

Aviation Human Factors Industry News

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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:

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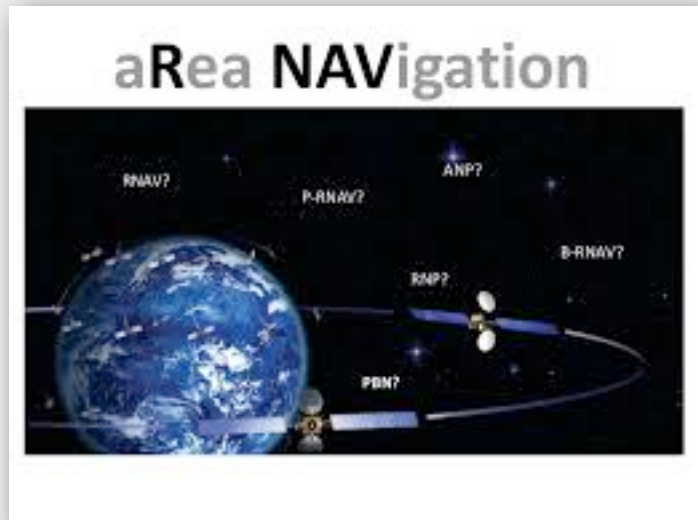
★The \$30,000-A-Night Jet that Flies Empty

★And Much More

Participation Requested

The FAA is conducting a research program to [improve the aeronautical charts](#) used to depict RNAV arrival and departure procedures. Dr. Shirley Phillips from MIT Lincoln Laboratory is conducting this study. The purpose of this study is to survey pilots to better understand the tasks supported by aeronautical charts that depict RNAV arrival/departure procedures. One particular area of interest is how

these aeronautical charts are used to brief RNAV arrivals and departures. The outcome of this survey will include recommendations to improve these aeronautical charts. If you have experience flying RNAV arrivals and departures you are [welcome to participate](#) using the following link:



<https://www.surveymonkey.com/r/NMVP7YC>

- Participation in this study is voluntary. You have the right not to answer any question for any reason.
- You will not be compensated for completing this survey.
- The information you provide will be confidential and will be used to make recommendations to the FAA on how to improve aeronautical charting of RNAV arrival and departure procedures. General information on aircraft type and name of operation (if provided) will only be used to describe the makeup of the participants (such as percent from major air carrier).

- It is helpful if you can provide the RNAV capability of the aircraft you are flying, but you do not need to provide any specific identifying information. [This project will be completed by September 30, 2016.](#)
- If you have any questions, or wish to do a phone interview, please feel free to contact Shirley Phillips at 781-981-6010 or shirley.phillips@ll.mit.edu. Thank you for your willingness to participate in this project.

Lapses By Pilots Led to Death of Air India Technician, Investigators Conclude

A major [rostering lapse](#), which resulted in pilots reaching [late for their flight](#) by over an hour had resulted in the death of an Air India (AI) technician, who was sucked inside the aircraft engine at the Mumbai airport on December 16 last year, investigators have concluded.

The technician, Ravi Subramanian, died on the spot -- as he stood with his back towards the aircraft [without realizing](#) that it had started to move. The final investigation report submitted to the aviation ministry and accessed by HT lists [a series of lapses](#), including a terrible rostering error, which led to the tragic accident.

Before operating the Mumbai-Hyderabad flight, the same pilots had operated a Rajkot-Mumbai flight.

While the flight to Hyderabad was scheduled for departure at 7.30 pm, the one from Rajkot was scheduled for arrival only at 8.10 pm -- which meant that pilots were already 40 minutes late for their next flight.



A further delay resulted in the Rajkot flight arriving at 8.35 pm. "The crew took a jeep and rushed to bay V28L to operate AI 619 Mumbai-Hyderabad. Pilots reached cockpit at 8.38 pm. Pushback commenced at 8.45 pm," according to the report.

The aircraft began taxiing with the pilots not realizing that four ground personnel were still around the nose of the aircraft. While Subramanian, who had his back towards the plane and headphone on his head, was sucked in, others managed to run away.

The co-pilot told investigators that the ground personnel had given clearance followed by thumbs up.

