

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:

★After SWA 1380, is it time for deep human factors study of emergencies

★Mitigating the growing threat of wildlife hazards at airports

★Aviation Safety Letter - Canada

★Worker Fatigue: The Iceberg Effect

★The Working Nights Health & Safety Guide: Get Your Complimentary Copy Today!

★Falling Off An Aircraft

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★And Much More

After SWA 1380, is it time for deep human factors study of emergencies?

Images from inside the cabin of Southwest Airlines flight 1380, which made an emergency landing in Philadelphia following an engine failure, raise questions again about passengers' [comprehension of basic cabin emergency procedures](#) and about passenger priorities during those rare times when their lives are at risk.

Passenger recordings from on board the plane show a number of passengers – including the person recording the video – holding their oxygen masks over their mouths, rather than stretching the oxygen masks to cover their nose and mouth completely, then tightening the elastic bands to keep the oxygen masks in place.

Regulations require that oxygen masks be fully reversible to ensure that, in a panic, people can put them on quickly. For this reason, the silicone cups that serve as a mask are perfectly round when first deployed. But these soft silicone masks are [moldable to fit](#) the face like a duck's bill. They are flexible, adjusting to cover the nose and mouth tightly, to ensure the uninterrupted flow of oxygen. They are intended to be one-size-fits all, adapting to adults of all sizes, as well as children. Their conical shape allows for this variation in sizing. Like all cabin safety equipment, their proper use is intended to be relatively intuitive.

[So how is it possible](#) that a number of passengers on board wore the masks loosely so that they would have done an ineffective job of delivering oxygen, and could not have isolated any smoke or toxins from within the cabin had there been any?

Looking at the video posted from the flight, there was more than enough breathable oxygen remaining in the cabin for passengers to remain conscious. Under slightly different circumstances, we might have been watching a video of passengers losing consciousness.



In recent years, we have seen a number of evacuation procedures ignored during emergencies and evacuations. Much of the passenger reaction to these situations is baffling. [It runs counter to their own best interest](#). People fail to keep their seat belts on in severe turbulence. They evacuate burning aircraft with their hand luggage. They use oxygen masks as little more than props.

Despite the danger, they stop to record the event for posterity – even when standing near an aircraft that is on fire and likely to explode.

It is too easy to dismiss this behavior as some form of contagious stupidity. One person ignores instructions and others join in, as part of a [group response to crisis](#).

In recent years, we've seen airlines get creative with emergency instructions – with entertaining videos and humorous announcements that now become as much of a marketing tool as critical instructions adhering to regulations. Perhaps making cabin safety instructions amusing, to get people to pay attention, [is not paying off](#).

We cannot know unless there is a [serious commitment to studying the human factors at play during these events](#). While the NTSB will do a thorough investigation of what caused this engine failure and closely examine the events that took place onboard, it may be time for a separate, dedicated study of passenger reaction and recall of instructions by [human factors specialists](#).

Experts, airlines and regulators should have a dialogue and come to an agreement on the best way to ensure compliance with cabin safety instructions going forward.

Flying is still the safest form of transport. People take that for granted. But aviation must study this erratic passenger behavior before it leads to tragedy.

<https://runwaygirlnetwork.com/2017/08/10/time-to-revisit-airline-safety-video-seat-belt-demonstrations/>

<https://runwaygirlnetwork.com/2015/09/08/incidents-reveal-crucial-need-for-passengers-to-leave-bags-behind/>

Mitigating the growing threat of wildlife hazards at airports

The world's increasingly busy airports face a growing threat of birdstrikes and wildlife hazards, partly due to expanding urban environments and bird populations, but also due to the global growth of airport traffic. Lee Pannett, Director at the Scarecrow Group, reveals how [bio-acoustic technology](#) can successfully mitigate the issue.



Regulations concerning airside bird control differ across the world in terms of what is mandatory and the extent to which practices are then governed by authorities. The International Civil Aviation Authority (ICAO), for example, has published a set of Standards and Recommended Practices (SARPs) and although not binding, the SARPs recommend that member countries establish a national procedure for aircraft and airport personnel to record birdstrikes. Understanding the importance and the implications of birdstrikes and wildlife hazards remains a major challenge for all airports no matter their size, for ground staff, operations teams and management.

