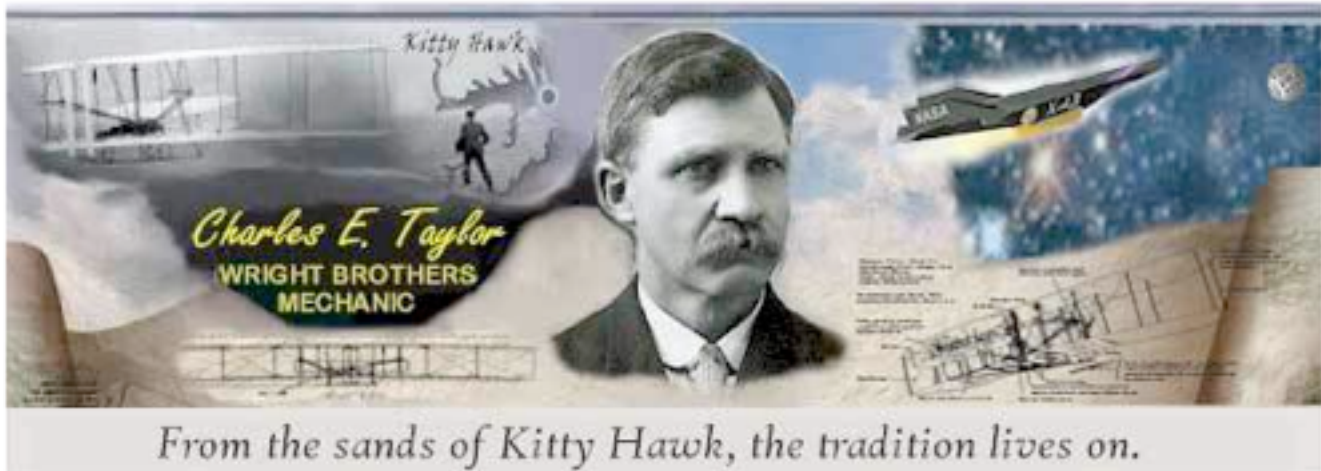


Aviation Human Factors Industry News

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Hello all,

To subscribe send an email to: rhughes@humanfactorsedu.com

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Teaching Safety Culture in Human Factors Courses

Robert Baron, Ph.D
President/Chief Consultant
The Aviation Consulting Group

As a follow-up to my last article on "[Human Factors Hotspots](#)," I wanted to delve a bit deeper into one of the points I had stated. I wrote, "It is clear that **safety culture** and **procedural deviations** are two of the most significant contributing factors in aviation maintenance-related accidents and incidents (and, typically, procedural deviations are a manifestation of an unhealthy safety culture)."

The reason for aiming in on this statement is so that I can discuss in more detail some of the limitations of HF training regarding [procedural deviations](#) being a manifestation of an unhealthy safety culture. These limitations, in no particular order, [are as follows](#):

- Although the topic of safety culture is important in an HF course, it's mostly targeted towards awareness. Don't expect to make paradigmatic culture changes as a result of your HF course!
- The very people that can actually do something about making changes to the culture are most likely not even in your class (high-level managers often feel as if HF training is only for the people that turn wrenches).
- Procedural error mitigation can certainly focus on the mechanics (since they are the last line of defense). However, if the mechanics are working within the brackets of a [pathogenic safety culture](#), it will be difficult, if not impossible, to change the negative norms that have become ingrained in the culture. In other words, for real changes to happen, they must be initiated at the top of the organization.
- The health of your organization's safety culture can be very subjective based on whom you ask. Ask any upper-level manager and they will probably tell you that "the culture is fine." Ask a line mechanic and he/she may tell you that "the company is an accident waiting to happen."



Now, with all that being said, let's assume you are your [company's HF instructor](#) and you are going to teach a module on Safety Culture. Let's also assume that your company's safety culture is pathogenic (or, quite literally, "an accident waiting to happen"). [How would you answer the following questions](#) regarding the development and delivery of your Safety Culture training module?

- In your HF course, would you skip the topic of Safety Culture altogether?
- Would you ignore your own company's safety culture issues and teach the topic from a neutral, objective position?
- [Would you](#) try to change the safety culture by teaching people how to improve the culture? (keeping in mind that mechanics may not be able to change the culture themselves; change needs to start at the top—and the people at the top are probably not going to be in your class).
- [Would you](#) try to develop a special course just for management to address safety culture to see if you can initiate change from the top? If so, do you think management would be receptive to a high-level safety culture course tailored to them?