"However, as per the statement of chocks helper and tow truck driver, the deceased engineer had neither shown thumb or pin to pilot, nor had any other person," the report said.

Air India did not offer comments for the story.

Sources said Air India chairman and managing director Ashwani Lohani had ordered a complete overhaul of the airline's rostering system after the accident.

The report has listed several other violations.

As the pilots were running late for the flight, an off-duty AI pilot traveling as a passenger to Hyderabad obtained air traffic control clearance. HT had first reported about it on February 5. The aircraft maintenance engineer was missing and "was not near the aircraft for pushback and departure," the report said.

"Non adherence to SoP (standard operating procedure) and delayed departure of flight due to improper rostering of crew resulted in the accident," according to the report.

FAA FORECAST: 600,000 COMMERCIAL DRONES WITHIN THE YEAR

There will be 600,000 commercial drone aircraft operating in the U.S. within the year as the result of new safety rules that opened the skies to them on Monday, according to a Federal Aviation Administration estimate.

The rules governing the operation of small commercial drones were designed to [protect safety without stifling innovation](#), FAA Administrator Michael Huerta told a news conference.

Commercial operators initially complained that the new rules would be too rigid. The agency responded by creating a system to grant exemptions to some of the rules for companies that show they can operate safely, Huerta said. On the first day the rules were in effect the FAA had already granted 76 exemptions, most of them to companies that want to fly drones at night, Huerta said.

"With these rules, we have created an environment in which emerging technology can be rapidly introduced [while protecting the safety](#) of the world's busiest, most complex airspace," he said.

Transportation Secretary Anthony Foxx said people are "captivated by the limitless possibilities unmanned aircraft offer." The few thousand commercial drones that had been granted waivers to operate before Monday have been used to monitor crops, inspect bridges and transmission lines, assist firefighters, film movies, and create real estate and wedding videos, among dozens of other uses.

In general, the new rules apply to drones weighing [55 pounds or less](#), and require commercial operators to:

- Keep the drone within sight at all times.
- Keep drones from flying over people not involved in their operation.
- Limit drone operations to the hours from a half-hour before sunrise to a half-hour after sunset.
- Limit speed to no more than 100 mph.
- Fly no higher than 400 feet.

Drone operators must also [pass a test](#) of their aeronautical knowledge administered by the FAA. More than 3,000 people had registered with the FAA to take the test as of Monday.



The Air Line Pilots Association complained that the new regulations are "missing a key component" because there's no requirement that drone operators first have an FAA pilot license to fly a plane. The FAA considered requiring drone operators to have manned aircraft pilot licenses, [but relented](#) when the drone industry complained that the time and expense involved in obtaining a license, including considerable time practicing flying a plane, would be prohibitive.

Report: Most drone accidents cause by technology failures

A new story at Mashable reports that researchers in Australia have found that most drone accidents were caused by technology issues, [rather than human error](#).

Led by Graham Wild, a senior lecturer in aviation at RMIT University in Melbourne, Australia, the researchers reviewed a sample of 152 global drone event reports between 2006 and 2015. The most common cause of accidents was a [loss of communication or radio signal](#) between the drone and controls, Wild told Mashable Australia. The researcher also told Mashable that far more drone accidents occur, [but few are reported](#). And when they are the reports don't have sufficient details.

"It's not mandated that you report all these details as it would be if you were flying at a general aviation airport," he told Mashable. "A lot of the stuff with drones is literally just voluntary and sometimes people put in the bare minimum."



Read the full story [here](#).

Revealing the “Sources” for Safety Information

by [Dr. Bill Johnson](#)

Readers of AMT and other FAA colleagues occasionally inquire about how I [stay current on trends and news related to aviation maintenance and other aviation safety matters](#). I always take such questions as a compliment because I try hard to keep my “finger on the pulse” of current aviation maintenance news. This article offers a few categories and specifics of my “sources” most of which are readily available to you. The word “transparency” applies here. [There are no secrets when it comes to safety](#).



Select the Source!

