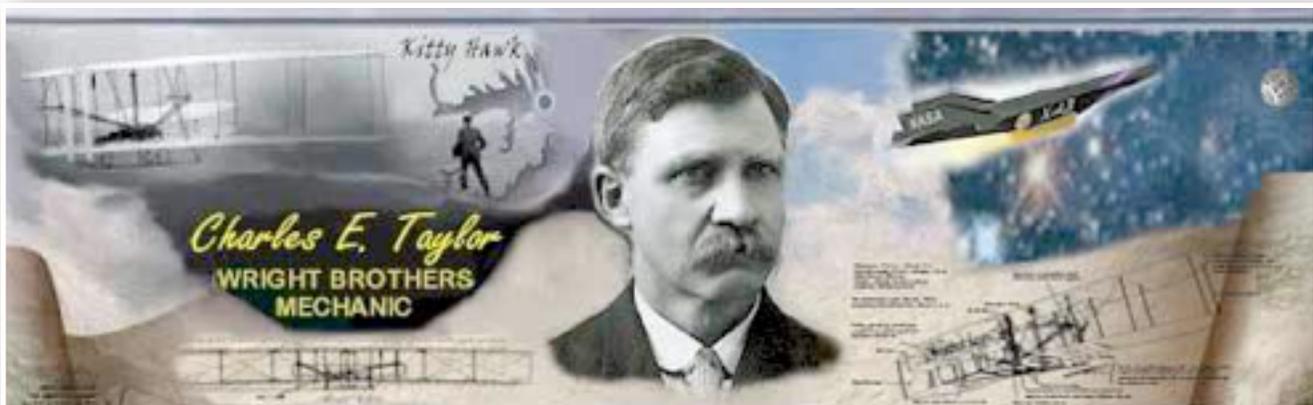


# Aviation Human Factors Industry News

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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](mailto:rhughes@humanfactorsedu.com)

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

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## The Effect of Human Factors in East Asia

An employee's awareness of possible consequences should lead them to think and act in a safer way.

Human factor issues on the ramp are one of the main aspects affecting aircraft ground handling safety. Human error, and more broadly [the limited consideration to human factors](#), can lead to risky situations in the ramp environment. In East Asia there are some main human factor issues on the ramp that are specific to the region and need specific targeting in [human factors management](#) initiatives at ground handling companies. In relation to human factor issues, perception and image are very important. East Asian countries are no different in terms of human needs. However, what is different in East Asian countries is the variety of [cultural pressures](#) integrated in the society.



“And though they may differ country-by-country, status, seniority and respect take on a different perspective in Asia, as people behave in ways to avoid outcomes that may lead to [loss-of-face](#) for the person who is higher in status and shows a bit of grey hair,” says Brenda Aremo-Anichini, managing director of ground handling consultancy Twiga Aero. “That person is therefore shown a form of respect, which, in aviation terms, avoids sharing the full picture and leads to decisions [that do not address the underlying problems](#) and protects the individual who may have made a poor decision, masking the problem altogether.”

### **The Role of Training**

[Training](#) plays an important part in human factors awareness. Employees' awareness of the possible consequences of their actions, should lead them to think and act in a safer way. In aircraft ground handling operations, [human factors training is a requirement](#).

Aremo-Anichini, however, points out that “it often appears that, when provided, human factors training is a tick-in-the-box item, which may be adapted to consider the local culture. Its efficacy is therefore diluted. In the past years we have taken a different approach involving front-line staff to provide their direct, unfiltered inputs by creating an environment in which individuals can [safely express themselves anonymously](#). This seems to deliver good results, especially in controlling safety-related problems.”

There are some main aspects to emphasize in ground handling human factors training in East Asian countries. Indeed, ground handling human factor training syllabi in East Asian countries may need to differ from those in Western countries.