Aviation Safety Letter - Canada

The *Aviation Safety Letter* (ASL) is published quarterly and is only available online.

The ASL includes articles that address aviation safety from all perspectives, such as safety insight derived from accidents and incidents, >



as well as safety information tailored to the needs of all holders of a valid Canadian pilot license or permit, to all holders of a valid Canadian aircraft maintenance engineer (AME) license and to [other interested individuals within the aviation community](#).

<https://www.tc.gc.ca/eng/civilaviation/publications/tp185-menu-5395.htm#read>

<http://www.tc.gc.ca/eng/civilaviation/opssvs/menu-1152.htm>

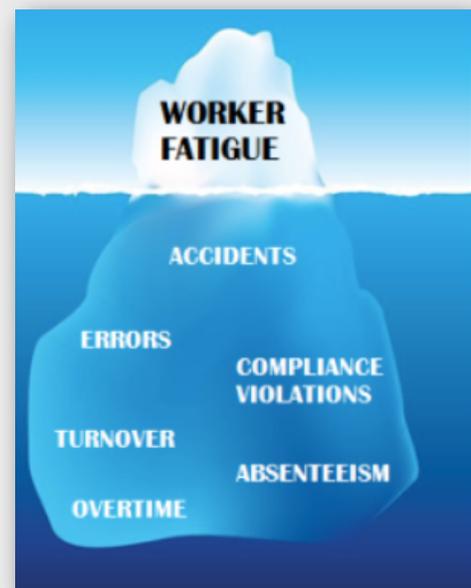
Worker Fatigue: The Iceberg Effect

More than 30% of workforce managers believe that fatigue is a moderate or severe problem among their workers.

Worker fatigue [can impact your operational](#) costs due to accidents, errors, violations, turnover, absenteeism, and overtime.

Download our whitepaper, "[The Myths and Realities of Fatigue](#)" and discover:

- The consequences of fatigue in 24-hour operations
- What business practices increase worker fatigue
- The bottom-line costs of fatigue
- Solutions to mitigate the costs, risks and liabilities of fatigue



[**Download the Whitepaper**](#)

The Working Nights Health & Safety Guide: Get Your Complimentary Copy Today!



Working nights presents **many unique challenges** with regard to health, safety, and sleep. CIRCADIAN understands -- and we want to help by offering a complimentary printed copy of one of our resources.

The Working Nights Health & Safety Guide provides years of shiftwork wisdom, captured in a concise, non-technical guide. It covers all the most critical areas, including:

- Understanding Circadian Rhythms
- Work Performance and Job Safety
- Sleep
- Health Problems and Solutions
- Nutrition
- Family and Social Life

The 40-page guide includes **interactive quizzes** to help shiftworkers evaluate their fatigue level and improve alertness at work and sleep at home. It's an invaluable lifestyle/health and safety training resource to hand out to new hires, family members of shiftworkers, or to give to experienced workers as a refresher.

[Request your complimentary copy](#) today to evaluate how your team could benefit from this handy guide!

Falling off an Aircraft

An F/A-18C Hornet assigned to the “Death Rattlers” of Marine Strike Fighter Squadron (VMFA) 323 takes off from the aircraft carrier USS Nimitz (CVN 68).



While assigned to the line division, I found myself tasked with preparing two of our aircraft for an upcoming material control inspection (MCI).