You must be careful of information overload. Readers must decide what is most important for them. Borrowing a term I learned from a former FAA Associate Administrator, Nick Sabatini, “... [if everything is important then nothing is important](#).” That means you must set a priority on where to obtain consistent, timely, and reliable information. Look for sources matched to your industry segment. For example, if you work in an MRO, look for the MRO info from organizations like the Aeronautical Repair Station Association (arsa.org) or the Aircraft Electronics Association (aea.net), and other industry groups. If you are a GA person you might watch Aircraft Owners and Pilots Association (aopa.org) or the National Business Aircraft Association (nbaa.org).

You can get a mix of large and small aviation operations by signing up for the print and digital media at Aviation Pros (aviationpros.com) and receive daily information from AMT Magazine. Again, be selective about your sources. Then, read them daily, weekly, or monthly.

The Internet is our Information Friend?

It's all there. Just open a browser and go. The last time I searched "aviation maintenance" I had 13 million hits on Goggle. "Human factors" gave 21.6 million hits. Obviously, you must be selective regarding information from the web. Not only is the web comprehensive, it is also low cost. Low cost usually means that you must do a lot of the work to find the precise information that you want and need.

When maintenance and human factors is a primary concern then I recommend the FAA website (humanfactorsinfo.com). That URL takes you to the FAA maintenance human factors website, which has a 20+ year legacy of FAA and other maintenance human factors documents.

Humanfactorsinfo.com is only one example of an FAA website. The public FAA homepage is faa.gov. That site provides you with most of the same information that FAAers use. It also has a means for you to enroll in an email system to keep you abreast of a variety of government and commercial aviation safety news.

The Curt Lewis & Associates website (curt-lewis.com) is a comprehensive information source. The site permits you to sign up for the daily aviation safety email push. The system uses something called a "crawler" that reads and combines news from around the web. The Curt Lewis emails provide access to newspapers, magazines, websites, and other sources of aviation safety information. It is a "must-have" information source.

SKYbrary (Skybrary.aero) is an international site that has the goal of being "a single point of reference for aviation safety knowledge." It also has an email push for you to receive immediate information targeted to your interests.

When one makes lists, as provided in this article, it is impossible to cover everything. There are many free databases that permit you to "mine" for the information specific to your interests and requirements. Many are easy to navigate including, but not limited to: the National Transportation Safety Board (ntsb.gov); the NASA Aviation Safety Reporting System (asrs.arc.nasa.gov); or the Bureau of Transportation Statistics (rita.dot.gov/bts/home).

Excellent Industry Print Sources

I appreciate the low and no-cost magazines targeted to industry personnel, including you. Of course, *AMT Magazine* is one of those. Its advertisers want you to have the information so everyone wins when you subscribe. Other sample trade magazines on my list include *Airport Business*, *Ground Support Worldwide*, *Civil Aviation Training Magazine*, and other great industry publications. I like these magazines because they are very up-to-date. The publication time is extremely fast, meaning that you are usually reading articles that were written in the past 30 days. These magazines are targeted to the specific industry segment and usually offer very applied advice. These are not usually “theory” magazines written by and for Ph.D.s (not counting me).

In addition to maintenance and human factors I am always interested in training. [The Civil Aviation Training Magazine](#), by Halldale Publishing, keeps me abreast about training for all aspects of aviation. I must admit that my feline-loving spouse was particularly proud when I wrote articles for *CAT Magazine*.

More Print and Media Sources (Credit Card Required)

My position demands that I have as much current information as possible. For that reason I personally subscribe to print and media sources like *Aviation Week and Space Technology* (AviatonWeek.com/awst). I have read *AvWeek*, without interruption, for over 35 years. The *Aviation Week* site offers a subscription only *Aviation Week Intelligence Network* and also *Aviation Daily*. FAA is a corporate subscriber to many of these services. *Aviation Week* has a print and media product dedicated to MRO, named *Inside MRO* (aviationweek.com/inside-mro).

Another excellent paid source is *Flight International* (flightglobal.com). This magazine, as you would expect, has a broad international range of topics and a variety of additional print and digital information products.

Generally speaking, the paid subscription magazines have less advertising than the free ones. Their ads are geared to buyers of airliners, engines, or avionics. I like the advertisements, for large as well as small products and services. It shows me how MROs differentiate themselves or how air framer and powerplant manufacturers compare their new products.

If you want to avoid all advertising then try government publications. For example, the FAA publishes a very nice glossy color magazine. The *FAA Safety Briefing* is available from the U.S. Government Bookstore (bookstore.gpo.gov/products/sku/869-084-00000-0).

