating rapidly to the cargo compartment.

It says the severity of the fire was exacerbated by fuel, which had leaked from fuselage-floor tanks and pooled near the left main landing-gear, as well as burning light metal alloy components from the APU.

The fuselage forward of the empennage was completely consumed by the blaze.

“Due to the high degree of destruction it was not possible to determine the exact cause of the fire,” says BFU.

But it reconstructed the APU gas turbine and its gearbox assembly and says there is evidence of a burst compressor wheel, given the nature of damage to air intakes and other components.

“Flying fragments of the compressor wheel could have penetrated the APU chamber and severed fuel pipes,” the inquiry adds. The damage would have provided a propagation path to the cargo compartment, which was loaded with nearly 49,000 day-old chicks.

The cargo door had been left open, because of the live cargo, and the inquiry suggests the blaze would have been strengthened by the available oxygen.

Although the crew had activated the APU extinguisher, the extent of the damage from the initial event would explain why this was ineffective in controlling the fire.

It states that the area of the APU fire was “not sufficiently isolated” from the rest of the aircraft (UR-CAG).

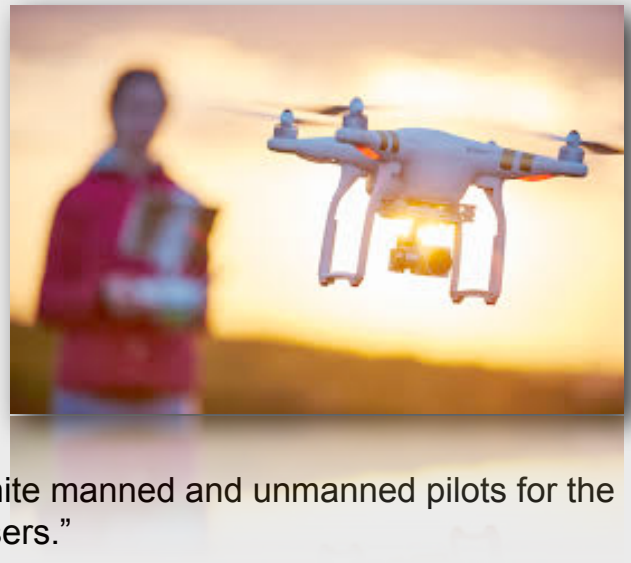
Investigators state that the APU, built in 1975, had a total operating time of 407h and, according to the operator, had undergone three overhauls in 1983, 1996 and 2007.

But Russia’s Interstate Aviation Committee says the APU manufacturer, Aviamotor, had stopped maintenance of the equipment around 2000, and there is “some doubt” that the claimed 2007 overhaul took place. In formal comments to the inquiry, it says it believes the logbook entry on this overhaul was “fabricated”.

It adds that the “non-fulfilment” of this overhaul could have contributed to the APU’s extensive damage, although BFU says it is unable to determine whether this was a factor. The APU was fitted to the aircraft in 2012.

BFU says the flight-data recorder tape had been inserted the wrong way, although it had registered the An-12's arrival at Leipzig, while recovery of the two cockpit-voice recorders revealed one was empty and the other contained an 11min recording which was not captured at Leipzig.

AOPA Opens Up To Drone Pilots



Consumer drones have attracted millions of users, and created a conundrum for general aviation — are they friend or foe? On the one hand, many pilots have embraced the technology and enjoy it; on the other hand, the small flying machines can pose a threat to aircraft if operated irresponsibly. AOPA recently took a step to embrace the drone-flying community, announcing a new line of membership options for drone pilots. The idea, the organization said in a news release, is to "unite manned and unmanned pilots for the common purpose of safe integration of all users."

"Dividing manned from unmanned aviators would rob both of many benefits, and create unnecessary conflict," said AOPA President Mark Baker. "We believe we are stronger as a united community, and welcome these new pilots with hope that our common goals of safety and freedom to fly will be achieved together." The FAA estimates it will certify 1.3 million drone pilots by 2020, AOPA said. Within just a few years, they will outnumber pilots of manned aircraft by 2 to 1. AOPA said it will offer an online drone-pilot training course to prepare applicants for the FAA knowledge test, and will feature drone demos and seminars at its regional fly-ins.