This meant I spent most of my time in the hangar bay with Sailors from the corrosion work center working on these jets. The inspection was scheduled for shortly after we returned to Japan from our summer patrol. Although I was not working on the flight deck, I quickly learned that my work environment could be just as dangerous, [especially when rushing to complete a routine task.](#)

It was my responsibility to make sure the aircraft was hand-wiped and had clean landing gear. As I was wrapping up my shift for the day, my last task was putting the canopy cover on the aircraft. Prior to doing this, I put on the proper personal protective equipment (PPE), which consisted of my cranial and gloves. After climbing the aircraft ladder, I stood on the aircraft leading edge extension (LEX) to attach the canopy cover. As I reached over the LEX, I realized that the other side of the cover had become tangled. Instead of walking behind the cockpit to the opposite LEX to untangle the cover, [I figured I could save time](#) and finish the task by simply reaching across the canopy. As I did this, I stood on my tiptoes to stretch and reach to the far side. Still needing to reach just a little farther, I lifted one foot as I stood on the LEX, lost my balance, and fell from the LEX to the hangar bay floor below.

The LEX on an F/A-18 Super Hornet sits about eight feet above the ground and the hangar bay on an aircraft carrier seldom has open space around a jet. [Luckily, I have a background in sports,](#) and I was able to land on all fours with no injuries and only minor embarrassment. Even more fortunate than my landing was the fact that nothing was parked under the LEX. It is rare that there is not some type of support equipment or other hazard in close proximity to aircraft in the hangar bay.

Instead of landing on non-skid, I could have landed on something sharp that would have caused serious injury.

The moral of the story is that no matter how easy or routine a task seems, **make sure you take the extra time to do it safely**. In my case, all I needed to do was take the extra 15 seconds to move to the opposite LEX and untangle the canopy cover. Instead, **I rushed to finish my last task of the day**. Take the extra minute or two to make sure the job gets done correctly instead of taking a short cut and risking injury to yourself or damage to equipment. Even the simplest tasks that have been done a **million times cannot be overlooked**. A routine task such as attaching the canopy cover can be just as dangerous as launching a jet on the flight deck in adverse weather conditions if not taking the right precautions.

Sequence of Miscues Leads To G450 Nose Gear Collapse

A Gulfstream G450 was damaged last April after its nose gear retracted on a taxiway following an attempt by the crew **to remove the landing gear safety pins**, according to a preliminary report from Austria's accident investigation branch. The crew failed to remove landing gear safety pins before takeoff and then decided to remove them on a taxiway after returning to the departure airport.



Several seconds after taking off from Salzburg, Austria, bound for Bangor, Maine, the copilot moved the landing gear lever to the UP position, but the gear remained down and locked. The crew suspected that the landing gear safety pins were still installed and decided to return to Salzburg Airport.

After the G450 landed and cleared the runway, controllers cleared the twinjet to taxi to the parking ramp. But when the crew noticed an increased rolling resistance, they stopped the aircraft on the taxiway and the copilot exited to check the tires and see if the safety pins were installed.

At the same time the copilot left the aircraft, the pilot left the cockpit **with the engines still running** to inform the two passengers in the cabin of the situation. According to the preliminary report, the crew did not inform the control tower they were stopping and the tower tried without success to make contact with the crew.

Seeing that safety pins were in fact installed, the copilot tried to remove them, but failed because of the hydraulic pressure on the gear. He then operated the gear door control valves of the nose and main landing gear several times and installed the gear door control valve pins.

This closed the gear doors, the hydraulics depressurized, and the copilot was able to remove the pins. **However, a moment later, the gear doors opened, "the nose gear folded and the aircraft's nose lowered and hit the taxiway."** The pilot then switched off the engines.

Although the preliminary report does not include an official cause, it did note, "No indication could be found that both the 'Landing Gear Failure to Retract' and the 'Attempted Landing Gear Retraction with Safety Pins Installed' **checklists were executed from the time the installed safety pins were detected until the time of the accident.**

<https://aviation-safety.net/database/record.php?id=20170411-0>

Report finds improper decision-making was common thread in Idaho's recent aviation accidents

Idaho's Division of Aeronautics, in its Idaho Aviation Accident Score Card, found faulty aeronautic [decision-making](#) was the common thread for most of the state's 22 general-aviation accidents. There are numerous aviation safety teachings in the coming year to combat this trend.



Most of the accidents — 68% — occurred during the takeoff or landing phase of flight.