It can be downloaded ([free](#)) from the FAA website (www.faa.gov/news/safety_briefing). I like the magazine because it always has a timely and relevant message from a key FAA executive, usually the Director of the Flight Standards Service. It is an applied magazine with news and advice to pilots as well as aircraft maintenance technicians.

Information from Industry Groups and Professional Societies

Industry trade associations and professional societies can keep you updated on safety. The magazines and websites, like the Aeronautical Repair Station Association (ARSA) or the Aircraft Electronics Association (AEA) are excellent. Such memberships are generally aimed at your employers but individuals can join at reduced rates. They also provide information, like the Avionics News from AEA, that can be downloaded to non-members. I belong to groups like Flight Safety Foundation (flightsafety.org); the Human Factors and Ergonomics Society (HFES.org), the Royal Aeronautical Society (aerosociety.com), the International Society of Air Safety Investigators (ISASI.org), and the Aircraft Owners and Pilot's Association. The combination of information from these organizations helps ensure that I know what's going on in safety.

And Follow the Procedures from the Manufacturers and Your Company

It would be remiss not to mention the No. 1 cause of events/incident. That is: "[Failure to Follow Procedures](#)." I have never seen an accident report that said the operator or maintainer did not look at enough websites or read enough professional aviation magazines. To ensure continuing safety and efficiency use the manuals, work cards, and checklists. Be sure the information is current. As far as you being current, [Dr. Bill suggests that you borrow some of his sources](#).

Other Information Sources – Be Careful

Again, you must consider your information source. You should understand the culture and context before you follow the advice. One pilot told me that his mother (or father) told him that when he went to work that he should be careful and not "fly too fast or too high." That may be good advice but too slow and too low is another problem. A human factors presenter told me that his "Broadway" uncle told him to "break a leg" at his next speech. He jumped off the stage and end up with a fracture. Be sure that you understand the colloquialisms!

CALLBACK From the NASA Aviation Safety Reporting System

RAMPING UP | SAFETY

Airport ramp safety and associated hazards continually appear as common concerns in ASRS reported incidents. Reported ramp events range from routine to remarkable, while the hazards and associated threats may exist almost anywhere. Many hazards are familiar, while others are uncommon. They can be obvious or concealed, and are often unexpected. Unmitigated ramp hazards frequently result in significant property damage or injury to personnel.

The routine tasks and interactions required during ramp operations may combine to produce unique circumstances and peculiar threats. Recognizing the hazards and identifying the threats **requires anticipation, attention to detail, and situational awareness** to avoid incidents when hazards develop or already exist.

This month **CALLBACK** features reports taken from a cross section of ramp experiences. These excerpts illustrate a variety of ramp hazards that can be present. They describe the incidents that resulted and applaud the “saves” made by the Flight Crews and Ground Personnel involved.

A DOSE OF SAND AND FOD

This B737 Crew encountered a ramp hazard that is not uncommon, but got a surprise that grounded the aircraft, in part, because local authorities had altered the airport facility.

■ [Our] aircraft arrived...and a normal exterior inspection was conducted with no abnormalities noted. There was a significant increase in wind strength directly behind the aircraft causing a dust storm.... Shortly after [the storm], a Ramp Agent informed us of...debris in both the intake and exhaust sections of both engines.

The debris consisted of dust, sand, and small particles of stone.... The total quantity was estimated between one-fourth and one-half cup in each engine's exhaust section and about the same...in [each engine's] intake.

Dispatch and Maintenance Control were consulted and contract maintainers were summoned. Debris was vacuumed out of all sections of the engines and inspections noted no other visible defects. The engines were then [run] at idle power for five minutes with no abnormalities noted from the flight deck engine instruments. Visual inspection of the engines, unfortunately, indicated that additional debris had been expelled from the hot section...during engine spool down. Maintenance Control...[grounded the aircraft pending a borescope inspection....](#) There is certainly a significant cost to this incident.

The airport authority had recently replaced all of the infield grass and areas between the runways and taxiways with a sand and gravel mix.... I am certain this is the material that found its way into the engines. I am astonished more aircraft have not fallen victim to this hazard.