“There may be a problem as programs may not be adapted to the local environment. When making standards and designing training programs, we tend to try and fit everyone into the same mould,” says Aremo-Anichini. “Where this checks the box, [it does little to address](#) the real needs of an organization in terms of staff understanding requirements and ensuring conformance to suitable standard that meets the requirements of the local/regional work force.

“East Asians are hard workers and industrious. As much as this is a testament of the high economic growth rates in East Asia, it can also mean people [overwork and are tired](#),” she continues. “[Fatigue](#) is a big problem as people work hard and put their bodies to test during long hours of work and non-work related activities, leaving little time for good quality rest. Having [multiple jobs](#) is also not uncommon as people ‘make ends meet.’ And there appears to be an inherent sense of [rush, among ground operations staff](#). Management talks about safety, security and quality outputs and all the while they [check their watch](#) for on time performance (OTP). This puts staff in a difficult situation and [under pressure](#). A pressure they feel constantly and which they cannot shake loose as they strive to perform their duties in accordance with management instructions.”

At Hong Kong International Airport (HKIA) training [involves the community](#) in order to increase efficiency.

“We work hand in hand with the airport community to enhance work efficiency.

While individual ramp handling operators (RHO) have their own operation and training, which have to comply with our requirements, we also strive to maintain the high quality of ramp environment as a whole and enhance working conditions as well as daily operations via the use of automation, enhancement in staff welfare and inculcation of the [safety-first culture](#),” say officials of Airport Authority Hong Kong.

### **Safety Leadership**

At the strategic level, safety leadership is a critical element to drive and shape the outcomes of the safety initiatives and improvements.

“[Driven from the top](#), it is required to improve safety accountability and the sense of responsibility. The modus operandi is very often linked to punishment and sanctions for an individual not doing things ‘right.’ This being said, little room is left for honest mistakes. East Asia is a very large region with a variety of cultural backgrounds, hence it is difficult to generalize,” says Aremo-Anichini. “This said, organizational cultures may tend to only consider [just culture on paper](#). This important point is key to opening up a new paradigm that will foster an environment where people do not fear retribution or the loss of their job if something goes wrong [due to an honest mistake](#) that anyone can make. It appears that making mistakes is a ‘shameful thing’ rather than this being viewed as an opportunity to learn from past mistakes.

“Reporting near-miss events, incidents and accidents is perceived as having [failed](#). Where an accident is obvious, a near-miss event can easily be excluded from reporting. This is the point where opportunities to improve [slip through](#) the organizations’ capability to improve. Staff fear losing their job, retribution and reprimand for wrong doing. This results in a low level of accident reporting,” continues Aremo-Anichini.

“[The real nuggets lie in the near-miss events](#), which provide an opportunity to dig deep, conducting root cause analysis to identify the key elements that require change and what the change would look like once implemented. Through direct efforts, we have been successful at implementing programs to drive a high level of reporting, conformance to operational standards and fostering a culture of ongoing change.

Such efforts have resulted in a significant decrease in incidents and accidents, while improving the reporting and driving a strong sense of safety culture among staff.”

### **Broader Scope**

At Hong Kong International Airport, which is one of the busiest international airports, [human factor considerations](#) are contextualized within process automation and transformation initiatives to offer visible impacts in tackling manpower and equipment shortage in daily operations.

“We introduced the powered baggage loading device with integrated RFID system, i.e., STACK@EASE, to assist departure baggage loading to alleviate RHOs’ labor demand, to increase work safety and productivity,” say officials at Airport Authority Hong Kong. “We have implemented a pioneer resources-sharing solution – the ground service equipment (GSE) pooling scheme. Since July 2018, RHOs have been provided with critical GSE on stand for aircraft turnaround handling when they operate at the HKIA midfield apron, 95 percent of which are of the zero-emission electric models. The scheme alleviates staff’s stress amid equipment search, reduces vehicular traffic on apron and fosters a cleaner and safer working environment.”