The National Transportation Safety Board (NTSB) categorized 73% of the accidents as “[pilot error](#).” Another 9% were listed as “[mechanical/maintenance](#)” accidents. Five percent were “environmental,” another 5% were “unknown,” and 14% are still under investigation.

The report excludes scheduled commercial-airline flights and flight activity performed by the uniformed armed services.

General aviation flying in Idaho can be challenging. Statistics indicate Idaho has traditionally experienced a higher per-capita accident rate than neighboring states. In 2013, the division set a goal of reducing the state general aviation accident rate by half over a five-year period.

[The goal is being accomplished through](#) airport standard operating procedures, welcome packets for visiting pilots, fly-in safety briefings, safety seminars, and the annual safety standdown event.

The report analyzes aviation accident data from two years prior, in this case 2016. The data comes from the NTSB database. It takes a couple years for investigations to be completed; thus the reason for the two-year lag.

The report includes yearly comparisons and summaries, total number of general aviation accidents, fatal accidents, fatalities, pilot qualifications, and class of aircraft. “With this data, we can identify a particular area of emphasis when [planning workshops and trainings](#) for the next year,” said Idaho Division of Aeronautics’ Jim Hinen, who leads the safety/education unit.

Here are a few of the findings:

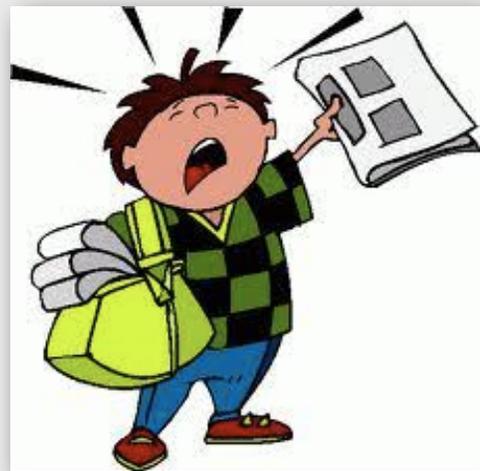
- Aircraft accidents decreased from 28 in 2015 to 22 in 2016
- Fatalities resulting from aircraft accidents decreased from 9 in 2015 to 1 in 2016
- Fatal accidents decreased from 4 in 2015 to 1 in 2016

The mission of the Idaho Division of Aeronautics is to promote and foster aviation within the state of Idaho. The Safety/Education unit of the Division supports this mission by providing relevant, high-quality safety information, and education programs for the benefit of stakeholders.

<http://apps.itd.idaho.gov/apps/aero/Publications/IAASC.pdf>

AMT Airman Certification Standards Draft Document Now Available

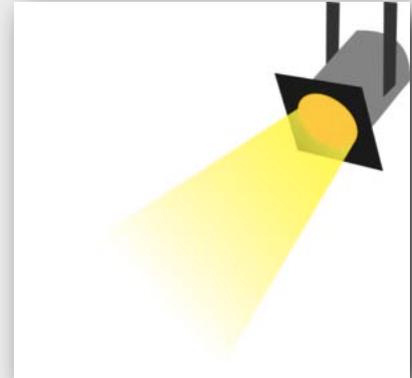
The FAA is in the [process of replacing](#) the Aviation Mechanic General, Airframe, and Powerplant Practical Test Standards (PTS) with a single, more comprehensive, Aviation Maintenance Technician (AMT) Airman Certification Standards (ACS) document. The ACS will help provide a single set of standards for the AMT knowledge, oral, and practical tests and help applicants understand what they will need to know, consider, and do to earn an AMT certificate with Airframe and Powerplant ratings.



A draft of the new AMT ACS is available at www.faa.gov/training_testing/testing/acs/media/amt_acs.pdf. Please provide comments to afs630comments@faa.gov by May 31, 2018. The final version of the AMT ACS is expected to be effective June 2020.