These questions are certainly something to ponder as an HF instructor. Personally, I am confronted with this dilemma every time I teach an HF course. To make matters even more interesting, I facilitate HF courses at aviation organizations all over the world—some with outstanding safety cultures—some, not so much. Very often, while I'm teaching line mechanics, there are tacit, sometimes palpable, signs of [frustration and angst](#) when the subject of safety culture comes up; it can also get eerily quiet in the room. This provides evidence that the culture may be suppressive, unjust, and untrusting. If so, then we know that procedural deviations are most likely a manifestation of the unhealthy safety culture that exists, which can negatively affect mechanics' performance through such channels as fatigue, pressure, norms, distractions, and stress. And if that's the case, then you can expect your discussion on safety culture to be nothing more than [nice-to-know information](#) for your course attendees. The procedural deviations will just keep happening.

<https://www.tacgworldwide.com/About/Blog/EntryId/52/Human-Factors-Hotspots>

<https://www.tacgworldwide.com>

Who's Investigating?

Episode 21

NTSB and FAA investigators **are not deemed “essential”** for the purposes of coronavirus guidance. That's a huge concern for John and Greg as well as special guest Jason Lukasik, president of JL2 Aviation Consultants in Eagle River, Alaska.



Investigations of new accidents are all but on hold. Only basic information is being collected as personnel work from home. This even though investigators have biohazard training, proper protective equipment and the knowledge to conduct onsite investigations in a safe manner.

Perishable information is being lost as accidents are cleared and witnesses go without being interviewed. The NTSB and FAA say they plan to take up the backlog when operations get back to normal, but the work is sure to be much harder – and less insightful – as time passes.

There's another wrinkle for the long term – the aviation industry role in providing expertise to crash investigations is dwindling. In the early 2000s, most manufacturers staffed up to have **dedicated experts** that contributed to crash investigations. This helped everyone identify root causes and safety issues more quickly.

Even before the heavy economic impacts of COVID-19, strapped manufacturers **have not been back-filling investigator positions**. That situation is certain to get worse as they deal with the losses from weeks and months of being all but shut down.

John, Greg and Jason share cases from their personal experiences to illustrate the risks and impacts these changes can have on air safety. They discuss the certain and urgent need **to shift to new ways** of handling air crashes and safety issues.

<https://www.flightsafetydetectives.com/e/who-s-investigating/>

Maintenance-Related Mishap Acts - US NAVY

By CWO5 Brian Baker - Aviation Maintenance and Material Safety

Good day to all of you professional maintainers and maintenance managers out there in the finest Navy and Marine Corps. This article is written after performing numerous unit assessments and [reading hundreds of mishap reports](#) throughout my three years here at the Naval Safety Center (NAVSAFECEN). I have seen effective mitigation controls in place by units with minimal resources.



Unfortunately, there are many aircraft maintenance departments flying by the seat of their pants, and our future aviation maintenance force [is being taught deviated norms and incorrect practices](#). The future success and readiness of our Navy and Marine aviation forces depends on the actions taken at fleet units. Remember, what I am saying here is from performing 90 to 100 assessments per year and reviewing numerous aviation maintenance-related mishaps day after day at NAVSAFECEN, maintenance team begins with maintenance managers who must apply due diligence to develop effective plans that must include efficient, effective and safely executed programs, with the known resource constraints that you have. As for maintenance leaders, we must be engaged and set the standard for the maintenance team by [“walking the walk.”](#)

The maintenance leadership team sets the culture of the unit through [positive actions on planning maintenance](#). This includes quality training and taking care of our people. It is imperative to ensure quality training takes place and proper publications and instructions are followed. Work centers need to be properly staffed, especially with critical function areas, such as [Quality Assurance \(QA\)](#). We must set high standards for quality, productivity, training, efficiency and safety, and hold people accountable to those.

I have been in several squadrons and on detachments where we were stretched to our limits more often than not. As a maintenance leader, we have to stand up at those times and ensure the unit's leadership fully understands the strain and risks the group is under.

Expectation Management

We must provide leadership with exact issues that are exerting the excess pressures with supporting data (i.e., a maintenance plan that will affect negatively, work center staffing that can't safely support the stretch, training that needs to get accomplished but has not or cannot be...). Not only do we have to provide them the [heightened awareness](#), but we should also provide options and specific resources to take to their bosses to help alleviate some of the increased risks and strains.

To be credible to senior leadership and get them to listen, maintainers must have [integrity and high standards](#) that they live by, and prove that they have the unit's and the leaders' best interest at heart. The maintainers must have quantitative data to back up qualitative and vast years of experience and decisions.