Airport Authority Hong Kong has been enhancing working condition on the apron in consideration of the generally humid and hot weather in Hong Kong.

“In 2018, in addition to adding [two resting lounges](#) in the terminal, we further added 40 percent of seating, and provided 24/7 mobile drinking water supply trucks, vending machines and extra ventilation facilities on apron areas for ramp workers,” Airport Authority Hong Kong officials say. “The improved working condition is expected to [relieve stress](#) associated with the dynamic and fast-paced surroundings on apron and enhance operational performance. Safety is the heart of our business. We offer [regular safety roadshows](#), [issues safety circulars](#) and alerts to our RHOs to ensure we are well coordinated and aligned in achieving this common objective.

“Experience-sharing fosters our operators to build safety awareness and skillfulness when operating on apron. In whole, we implement multi-dimensional measures to [mitigate risks and advance the quality](#) of the apron working environment for our RHOs. We also encourage individual companies to tailor their own operating and training procedures to deliver efficient, safe and outstanding services at Hong Kong International Airport.”

## Significant Equipment Failures Call for an Emergency Landing

by [John Goglia](#)

I thought by now pilots—especially professional pilots—would know not to troubleshoot equipment problems in the air. Especially significant equipment problems. Everyone should know by now that the best place to troubleshoot is on the ground and when significant failures occur, land the aircraft as soon as possible. [Recent events suggest this is a lesson worth repeating.](#)

Reading the preliminary accident report of the Lion Air crash on October 29, 2018, I was shocked that the pilots on the flight **before** the fatal flight lost significant instruments in flight and yet did not make the decision to land immediately. While the cockpit voice recorder of the fatal flight has been recovered, its contents have not been released. However, the air traffic control tapes are available both for the accident flight and the earlier flight in the same Boeing 737 Max. Investigators are questioning whether the problems experienced on the fatal flight were related to problems that occurred on earlier flights and whether the problems were properly addressed by maintenance when the aircraft was released for service on its fatal journey. [For that reason](#), the preliminary report has more detailed information on earlier flights than one would typically find.



Whatever happened to cause the October 29 Lion Air crash is still the subject of intense investigation and analysis by the Indonesian government, with the assistance of the U.S. NTSB and the accident investigation bodies of Australia and Singapore. That investigation will probably take quite a few more months, if not a year or more. Complex investigations can take a long time to get them right.

The preliminary accident report highlights actions by the [earlier flight crew](#) that are worthy of note for all pilots, whether airline, corporate, or GA. According to the report, the Lion Air crew on the October 28 flight (the day before the fatal crash) was advised that maintenance had been performed on the angle-of-attack sensor and that it had been replaced and tested. The flight took off from Denpasar, Indonesia, en route to Jakarta. The report states that while the crew reported a normal takeoff, about two seconds after gear retraction problems began. Within five minutes of takeoff the following was reported:

*About two seconds after landing gear retraction, the Takeoff Configuration Warning appeared then extinguished. About 400 feet, the PIC noticed on the primary flight display (PFD) that the IAS [indicated air speed] [DISAGREE](#) warning appeared and the stick shaker activated. The FDR [flight data recorder] showed the stick shaker activated during the rotation. Following that indication, the PIC maintained a pitch of 15 degrees and the existing takeoff thrust setting. The stick shaker remained active throughout the flight.*

The PIC realized that as soon as the SIC stopped trim input, the aircraft was automatically trimming aircraft nose down. After this happened three times, the captain declared “[PAN-PAN](#) to the Denpasar Approach controller due to instrument failure.” Pan pan is an international term that indicates an urgent situation but not one requiring immediate assistance (as a mayday call would.) The air traffic controller asked if the crew wanted to return to land. At this point, the crew was just five minutes from its departure airport. Although a significant instrument had failed in-flight, [the crew chose to attempt to fix it in flight](#) and declined to return to land.