NTSB Continues Spotlight on Loss of Control

The National Transportation Safety Board continued its spotlight on [loss of control in-flight \(LOC-I\)](#) accidents today, hosting another event to delve into the issues surrounding LOC-I and [preventive measures](#) through training and technology. The day-long roundtable session, moderated by NTSB chairman Robert Sumwalt, is the latest in a series of efforts the Safety Board has taken to address [general aviation's leading cause of accident fatalities](#).



The NTSB previously has hosted a symposium, issued safety alerts, held regional sessions and highlighted LOC-I in its "Most Wanted List" of transportation safety improvements. Joining Sumwalt in today's roundtable were NTSB member Earl Weener, other senior-level Safety Board staff, and representatives from the FAA, aviation associations, universities, and companies.

["Loss of control in-flight kills more general aviation pilots and passengers than any other factor,"](#) Sumwalt told the roundtable participants, saying the roundtable's goal is to develop clear actions to address the issue. "Loss of control in-flight is claiming entirely too many lives. Let's get to work."

[Over the past 10 years,](#) 978 pilots lost control of their airplanes, resulting in 1,672 fatalities. "That is enough to fill this conference room six times over. Loss of control is a real problem," said John Delisi, NTSB, director of the Office of Aviation Safety.

The roundtable was [focusing on a number of factors](#) that could play a role in preventive measures, including professionalism, pilot mentoring, new technologies such as flight data monitoring, simulator solutions, information sharing, common pilot mistakes, and management systems.

The session opened with NASA shuttle commander and Orbital ATK Flight Systems v-p and general manager Charlie Precourt discussing the importance of [creating a culture of learning in general aviation](#). Some initial training experiences are not pleasant, he said, and creates a fear of continuing education. At NASA, he said, “We taught each other to not fear embarrassment, [because embarrassment is what comes with learning](#). It reinforces; sometimes it is easier to learn from your mistakes than your successes.”

Aerobatic champion and Patty Wagstaff Aviation Safety general manager Patty Wagstaff stressed the importance of professionalism, agreeing with sentiments that Sumwalt also expressed: “You do not have to be a professional pilot to act like a professional. [Professional pilots are always seeking ways to improve.](#)”

She expressed concern that many pilots do not gain even the basic skills, and she emphasized the need to be open to instruction and [willingness to make mistakes in instruction](#). “Sometimes we have to go backwards to move forwards. I think pilots really have to revisit the basics.”

“I think there is a lack of rudder skills and a lack of understanding of the aerodynamics behind some of these maneuvers,” added Carolina Anderson, associate professor of aeronautics at Embry-Riddle Aeronautical University, who noted that students need more training on stall speeds in slips and skids. She also said she believes [glider training](#) often helps with rudder skills because it prepares for emergency-management planning.

Dave Sizoo of the FAA’s Small Airplane Standards division further discussed a need for pilots to remain connected with the aircraft, saying a [weakness in generalized attention](#) is a contributor to loss of situational awareness. “Pilots need to be connected with the airplane and understand when the airplane is talking to them,” Sizoo said.

The early roundtable discussions also focused on the expanded use of simulators, including desk-top and home-based systems, and addressing a concern that it might interfere with gaining flight time.

New Zealand Tour Operator Reviewing SMS After 2016 Crash

A New Zealand sightseeing helicopter operator is [reviewing its safety protocols](#) amid the nation's accident investigation board's release of a final report of the company's 2016 crash — the fourth crash for the company in three years. According to the Transport Accident Investigation Commission report released Thursday,

The Helicopter Line's Airbus Helicopters AS350-B2 transporting five passengers for a snow-landing experience Sept. 12, 2016, collided with terrain upon landing on Mount Sale, about 14 miles northeast of Queenstown.



When the pilot approached the landing site, the rate of descent suddenly increased, so he "increased the power to go around," the report said. That's when the helicopter struck the ground with the landing gear and the main rotor blades, and rolled onto its left side.

One of the passengers suffered a laceration to his knee. All were transported to the hospital.

[The investigation board found that the pilot](#) "very likely made" a downwind approach to land, when expecting a crosswind. The board also found that the pilot flew the approach at a "relative high, speed, low and close to the landing site," resulting in a "tight turn to a short final approach, which did not allow [the pilot] time to confirm the anticipated wind." Further, the board said, "the pilot did not conform with the operator's stated principle of conducting constant attitude approaches."