Quality Assurance

Per the Naval Aviation Maintenance Program (NAMP) and by industry standards, it is QA's responsibility to ensure quality maintenance, servicing and inspections are conducted following established guidelines to prevent the occurrence of defects. [QA is so crucial](#) that it gets its own chapter within the NAMP.

As the NAMP states, "QA is fundamentally the prevention of the occurrence of defects and is an integral part of every maintenance process from start to completion." The number one objective of QA is to improve the safety of flight and ground operations. The last chapter states: "Eliminate unnecessary man-hours and material expenditures." [Between 2013 and 2018, maintainers almost tripled the number of maintenance-related mishaps](#). Some may say they were working harder than they were from 2003 up to 2013, but data does not support that perception.

The maintainers did experience a force reduction in 2013 and that is all the more reason to be more engaged. There has also been a decline in knowledge of the NAMP, how to properly plan maintenance, manage risks and a general care for the quality of work being performed. Just as any FAA licensed airframe and powerplant (A&P) mechanic, a Sailor or Marine should know, ["QA is the responsibility](#) of every individual involved with Naval Aviation maintenance.

Although the QA Officer (QAO) is responsible for managing the overall quality assurance effort within the maintenance department, each division officer, division chief, work center supervisor and technician **is equally responsible** for maintenance quality” (COMNAVAIRFORINST 4790.2C, 15 Jan 2017, Chapter 7, par. 7.1.3 responsibilities).

Examples

The following are examples of what we do and do not see from the 90 plus assessments performed a year and verified in the mishap and hazard report (HAZREP) write-ups that repeatedly come through our reporting systems:

- **Not** using or following publications or checklists.
- **Not** wearing the personal protective equipment (PPE) for tasks to be performed.
- Many people **pulled from one job and sent to another**, or to complete other tasks or duties.
- **Distracted** by cell phones out on maintenance tasks.
- **Not focused on what is going on**, when performing tasks during which things could go very wrong (i.e., aircraft moves, aircraft washes, aircraft launches, aircraft turns, aircraft jacking and aircraft operational checks.)
- Chiefs, QA representatives and supervisors in shops **working on** college courses, looking at the next home or auto projects, or scrolling through social media.
- Few khaki subject matter experts involved in the actual training of our junior technicians.

Training Aviation maintenance training in the civilian maintenance force is usually provided by some of the most senior technicians who have been there and performed maintenance many times.

Assessors do not see abundant numbers of **junior technicians excited and understanding the importance** of their work and how their work is tied to the overall mission.

What I want to see more of is the **glowing pride and professionalism** in our aircraft maintenance profession displayed by the Chiefs and First Classes building that pride, professionalism and care into the junior personnel. What does this all equate to? Our trends. Maintainers ensure our aircrews have the world’s safest aircraft to fly, train, **fight and win every day**.

Mission Critical

The majority of maintainers are providing excellent weapon systems that are helping ensure our national security through deterrence and keeping the fight away from our shores. Your efforts provide deterrence so our fellow Marines, Sailors, Soldiers and Airmen, who are on the ground in some of the most dangerous places in the world, can do their missions knowing you have their backs. You help provide the deterrence to keep shipping lanes open and safe, promoting free trade around the world so your family members can enjoy the newest technology. Maintainers provide ready aircraft to perform humanitarian missions, hurricane rescues, move much-needed and precious cargo. The list can go on and on, so do not ever look at your job as just a job. [It is a path to something bigger](#), better and more worthwhile. You are doing one of the greatest things you can be doing in your lifetime.

Naval and Marine Corps Aviation is very dangerous and unforgiving just in the basic operations! [Let's refocus](#) on what we are supposed to do when we are at work. Maintainers need to complete tasks with the highest level of attention, professionalism and pride!

I look forward to seeing you out there on the flight lines, in the hangars and on the deck plates. I hope to find you doing the right thing all of the time every time. I hope to find each of you doing your part to prevent the occurrence of defects in every maintenance process from start to completion.

AAIB: Biocide overdose in fuel after maintenance caused serious engine issues on Airbus A321



At 00:09 UTC on 26 February 2020, G-POWN took off from London Gatwick Airport for a flight to London Stansted Airport. At approximately 500 ft agl in >

the climb, there was a loud noise and flames were seen coming from the tailpipe of the No 1 engine as it surged.

The crew made a MAYDAY call and turned right to return to the airport. Two minutes later, parameters relating to the No 2 engine began to fluctuate and the crew received an indication that the engine had stalled. The aircraft landed at 00:20 hrs.