This was clearly not the correct decision and likely violated Indonesian regulations, which—like the Federal Aviation Regulations—require that a pilot-in-command discontinue a flight [when an unairworthy condition arises](#).

One of the safety recommendations in the preliminary accident report addresses this very problem, recommending that Lion Air remind its crews:

*[Indonesian Civil Aviation Safety Regulations require that] the pilot-in-command shall discontinue the flight when unairworthy mechanical, electrical, or structural conditions occur. The flight from Denpasar to Jakarta experienced stick shaker activation during the takeoff rotation **and remained active throughout the flight**. This condition is considered an un-airworthy condition and the flight shall not be continued.*

So while the pilots decided to continue the flight, believing apparently that the aircraft's problems had been corrected (although the stick shaker remained on), 16 minutes later the crew again declared pan pan, telling air traffic control that the flight experienced instrument failure involving altitude and autopilot. **Once again, the crew determined to keep flying.**

Fortunately for this crew and its passengers, the aircraft landed safely in Jakarta an hour later. I know many of you may be shaking your heads thinking this could happen only in a developing country. Or with a low-cost carrier. Or only with a low-cost carrier in a developing country. But I've seen this same in-air troubleshooting happen with **aircraft and crews of all types**, including major airlines in the United States.

The crash that immediately comes to my mind because it happened while **I was a Member of the National Transportation Safety Board** is the Alaska Airlines accident on Jan. 31, 2000 off the coast of California. The NTSB determined that the probable cause of the accident was "a loss of airplane pitch control resulting from the in-flight failure of the horizontal stabilizer trim system jackscrew assembly's acme nut threads. The thread failure was caused by excessive wear resulting from Alaska Airlines' **insufficient lubrication of the jackscrew assembly.**"

The accident sent the MD-83 crashing into the Pacific Ocean, killing all 5 crewmembers and 83 passengers. For at least 20 minutes before the crash, the crew and company mechanics on the ground **attempted to troubleshoot the problem with the horizontal stabilizer**. During this troubleshooting, **the aircraft overflew airports where an emergency landing could have been made.**

The October 28 Lion Air crew and passengers got lucky that their in-air troubleshooting did not result in disaster. There's no room in aviation for relying on luck. If there's an airworthiness problem that requires troubleshooting, [find a suitable place to land first](#).

[https://reports.aviation-safety.net/2018/20181029-0\\_B38M\\_PK-LQP\\_PRELIMINARY.pdf](https://reports.aviation-safety.net/2018/20181029-0_B38M_PK-LQP_PRELIMINARY.pdf)

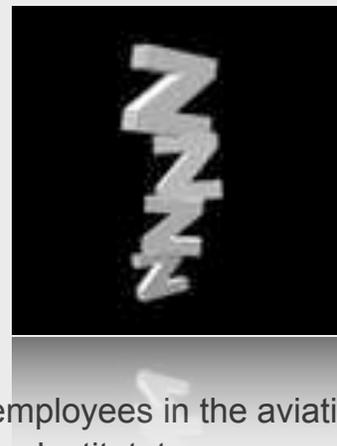
<https://www.nts.gov/investigations/AccidentReports/Reports/AAR0201.pdf>

## **Study suggests it is common for airline pilots work in spite feeling tired, fatigued or unfit to fly**

A new study suggests that inappropriate presenteeism — [working in spite of being sick, having poor mental health, or feeling fatigued](#) — is fairly common among Swedish commercial airline pilots. The findings appear in *The International Journal of Aerospace Psychology*.

“Market liberalization has during the last decades created a quest for enhanced effectiveness and competitiveness, [leading to increased work demands](#) for employees in the aviation industry,” said study author Filippa Johansson of Karolinska Institutet.

“Pilots are to refrain from flight duty on occasions when their mental or physical state may endanger flight safety. After the Germanwings flight crash, in which the co-pilot deliberately crashed the aircraft into the Alps, several questions were raised regarding the health of commercial pilots and their self-declaration of unfitness. That's why we decided to investigate pilot health and presenteeism.”