The report notes that the September 2016 crash was the company's fourth serious landing accidents in three years. Because of this, the commission recommended that the company review its safety management system (SMS) process.

According to the report, company CEO Lois Hutchinson said it would seek SMS certification in 2019. Hutchinson said the company has already implemented some SMS elements, including attending related seminars and receiving educational material from the Civil Aviation Authority. Further, she said, the company's operational personnel had [received online human factors training](#) in January 2017, and a consultant developed a program for the operation.

The other crashes the board refers to occurred in 2013 when two of the company's helicopters collided on a snowfield, in twice in 2014 when helicopters in each incident struck terrain and rolled onto their sides.

There are 12 helicopters registered to the company, including nine Airbus AS350-B2 Ecureuils, an AS350-BA Ecureuil, an AS350D AStar and a Bell 206B-2 Jet Ranger.

<http://www.rotorandwing.com/2017/10/24/value-safety-management-systems-operators-large-small/>

Cargo Pilots Oppose Single-Pilot Proposal

The FAA funding bill now under consideration in Congress includes allocations for research into [single-piloted commercial aircraft](#), and several pilot advocacy groups are lobbying hard against it, citing safety and security concerns. “The desire by some in the industry to pursue single-piloted or [autonomously piloted cargo aircraft](#) seriously places the American public and the flight crews of these aircraft in a tenuous position,” says a joint statement issued by the cargo pilots of the Air Line Pilots Association, the Independent Pilots Association and the International of Teamsters Airline Division. “By endorsing language that promotes single-operator commercial cargo aircraft.



Congress will undermine years of safety and security measures currently in place and put lives at risk,” the pilot groups said.

The bill specifies that the research and development program would be conducted by the FAA, in consultation with NASA and other relevant agencies. The program would study the technology needed for a single pilot to fly a cargo aircraft, [assisted by remote piloting and computers](#). “With the increasing frequency and severity of reports regarding computer hacking, accidents in current military and civilian drone operations, and mounting reports of autonomous vehicle accidents, we think any serious consideration of this technology is premature at best,” the pilot groups said.

Airplanes Helping Airplanes – Drones in the Aircraft Maintenance World

Given how few airline accidents have occurred over the past 20 years, people rarely give a second thought to whether or not the aircraft they are boarding is mechanically reliable. If they did look into the matter, they would likely be surprised to see [how much work](#) goes into making sure the aircraft is in working order.

Maintenance of an airliner is both time and manpower intensive, and results in each aircraft being unavailable for revenue generation for an extended period of time. As a result, any technology that can reduce either the amount of personnel or the amount of time [needed to inspect](#) an aircraft can have a big impact on the bottom line.

By way of example, an “A Check” inspection is performed on aircraft roughly every 400-600 flight hours or 200–300 takeoffs and landings, takes between 50 and 70 man-hours, and takes the plane out of service for a minimum of 10 hours.



The more thorough “B Check” is performed every 6-8 months, requires 160-180 man-hours, and can take 1-3 days.

Even before the first Section 333 Exemptions were granted, people were experimenting with the idea of using [unmanned aircraft to speed up inspections](#). Since most work of this type occurs in a large hangar, it is outside the National Airspace System, providing more flexibility and freedom in performing this work.

Airbus, which is one of the world’s largest manufacturers of commercial aircraft, has announced it will be introducing [a new unmanned aircraft designed from the ground up to inspect aircraft](#), called the Airbus Advanced Inspection Drone. The UAS comes with software that has a custom autonomous flight path for each aircraft it inspects to ensure uniform coverage.

The drone is equipped with an optical camera as well as a laser based collision avoidance system to allow it to fly in close proximity to the aircraft and to avoid the hazards that come from indoor flight.