An investigation revealed that the aircraft entered a period of extensive maintenance, starting on 23 January 2020. For most of this time, **all the fuel tank access panels were open** to allow work to be carried out inside the fuel tanks until 19 February 2020 when the aircraft was moved outside. Once outside, the fuel tanks were leak-checked and treated for moderate microbial contamination. During the biocidal shock treatment, **an excessive quantity of Kathon biocide** was introduced into the aircraft's wing fuel tanks, **equating to 37 times the maximum permitted dosage** in the AMM. The AMO engineer who carried out this task **had not performed it before** and did not recognize that he was using an excessive quantity of biocide. The excessive level of Kathon in the aircraft's fuel system is suspected to have caused the subsequent problems with the aircraft's engines.

The investigation is ongoing.

LACK OF EFFECTIVE COMMUNICATION

By AECS Michael Perez Issue - Lack of communication up and down the chain of command.

This problem occurs **at every level of leadership** when priorities are not clearly stated at the maintenance meeting. This is one example seen while conducting aviation safety assessments (ASA).

Often, shops become overwhelmed when **every task is the priority**. At the end of the shift, Sailors and Marines are left uncertain about the accomplishments of the day. Another example is when leadership fails to communicate long-term plans and goals or, more importantly, the "why?" >



in the plan. This often occurs in the shop pass downs. Leading Petty Officers and Non-Commissioned Officers send out daily tasking, but [fail to mention](#) other vital items, such as upcoming detachments, upcoming phases and specials, or additional pertinent notes from the maintenance meeting.

Lack of communication after a deviation from the original plan often exponentially increases confusion. Some examples of these include when operations department fails to inform maintenance of flight schedule changes or ordnance load-outs. This is problematic for maintainers either waiting for the aircrew or scrambling to get troubleshooters and plane captains to make the launch.

The lack of communication occurs in every type, model or series and at every level of leadership.

Signs:

The factors can be grouped into three categories:

1. Failure to prioritize tasks or plan adequately
2. Insufficient/lack of proper training
3. Overtasked

As seen in assessments, multiple factors are in play when communication breaks down.

Best Practice Fix and Solution(s) in order of priority:

1. During the maintenance meeting, the desk chief recaps the priorities for each work center.
2. Real-time communication between a Flight Line Coordinator and the desk Chief via two-way radios.
3. Division Chiefs attend the maintenance meeting, reinforce and clarify information passed down during the maintenance meeting to the shop at their pass down.
4. Leadership publishes long term planning and goals. This practice is most commonly seen as a large calendar displayed in a common space (Maintenance Control). Maintenance planning, upcoming detachments and command functions are included in this calendar for all personnel.
5. Proactive Squadron Duty Officer communicates changes to the flight schedule (departure times, ordnance loads, pilot changes) with Maintenance Control.

WINGS PROGRAM TO BE REVAMPED

The AOPA Air Safety Institute is among several general aviation groups working with the FAA to improve the Wings Pilot Proficiency Program, [and you can help](#).

The Wings program has been around for years, delivering pilot education and training focused on common accident causes. Participants enjoy enhanced safety and accumulate credits that can satisfy the ground portion of the required flight review. The Air Safety Institute, along with other key aviation associations including the Society of Aviation and Flight Educators, the National Association of Flight Instructors, and the Experimental Aircraft Association, is participating in a [working group](#) to help the FAA focus resources to enhance the program's features and website.



[You are invited](#) to participate in a survey about your experience with the Wings program and website—tell us about both the good and the bad.

Beyond increasing pilot proficiency, completion of Wings-approved material can lead to lower insurance rates, CFI certificate renewal, and completion of the ground portion of a flight review.

[Your comments will help guide the shape of the Wings program](#) for years to come. All responses are anonymous and confidential, and the survey should take about 10 minutes to complete. Thank you in advance for your time and willingness to help improve aviation safety!

https://aopa.az1.qualtrics.com/jfe/form/SV_eQgjhTIAf1a6oPr?Referral=AOPA

Airline captains with intermediate flight experience more likely to be involved in a missed approach incident than those with less experience

Pilots flying in hazardous weather are required to execute a missed approach procedure if the runway is not in sight at a specific altitude or the pilot decides it is unsafe to attempt to land — **a situation that is highly demanding and stressful**. New research sheds light on the relationship between specific flight experience and missed approach incidents among commercial aviation aircrews.



The findings have been published in [*The International Journal of Aerospace Psychology*](#). *“As an airliner for almost 14 years with an experience of more than 30 missed approaches, I keep wondering why each go around procedure that I perform looks different from all the other,”* said study author Jack Limor, an El Al Israel Airlines captain. *“Luckily, I had the opportunity to study this topic during my master degree in safety engineering. I joined Dr. Avinoam Borowsky who is a senior lecturer in the Department of Industrial Engineering and Management (IEM) at Ben-Gurion University, and an expert in human factors engineering.”*

The researchers gathered data on unsafe events by searching commercial aviation databases. After excluding safety reports that did not provide detailed information on the aircrew’s performance, the researchers ended up with **59 relevant reports** on missed approach events between the years 1990 and 2014.