For their study, the researchers surveyed 1,133 people in Sweden who were currently working as a pilot at a commercial airline. Johansson and her colleagues found that **54% of pilots reported flying** despite it being legitimate to take sick leave on at least one occasion in the past 12 months.

In addition, **63% percent reported flying** on at least one occasion in spite of feeling tired, fatigued, or unfit for other reasons and pilots who engaged in inappropriate presenteeism were more likely to report a history of committing errors in the cockpit.

The researchers also found that pilots **with more flight experience** were less likely to engage in presenteeism.

“Despite recurrent medical examinations pilots tend to experience anxiety and depressive symptoms as frequently as the general population. Pilots are legally required to stay at home when unfit for flight, however, presenteeism seems to be as prevalent among pilots as among the general population, suggesting that **pilots do not always comply with regulations**. Our data also show that attending work in unfit states have a negative impact on flight safety,” Johansson told PsyPost.

“We hope that our work will provide information for decision makers within the aviation industry and **hopefully be of aid to safety work** in airlines and consequently, increase flight safety in Sweden.”

The study — like all research — includes some limitations. It is unclear how well the results generalize to airline pilots in other countries. The study also did not directly address pilots’ motivations for presenteeism.

“We are currently trying to answer the question *why* pilots attend work when unfit. Being a pilot is special in the sense that classical reasons for sickness presenteeism may not be applicable.

Pilots cannot themselves determine their pace of work, they do not have to make up for missed work, and they cannot adapt their work to their current mental or physical state,” Johansson said.

“Preliminary results indicate that [safety culture, job insecurity and financial issues](#) can explain why some pilots take off in unfit states. For future studies, we would also like to more carefully look at different sorts of inappropriate and sickness presenteeism to more accurately be able capture and combat reasons for presenteeism.”

The study, “[Fit for Flight? Inappropriate Presenteeism Among Swedish Commercial Airline Pilots and Its Threats to Flight Safety](#)”, was authored by Filippa Johansson and Marika Melin.

<https://www.tandfonline.com/doi/full/10.1080/24721840.2018.1553567>

## **SWEEPSTAKES PROMOTES GA SAFETY**

A longtime advocate for aviation safety is offering [pilots and flight instructors](#) a chance to become safer aviators by giving them [incentive to participate in the FAA’s Wings Pilot Proficiency program](#).

Paul Burger, a retired businessman and general aviation pilot, is the founder of the Wings Industry Advisory Committee, a volunteer coalition of stakeholders in GA >



safety that recently distributed “cash incentives” through the \$10,000 Paul and Fran Burger WINGS Sweepstakes. Awards went to selected participating CFIs with membership in the National Association of Flight Instructors or the Society for Aviation and Safety Educators “who assist their clients to earn a phase of Wings at the Flight Review,” and to selected pilots who complete a Wings program phase, “whether Basic, Advanced or Master.”

[The 2019 sweepstakes is open to all pilots and CFIs](#) to encourage participation in the FAA educational program aimed at reducing GA accidents. The entry deadline is Dec. 31, 2019, for a chance at four prizes of \$1,500, four prizes of \$750, and two prizes of \$500.

According to the Wings Industry Advisory Committee website, Burger is a “passionate aviator” who earned commercial and airline transport pilot certificates, single- and multiengine and instrument ratings, and accumulated 2,446 hours of flight time. “During his time flying he heard of many GA accidents, too many resulted in fatalities. Then, Paul lost two very special friends to a GA accident that he and others believed could have been avoided with adequate training,” it says.

Burger then “made it his [personal mission](#) help save the lives of pilots and their passengers by making a substantial donation to the AOPA Air Safety Institute and most recently put up \$50,000 for this sweepstakes.” The sweepstakes is funded “at \$10,000 per year through 2022.”