After the flight, the system’s software compares the images captured to the 3D model of the aircraft, and [automatically generates a report of anomalies](#). According to Airbus, use of the system will cut the amount of time needed to complete a full inspection of the top of the aircraft [from one day to approximately 30 minutes](#). Airbus expects the European Aviation Safety Agency to authorize the use of the system as an alternate means to complete the general visual inspection process by mid-year.

While traditional aviation stakeholders have been understandably concerned over the hazards of unmanned aircraft, small [UAS are also starting to provide](#) substantial benefits, from infrastructure and runway inspections at airports to accident investigations, to aircraft inspections. Systems like this can be a game changer for maintenance repair and overhaul service providers or airlines, by cutting costs and getting aircraft back into service faster.

Navy: Training jet flew too low -- for thrills -- before crash

The Navy is citing pilot error for a military training jet crash in Tennessee that killed the two aboard, saying it was being flown for thrills and too low.

Navy officials said in a report the T-45C Goshawk was flying below allowable altitudes last October when it plunged into a forest near Tellico Plains. The report was emailed Saturday to The Associated Press, which requested it under the Freedom of Information Act.



The crash killed 31-year-old instructor Lt. Patrick Ruth from Metairie, Louisiana, and 25-year-old student pilot Lt. j.g. Wallace Burch from Horn Lake, Mississippi. Both were stationed at Naval Air Station Meridian in Mississippi. The flight originated from McGee Tyson Airport in Knoxville, Tennessee.

The report cited a "culture" within the individual training unit and Naval air training at large that allowed pilots to fly "beyond the bounds" of approved Naval Air Training Command curriculum. It also said leadership failed to ensure training operations adhered to approved publications.

Ruth "was overly confident, nonchalant, and aggressive at low altitude training, with limited awareness of the performance capabilities" of the aircraft during the low-altitude awareness training flight, the report said. Ruth's attitude "conditioned (Burch) to fly the aircraft in an aggressive manner, without correction" from Ruth.

The report said Ruth exceeded approved training curriculum, including aggressive ridgeline crossings and descending turns that went below the minimum altitude of 500 feet (150 meters).

Shortly before the crash, Ruth told Burch they would "deviate from the direct line" of the approved training route in order to follow terrain.

Ruth started a descending turn to demonstrate terrain-following techniques, then instructed Burch to make a hard right turn.

But the plane was going too slow and too low relative to the rising terrain ahead, the report said. "In response to their maneuvers, the aircraft entered into a stall," it added.

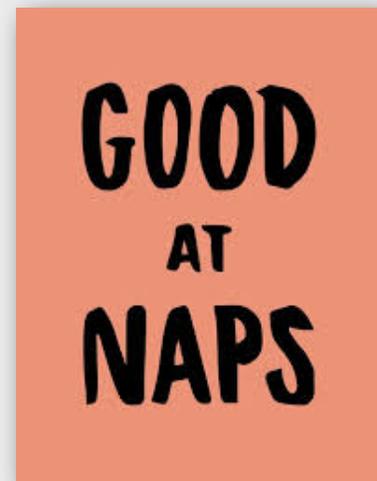
By the time the crew realized the situation, [it was too late to safely eject](#), according to the report.

The Navy said it has since conducted an audit to ensure instructor pilots have completed training requirement.

Naps Are Really Beneficial. Here's How to Take Them.

Scientists are divided on the health benefits of a [dozy afternoon](#), reports Popular Science. Here's your new naptime mantra: "[Keep it brief.](#)" While everyone you know swears by a certain magic number (7 minutes! No, 17 minutes!), the National Sleep Foundation has this to say: "a short nap"—say, 20 minutes—"can help to improve mood, alertness and performance," without side effects like grogginess.

When you lie down for those 20 minutes of shuteye, even if you're really tired, it can be hard to actually fall asleep.



[Get the full story at www.popsci.com](http://www.popsci.com)

CBS SUNDAY MORNING

Steve Hartman visited Africa to investigate the story of how a suspicious [Facebook message](#) actually led to a friendship, and a publishing business that is investing in an impoverished community in Liberia.



<https://www.cbsnews.com/video/a-facebook-message-that-sparked-hope/>