As expected, the researchers found that **first officers** with less specific flight experience on an aircraft were more likely to be involved in a missed approach safety incident. **Captains** with high levels of specific flight experience were also less likely to be involved in safety incidents.

Surprisingly, however, captains with an intermediate level of flight experience (500 to 2000 type-specific flight hours) were more likely to be involved in a crash compared to captains with less experience.

The researchers believe that captains are more likely too closely comply with an airplane's limitations and regulations when first starting to fly it. "It is suggested, however, that acquiring some experience with the airplane may have resulted in [overconfidence regarding their abilities](#)," they wrote in their study.

The study also revealed that an unsafe missed approach procedure incident was more likely to occur when the [captain was the pilot flying](#) than when the first officer was the pilot flying.

Why would that be the case? It could be that when the first officer is the flying pilot, the captain is better able to monitor and override his or her performance, the researchers explained. First officers may be worse at monitoring the performance of their captains — [and less likely to try to correct their superior](#).

"I believe that each airline pilot, depending on his or her position in the aircrew (captain or first officer) should be aware of [human factor-related risks](#) that are associated with this kind of maneuver. Furthermore, all pilots need to know that these risks are highly correlated with their specific flight experience on the airplane on which they are qualified to fly. Accordingly, they should [adjust their mental perception](#) and the descent briefing," Limor told PsyPost.

The researchers also examined the impact of general flight experience but found "it was less relevant for the purpose of our study."

"The notion that total flight experience rather than specific flight experience will help pilots during missed approach situations is probably, to my opinion, a hindrance that will prevent us from operating efficiently," Limor explained.

"My major argument is that the aircrew's experience on the [specific airplane](#) they are flying plays a significant factor in affecting the aircrew's performance. There is still a lack of knowledge regarding the decision-making processes that pilots apply when deciding to initiate a go-around. Based on the reports I reviewed, there were [too many safety incidents that occurred due to wrong decisions](#), even though all information was available for the crew."

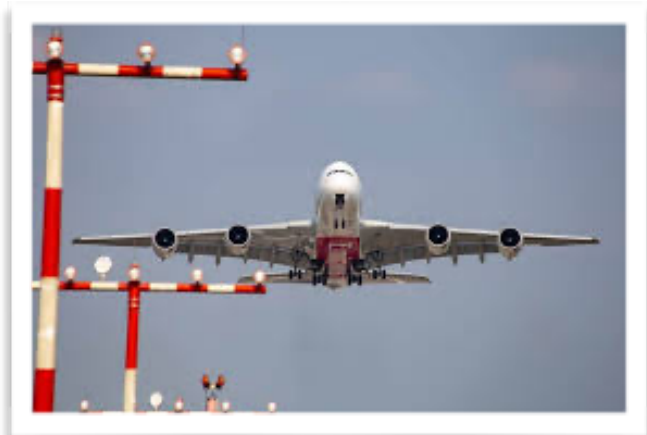
The study, "[Does Specific Flight Experience Matter? The Relations Between Flight Experience of Commercial Aviation Aircrews and Missed Approach Incidents](#)", was authored by Jack Limor and Avinoam Borowsky.

<https://www.tandfonline.com/doi/abs/10.1080/24721840.2020.1715803>

Emirates A380 dipped below 400ft as crew mistakenly chased glideslope

Investigators have determined that an Emirates Airbus A380 descended far below the glideslope at Moscow Domodedovo after its crew entered a rapid descent, erroneously believing the jet was too high for the correct approach path.

It descended to 504ft above ground - with a rate of descent of 1,600ft/min - while still some 7.4nm from the threshold of runway 14R, in darkness, before the crew executed a go-around.



The A380 lost a further 109ft, dipping to just 395ft, before climbing away, the aircraft's ground-proximity warning system having sounded 'terrain' and 'pull up' alerts.

Analysis from the United Arab Emirates' General Civil Aviation Authority found that the aircraft had effectively been descending in pursuit of an **imaginary glideslope** after the crew's instruments indicated the A380 was above the correct descent path.

This instrument reading had been false, because the **aircraft was still outside of the zone** of reliability for ILS signals and, as a result, was receiving noisy and inaccurate ILS data.

Despite the signal's unreliability the first officer, who was flying, referred only to this glideslope deviation indication. The inquiry says he became **"cognitively fixated"** on the belief the aircraft was high, and opted to conduct a procedure to intercept the glideslope from above.