The \$30,000-A-Night Jet that Flies Empty

Every night in the US, an Airbus A300 aircraft takes off from Denver, Colorado bound for Memphis, Tennessee.

Nobody is on board except for the pilots and often the flight starts and completes its route with an empty hold.

Eagle-eyed plane spotters have also wondered in internet posts why it sometimes heads the wrong way for 200 miles. The cost of this exercise comes in at some \$30,000 a night.



Sounds crazy? Maybe. But this is how FedEx Express , the world's largest cargo airline, aims to cover most eventualities across this stretch of the USA as part of the quest of its parent company FedEx FDX +0.13% to deliver parcels worldwide within one to two business days.

"Flight 1311 departs every night of the year, though the number varies by the month," says Marcus Martinez, managing director of the company's global operations control at FedEx's sprawling 880-acre airfield at Memphis International Airport.

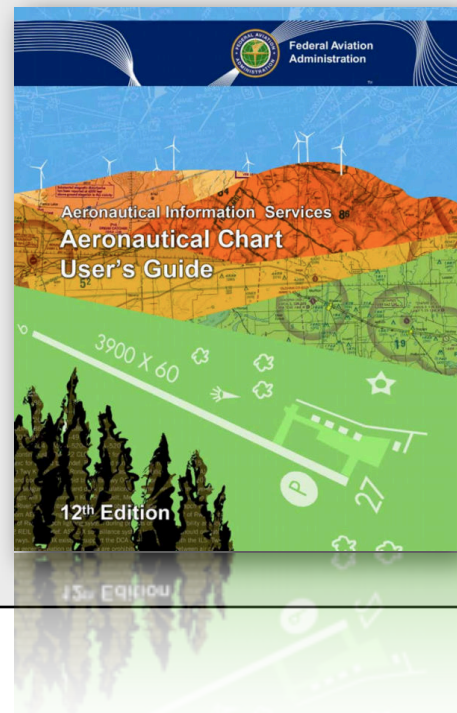
"It's our flying spare, attempting to sweep up anything that our other aircraft don't pick up.

"It costs \$30,000 a night to fly that plane empty. But if it flies empty, it means that we don't have to recover volume from elsewhere in the network."

FAA Publishes New Chart User's Guide

The FAA has published the 12th edition of its Aeronautical Chart User's Guide.

While the use of tablet computers as portable electronic flight bags (EFB) has certainly cut down on the paper most pilots carry with them these days, one item that hasn't changed in the move to electronic charting is the **symbolology** displayed on those charts.



No EFB in the world will help a pilot who doesn't possess a solid understanding of the nuances agency designers employ to present hundreds of variables within the National Airspace System. To aid with current on both VFR and IFR flight charting, the FAA recently published the 12th edition of the Aeronautical Chart User's Guide.

The guide, [available online](#), is just 86 pages long and should be required reading for every pilot from student to flight department manager. Having just completed a flight review, this Flying editor and flight instructor was reminded of just how much information can be cleverly grouped together with symbols that are easily forgotten when not regularly used.

If there is a failing of the new guide however, it's that a good guide could well have been made great by adding practical quizzes on the information presented. It's only when pilots are faced with wondering to what the "*" next to the "L" in the airport information box refers that they'll realize they might be clueless.

<http://www.flyingmag.com/faa-publishes-new-chart-users-guide>

Jeppesen Previews SID/STAR Charts Improvements

NBAA and Jeppesen recently held a webinar to give a preview of changes to the company's SID (standard instrument departure) and STAR (standard terminal arrival route) charts. The improvements, which have been in the works for the past two years, are intended to [help enhance pilots' situational awareness](#), according to Jeppesen.



The chart redesign process included input from pilots and [human factors experts](#), as well as incorporating best practices and real-world operational environment factors. Jeppesen validated proposed changes with pilots worldwide and then made further refinements as needed.

Improvements to the arrival and departure charts [include](#) introducing colors to identify what pilots consider to be the most pertinent information. For example, altitude restrictions will be in blue, while airspeed restrictions will be in magenta.

The new chart design also incorporates graphics for key topographic features, such as a blue tint for water and shaded areas for mountains. In addition, flight procedures on STARs and SIDs will be shown to scale to improve situational awareness. It also enables use of an “own ship” symbol when connected to a GPS.