AOPA supports the FAA’s Wings program, and has made it possible for pilots who take the AOPA Air Safety Institute’s Focused Flight Review to receive Wings program credit for their work, said Air Safety Institute Executive Director Richard McSpadden.

“We appreciate any effort to promote Wings and grow aviation safety,” he said.

Burger said organizations including the FAA Safety Team, the National Association of Flight Instructors, and the Society of Aviation and Flight Educators support the initiative. Hartzell Propeller of Piqua, Ohio, is a national sponsor. There are also several aviation groups acting as industry sponsors, and several individual sponsors.

“We have all agreed to move forward under the following premise: When it comes to general aviation safety, we cooperate, we don’t compete,” he said.

[https://www.faasafety.gov/wings/pub/learn\\_more.aspx](https://www.faasafety.gov/wings/pub/learn_more.aspx)

<https://www.mywingsinitiative.org/>

<https://www.mywingsinitiative.org/about-us>

<https://www.aopa.org/news-and-media/all-news/2018/july/13/making-good-pilots-better>

## **Maintenance error leads to fatal accident**

The pilot was flying a local, personal flight from his personal airstrip after sundown. A witness who heard the Beech A45 before the crash reported that the engine made a “sputtering” sound.

The airplane hit two tall trees and came to rest inverted on the approach end of the runway in Climax, Georgia.



The pilot died in the crash. The propeller did not exhibit indications of rotational damage. Although the right fuel tank was breached from impact and no fuel was found inside, the left tank contained 11 gallons of fuel.

An annual inspection was completed on the airframe and engine about 2.2 hours before the accident. An examination of the engine fuel lines found the throttle and metering unit outlet AN “B” nut was less than finger-tight. When the fuel manifold valve cap was opened, fuel leaked from the loose throttle and metering unit outlet AN “B” nut.

Compressed air was passed through the throttle and metering unit inlet fuel line; bubbles and fuel could be seen coming out of the fuel outlet AN fitting.

The condition of the fuel lines was an inspection item specifically noted as completed during the annual inspection.

The throttle and metering unit outlet “B” nut most likely was not adequately secured during the inspection and backed off during the 2.2-hour previous flight and the 12-minute accident flight, which subsequently resulted in a total loss of engine power.

The pilot was likely attempting to return to the runway, as the landing gear were extended and the flaps were up at the time of the accident. However, since the accident occurred concurrently with the end of civil twilight, it is possible that he did not see the trees on final approach due to the darkening conditions.

**Probable cause:** The failure of maintenance personnel to ensure that the throttle and fuel metering unit AN “B” nut was secured, which resulted in a total loss of engine power in flight and a subsequent collision with trees while attempting to land after sunset.

NTSB Identification: [ERA17FA107](#)

This February 2017 accident report is provided by the [National Transportation Safety Board](#). Published as an educational tool, it is intended to help pilots learn from the misfortunes of others.

## Kenya E190s collide during maintenance mishap

Two Kenya Airways Embraer 190s have been badly damaged during a ground collision following a [mishap during maintenance](#).

The airline states that the accident occurred at night on 8 February, during a [routine engine maintenance check](#) at a Nairobi airport hangar.



One of the aircraft – for reasons yet to become clear – began to move, and collided with another of the same type.

Neither aircraft was in operation at the time, says Kenya Airways, and “no passengers were involved”.

It adds that none of the maintenance personnel suffered injuries during the accident.

Images circulating on social media purporting to show the scene of the collision identify the aircraft as 5Y-KYR and 5Y-FFF.

The geometry of the aircraft [in the photographs](#) indicates that 5Y-KYR struck the nose of the other jet, knocking off its radome, and came to rest with its forward fuselage crumpled and pierced. The starboard General Electric CF34 engine of -KYR also rammed the forward fuselage of -FFF.