The first officer **"did not confirm"** the aircraft's actual vertical position using other available sources, including the navigation display, approach chart, or pressure altitude indicator, says the inquiry.

Had he done so, it adds, he would "most likely" not have carried out this intercept procedure.

While cockpit-voice recorder information was unavailable, having been overwritten during the return service to Dubai, investigators have reconstructed the sequence leading up to the incident.

The aircraft had been north of Domodedovo, on a south-west heading and was due to join the AO14K arrival pattern which would have involved flying over the AMTAM waypoint on the base leg and turning left onto the approach to runway 14R.

But it was instead vectored along a parallel base leg which was some 2.9nm closer to the runway threshold.

At the time the aircraft was flying at 3,250ft and its crew was offered a descent to 2,230ft (500m QFE) to establish on the localizer. To reduce the A380's altitude the crew switched to 'open descent' mode, which maintains idle thrust while maintaining a target speed - in this case 170kt - by adjusting pitch.

As the aircraft neared 2,300ft, the first officer commenced the procedure to intercept the glideslope from above - setting a 2000ft/min rate of descent - perceiving that the aircraft was high on the approach while just a few seconds from capturing the localizer.

But analysis of the situation has determined that the aircraft would have established on the localizer about 63s from the time the first officer commenced the procedure, and only if the aircraft had maintained its assigned altitude.

[This meant the interception procedure](#), which requires the aircraft to be already established on the localizer, was premature. The aircraft was still on the base leg and 2.6nm from the extended runway centerline.

"The [first officer's] action in attempting to join the glideslope from above was because of the false indication that the aircraft was high due to the [invalid](#) glideslope deviation, and his perception that the aircraft would be established on the localizer very soon," says the inquiry.

"In fact, the actual aircraft position was already below the 3° glideslope, and the aircraft would have established on the localizer far beyond his expectation."

After initiating the interception procedure, the first officer focused on the A380's heading to establish on the localizer course as well as its configuration for landing, without monitoring the correct glide capture.

"The displayed glideslope deviation crossed almost the full scale, from above to below, without engagement of the expected glideslope capture mode," says the inquiry.

It adds that the captain's role of monitoring pilot was not helped by the first officer's having "improvised" the interception, and states: ["No action by either flightcrew member took place to stop the aircraft from descending."](#)

As the A380 passed through 2,044ft pressure altitude, at 170kt, the radar controller ordered the crew to halt further descent, [repeating the instruction three times](#) and informing the pilots that the aircraft's transponder was showing 290m when the runway elevation was 180m - a difference of 590ft. At about this time the crew commenced a go-around.

Investigators state that the crew also subsequently aborted a second approach before the aircraft landed on its third attempt. None of the 448 occupants of the aircraft (A6-EEZ), which was operating flight EK131 from Dubai on 10 September 2017, was injured during the incident.

SAFETY: BECOME A SAFER PILOT AT HOME **HOW YOU CAN STAY ENGAGED AND BECOME A** **SAFER PILOT AT HOME**

COVID-19 has us all stuck inside and there's no better time than now to [refresh your aviation knowledge](#) with some self-imposed ground school. While we currently can't meet in big groups, but your club can still create a virtual meeting to discuss safety topics and stay engaged with aviation.

But where to begin? Tap into ASI's Safety Spotlights, which make it a breeze to find ASI's free aviation safety education programs, neatly arranged by subject. Spotlights include courses, accident case studies, real pilot stories, quizzes, videos, and publications relevant to each topic.

Here are a few spotlights to start with:

[Aircraft Systems and Avionics](#)

Click on the link above! When was the last time you curled up with your aircraft's POH or avionics systems manual? If it has been a while since you delved into your aircraft's schematics, you might enjoy a quick refresher with this Safety Spotlight. You'll learn about the important elements of engine and aircraft systems, how to navigate beyond flying "direct to," and ADS-B equipage.



[Flight Planning and Preflight](#)

Click on the link above! The Air Safety Institute wants you to "know before you go." Whether it's a quick hop to a nearby strip or an epic cross-country voyage, regulations and common sense require you to be well versed on the airspace ahead and to know how to obtain the big weather picture before takeoff. This spotlight's courses, videos, and quizzes will help you navigate the flight service system and prepare for your next flight. As you go through this spotlight, consider working out a few weight and balance equations for proficiency.

[Radio Communications and ATC](#)

Click on the link above! Do you know what to say before you press the "push-to-talk" switch? Fighting bouts of mic fright? Get a little help from the Air Safety Institute and avoid communication blunders with ASI's courses, quizzes, and videos that will teach you how to use the correct vernacular in radio transmissions with other pilots and air traffic control.