Jeppesen plans to begin rolling out the new charts by year-end, starting in Europe.

Why lack of sleep makes you a bad boss

What we're now learning is that sleep isn't an obstacle; it's an enabler.

Two months ago, I stopped setting an alarm clock. The intention was to wake up at whatever time my body thought it best to wake up. I was curious to see what impact that would have on my life, especially on my work. The benefits were immediate. [No more](#) yawning throughout the day. Less stress, less irritability.



The wall I hit every afternoon with a ferocious thud stopped presenting itself.

My decisions became more carefully considered.

Of course, it's possible none of it's related to the extra sleep. It may have all been due to the peace that comes with starting each day in a manner other than the shrill of an alarm. Or perhaps it was just the placebo effect. Whatever the cause, it was working. And so was I – more productively and positively than ever.

The inspiration for that move was Arianna Huffington's latest book, *The Sleep Revolution*, which shocked me into heeding the hundreds of studies proving the harmful effects of sleep deprivation. But of most fascination was this:

"Just think about the definition of the word alarm: a sudden fear or distressing suspense caused by an awareness of danger ... So an alarm, in most situations, is a signal that something is not right. Yet most of us rely on some kind of alarm clock – a knee-jerk call to arms – to start the day."

And so it is that where once I prided myself on getting by on five hours a night, I now get a decent eight thanks to realizing what I'd been missing.

Of the myriad studies in Huffington's book, two are absent due to the fact they've only just been published in the *Journal of Applied Psychology*.

In the first, the researchers asked leaders to deliver a presentation. Half had been kept up the night before with surveys they had to complete every hour between 10pm and 5am. When the sleep deprived delivered their talk in the morning, they were significantly more likely to be rated as uncharismatic.

By the way, charisma in this context means much more than just how captivating one can be. What it really reflects, from an empirical perspective, is the extent to which an individual is perceived as inspirational, competent and intelligent; even "extraordinary". So it really is a leadership goal worth pursuing and, as the first study showed, those positive attributions diminish the less sleep a leader gets.

In the second study, it was the employees' turn to be analyzed. Half were similarly kept up all night. The next morning, they were required to watch a video of a leader and to rate that leader's "charisma".

Those who were sleep deprived were more likely to judge the boss harshly because they themselves felt down and subsequently passed on those ungenerous sentiments.

Which really goes to show that perceptions of leadership are influenced not only by your own sleeping patterns **but also by your employees'**.

And what ends up happening, as the scholars note, is that many people who "experience sleep deprivation notoriously underestimate the effects". They don't realize that underneath that facade, there are **physiological and neurological** consequences that are quite obvious to anyone but themselves.

As Arianna Huffington states in her book: "We're only now beginning to come out of a phase that started with the Industrial Revolution, in which sleep became just another obstacle to work."

Indeed, what we're now learning is that sleep isn't an obstacle; **it's an enabler.**

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

WWII vet runs 3,000 miles across the U.S.

Ninety-three-year-old Navy veteran Ernie Andrus has just finished a three-year run across the country. His run from the Pacific to the Atlantic was to raise awareness about an unsung hero of the war. Steve Hartman met Ernie several times and **Sunday Morning** was there when he finished his journey.



<http://www.cbsnews.com/videos/wwii-vet-runs-3000-miles-across-the-u-s-2/>

Book: Free to Fight Again: RAF Escapes and Evasions 1940-1945

To survive baling out from a doomed aircraft or a crash-landing in enemy occupied territory certainly required a large element of luck. To then manage to return to Allied shores inevitably needed considerably more good fortune and often the assistance of local patriots and resistance workers. [This book contains the amazing stories of over seventy such escapes, many first-hand accounts.](#) It includes aircrew who found their way to freedom from Europe and places as far away as the Bay of Bengal. There are stories of hi-jacked aircraft, crossing crocodile infested swamps, evasion by camel and coffin, survival in the jungle and brushes with the Gestapo.

https://www.amazon.com/Free-Fight-Again-Evasions-1940-1945/dp/1844158772/ref=tmm_hrd_swatch_0?_encoding=UTF8&qid=&sr=