Both aircraft have received “[substantial damage](#)”, says the carrier, and been withdrawn from service pending examination. The images also show a damaged [ground-support unit underneath the wing](#) of -KYR.

Flight Fleets Analyzer lists -KYR as a 2011 airframe, leased from Nordic Aviation Capital, while -FFF is younger, built in 2013, and owned by an entity called Samburu.

The airline has not indicated whether either aircraft was occupied by crew or maintenance personnel at the time of the accident.

“Both [aircraft] were scheduled to return to service in the next few days,” says the airline, adding that it will advise passengers if there is any disruption to its operations.

Once investigators have completed inspections of the jets for their inquiry, it adds, repairs will begin.

## **NTSB REMOVES GA LOSS OF CONTROL FROM 'MOST WANTED LIST'**



## BOARD CALLS FOR ACTION ON PART 135 SAFETY

The National Transportation Safety Board (NTSB) announced the “[2019-2020 Most Wanted List](#) of Transportation and Safety Improvements” during a Feb. 4 press conference in Washington, D.C.

In previous versions, the list had specifically mentioned and focused on [reducing loss of control accidents in general aviation](#). But, as GA has witnessed record safety levels, loss of control [is no longer included](#) in the targeted list.

“The 2019 – 2020 Most Wanted List advocates for specific safety recommendations that can and should be implemented during these next two years,” said NTSB Chairman Robert Sumwalt. “It also features broad, longstanding safety issues that still threaten the traveling public.”

The new list calls for [an improvement to Part 135 aircraft operational safety](#). Part 135 operations include air taxis, charters, medical flights, and air tours.

According to an NTSB summary, “Part 135 operators [must implement safety management systems](#) that include a flight data monitoring program, and they should mandate controlled flight-into-terrain-avoidance training that addresses current terrain-avoidance warning system technologies.”

Other aviation-related recommendations include [reducing fatigue-related accidents](#), strengthening occupant protection, [eliminating distractions, and ending alcohol and drug impairment](#). With respect to drug impairment, the NTSB is calling for the FAA to require pilots to report their status as an active pilot and provide their flight hours. That proposed requirement would apply only to pilots operating under BasicMed as well as sport, glider, and balloon pilots.

NTSB Vice Chairman and former head of the AOPA Air Safety Institute Bruce Landsberg said recent improvements in GA safety should not be attributed to any single factor. Landsberg laid out a number of reasons he believes GA is safer than ever, [including](#) technological advancements, pilots becoming more safety conscious, and improved weather forecasting.

<https://www.nts.gov/safety/mwl/Pages/default.aspx>

<https://www.aopa.org/news-and-media/all-news/2018/november/06/exceeding-expectations-ga-industry-surpasses-safety-goal>

<https://www.nts.gov/safety/mwl/Documents/2019-20/2019-20-MWL-SafetyRecs.pdf>

## **Part 135 Under The Microscope In NTSB's Most Wanted List**

The National Transportation Safety Board released its 2019-2020 Most Wanted List of Transportation Safety Improvements and, among the broad recommendations of [eliminating distractions](#), [reducing fatigue-related accidents](#) and full implementation of positive train control is this: Improve the safety of Part 135 flight operations.



According to the board, “Most of the organizations that conduct Part 135 operations do not have—and are not required to have—a safety management system (SMS), flight data monitoring (FDM) or controlled flight into terrain (CFIT)-avoidance training program. We don’t know how many operators have SMS or FDM programs because the FAA doesn’t require operators to implement and report on them.”

The NTSB is calling on operators to “Install an [SMS and FDM](#), appropriately scaled to the size of your operation, to detect and correct unsafe deviations from company procedures before an accident occurs ... >

Use analysis tools provided by associations and the FAA's InfoShare to identify safety trends ... [Incorporate a CFIT-avoidance training program](#) that addresses current TAWS technologies relevant to your operational environment.” Turning its attention to the FAA, the NTSB is calling for regulators to “Require all Part 135 operators to install flight data recording devices capable of supporting an FDM program and to establish SMS programs,” and to “Work with Part 135 operators to improve voluntarily implemented training programs aimed at reducing the risk of CFIT accidents involving continuing flight under visual flight rules into instrument meteorological conditions, paying special attention to human factors issues.”