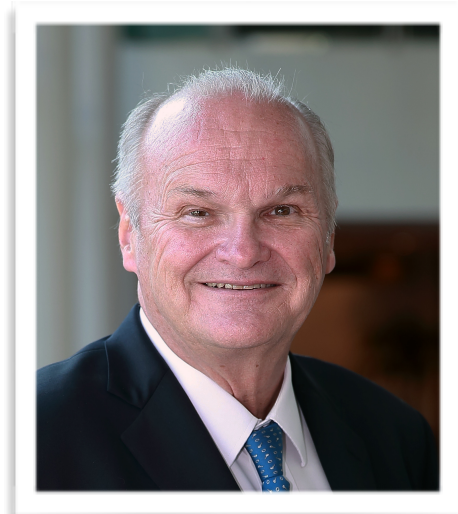
[Transitioning to Other Aircraft](#)

Click on the link above! At some point you may fancy flying an airplane that's bigger and faster than the old trainer you've come to know so well. But making such a transition requires additional instruction to learn new and often more complex aircraft systems and operating procedures. Is transitioning to another aircraft difficult? Are complex aircraft complicated to fly? Find out and challenge your knowledge—and maybe add "learning to fly a new airplane" to your post-quarantine to-do list!

Need more content? Explore the rest of ASI's website and check out [ASI's YouTube page](#) (**Click on the Link in blue**) for the latest videos, as well as video playlists arranged by subject.

"Dr. Bill" Johnson Receives Charles Taylor Award

"Dr. Bill" Johnson received the [Charles Taylor Award Master Mechanic](#) at the 24th Annual Southwest Regional Maintenance Seminar in March. Jay Hiles, the FAA Flight Standards District Office Manager told the 750 mechanics in the audience that "Most recipients of the Master Mechanic award fixing aircraft throughout their career. [Dr. Johnson has been fixing mechanics for more than 50 years. That counts.](#)" Johnson has delivered maintenance human factors training in more than 50 countries with more than 500 speeches/publications. He led the development of widely-used training systems, videos, simulations and other maintenance human factors support products. He currently serves as the chief scientific and technical adviser for human factors in Aircraft Maintenance Systems. Johnson is familiar to *Aircraft Maintenance Technology* readers since he has been a frequent contributor since 2010.



New report shows growing demand for expanded drone ops

Almost four years after the FAA established rules for the commercial operation of small unmanned aircraft systems (UAS), [a new report](#) has found that nearly 4,000 operators across all 50 states have been granted waivers to go beyond current regulations.

First responders received about 20% of all waivers granted to organizations (398), which demonstrates growing interest and need for public safety applications enabled by UAS, including search and rescue and firefighting at night, according to the report from the Association for Unmanned Vehicle Systems International (AUVSI).

Effective Aug. 29, 2016, the small UAS rule, also known as Part 107, created a uniform regulatory framework for drones. Among the rule's requirements, UAS must fly below 400' above ground level (AGL), within visual line of sight, and during daylight hours.



Recognizing the need for the rule [to be flexible](#) to foster innovation, the FAA created a waiver process that allows for expanded types of operations, such as nighttime or beyond line of sight operations, with the approval of the agency. AUVSI analyzed 3,946 of these waiver documents granted by the FAA since Part 107 went into effect. The vast majority of waivers — 3,636 or 92% — were granted to waive the requirement for flying only during the daytime to enable nighttime operations.

The FAA also granted waivers to permit advanced operations, [including](#):

- Flights over people (112 waivers);
- Operation in certain airspace (97 waivers);
- Operating multiple UAS at the same time (55 waivers);
- Visual line of sight operations (to enable beyond line of sight operations) (51 waivers).

Operators in all 50 states, as well as the District of Columbia and Puerto Rico, have received waivers. California leads the way with 451 waivers granted, followed by Texas (334), Florida (272), and New York (159).

About 87% of all waivers were granted to small businesses with fewer than 10 employees and annual revenues of less than \$1 million.

“Across the country, operators have demonstrated [they are eager to harness](#) the tremendous potential of expanded UAS operations,” said Brian Wynne, president and CEO of AUVSI. “Small businesses have been able to save time and money, and first responders and public safety agencies have used UAS technology to increasingly contribute to the greater good worldwide, supporting missions from disaster relief to humanitarian aid.”

Last month, AUVSI submitted its comments on the FAA's Notice of Proposed Rulemaking (NPRM) for Remote Identification of UAS. In the comments, AUVSI urged the FAA to proceed concurrently with rulemaking that would allow for expanded operations rather than wait for a fully implemented remote ID rule to avoid unnecessary delays. The FAA says it hopes to issue a final rule before the end of the year.