In the 2017-2018 Most Wanted list, both the fatigue-related and distraction-based accidents were highlighted—clearly there’s more work to be done—while GA was tasked with reducing accidents resulting from loss of control.

[https://www.nts.gov/safety/mwl/Pages/mwl\\_archive.aspx](https://www.nts.gov/safety/mwl/Pages/mwl_archive.aspx)

<https://www.nts.gov/safety/mwl/Documents/2019-20/2019-20-MWL3-Part135.pdf>

<https://www.nts.gov/safety/mwl/Pages/mwl5-2017-18.aspx>

## **NEW 2019 ANALYSIS THE PROS & CONS OF 12-HOUR SHIFTS**

[12-Hour shifts versus 8-Hour shifts](#) are one of the most frequently debated topics with shiftwork management. The most common questions managers ask include:

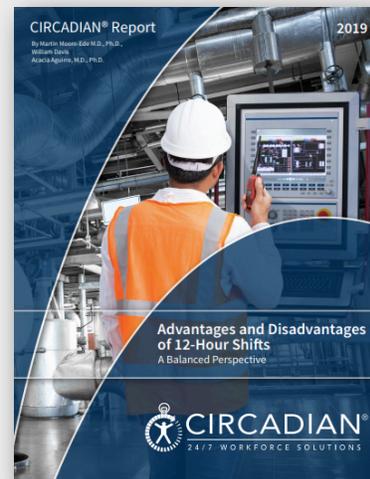
- Are 12-hour shifts safe?
- How do longer shifts impact performance, productivity, and quality?
- How do 12-Hour shifts affect shiftworker health, alertness and family life?
- Will a shift schedule change create conflict between workers and managers?

CIRCADIAN has collected new data from 50,000 shiftworkers and managers at 24/7 operations who use 12-Hour shifts to [gather unique insights](#) about >

the practices, policies, results and impacts of these schedules.

To learn more about how CIRCADIAN can help with the challenges you face within your 24/7 operation, simply reply to this email - we're happy to help.

Download the 2019 whitepaper:



### [Advantages and Disadvantages of Twelve Hour Shifts](#)

## **Bonanza Crashes After Unintentional Engine Start**

An unoccupied Beechcraft V35B Bonanza crashed at California's Modesto City-County Airport (MOD) after an [unplanned engine start](#) on Wednesday afternoon. It has been reported that two people had been working on the aircraft's electrical system and manipulating the propeller. The engine accidentally engaged, sending the Bonanza into a parked car and through the airport fence at approximately 40 MPH. A building was also damaged in the incident.

No injuries were reported.



“When we arrived on scene, we found that a private plane that was being prepared for a trip had some sort of incident within the plane that caused the plane to take off with no one inside,” said Modesto Fire Department Division Chief Mike Lillie while at the scene. “At that time the plane rolled on the airport grounds until it came to its resting place here by this building and the fence.”

The exact cause of the unintentional engine start has not yet been determined. The aircraft, which sustained substantial damage, was removed by crane on Wednesday evening. Officials are investigating.

## **TED: Ideas Worth Spreading**

[This is what makes people happy at work.](#) There are three billion working people on this planet, and only 40 percent of them report being happy at work. Michael C. Bush shares his insights into what makes workers unhappy -- and how companies can benefit their bottom lines by fostering satisfaction.



[https://www.ted.com/talks/michael\\_c\\_bush\\_this\\_is\\_what\\_makes\\_employees\\_happy\\_at\\_work#t-231770](https://www.ted.com/talks/michael_c_bush_this_is_what_makes_employees_happy_at_work#t-231770)