In the interim, the FAA recently announced several initiatives to improve the waiver application process, [including](#):

- Expediting the waiver renewal application process, particularly in instances where there hasn't been many changes since the original application;
- Enabling quick administrative changes to previously granted waivers;
- Providing more responsive feedback to applications that were not approved;
- Streamlining the applications;
- Implementing new regulations to obviate the need for waivers; and
- Increasing transparency and accountability to provide support for waiver applications, disapprovals, and general UAS questions.

“The waivers that have been granted so far demonstrate that operators are safely able to conduct expanded operations, such as flights over people and beyond visual line of sight,” said Wynne. “While improvements to the waiver process are needed and welcomed, we urge the FAA to [move forward rapidly](#) with rulemakings that would enable these operations widely and provide the economic and societal benefits they offer.”

<https://www.auvsi.org/our-impact/waivers-under-part-107-updated-interactive-report>

https://www.faa.gov/uas/commercial_operators/part_107_waivers/

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

<https://www.auvsi.org/sites/default/files/AUVSI%20Remote%20ID%20Comments%20Final.pdf>

Roy Halladay Crash Dissected

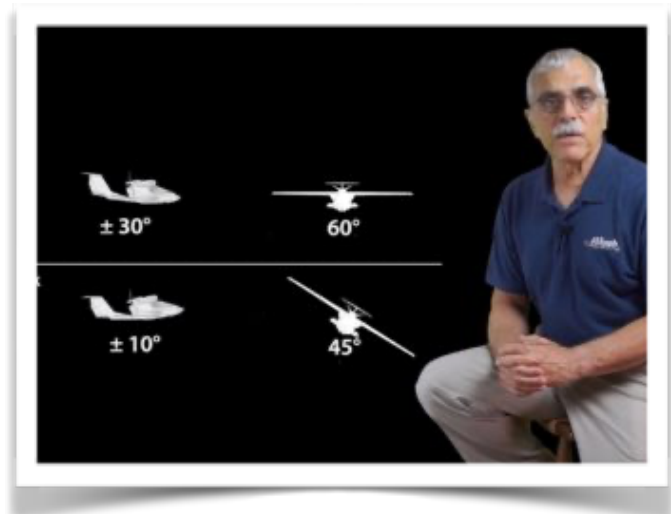
On April 14th, 2020, the NTSB released the docket for the fatal crash of an Icon A5 piloted by baseball star Roy Halladay. In this video, AVweb's Paul Bertorelli comments on the docket findings. You can find the full report on the NTSB site at :

<https://youtu.be/AhAJrKyq2AA>

<https://tinyurl.com/y8srdpmc>

<https://app.nts.gov/pdfgenerator/ReportGeneratorFile.ashx?EventID=20171107X60614&AKey=1&RType=Final&IType=FA>

<https://www.aopa.org/news-and-media/all-news/2018/january/pilot/safety-spotlight-training-paradigm>



Student's many questions distracts CFI

The flight instructor was giving instruction in a Beech 76, a multiengine, retractable-landing gear-equipped airplane.

On the downwind leg in the pattern at the airport in Vacaville, California, he asked the pilot under instruction to perform a simulated single-engine emergency landing with the left engine shutdown.



It was the pilot under instruction's first training flight in a multiengine airplane, and he asked a series of questions of the flight instructor during the procedure. The instructor reported that they both became distracted and forgot to extend the landing gear.

The airplane landed with the landing gear retracted and came to rest on the runway, sustaining substantial damage to the wingspar and longerons.

Probable cause: The pilot under instruction's failure to extend the landing gear and the flight instructor's inadequate supervision and failure to ensure that the landing gear was extended.

NTSB Identification: **GAA18CA239**

This April 2018 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.

Helo Operators Increase Use of Safety Tools

Results from the International Helicopter Safety Foundation's (IHSF) fifth annual survey of civil operators show a marked increase in the use of **eight key best practices safety tools, including safety management systems (SMS) and flight data monitoring systems (FDM)**.

The survey garnered 1,900 responses from operators in 112 different countries, a response rate that increased by 49 percent versus a year ago. It found that overall usage of these eight tools in 2019 was 65 percent, up from 62 percent in 2018 and 59 percent in 2017. As in years past, certain industry sectors demonstrated better implementation with helicopter air ambulance, offshore energy, and law enforcement leading the way, while private flying and electronic news gathering posted the lowest levels.



IHSF created the list of best practices after evaluating more than 1,000 helicopter accidents. **They include** structured maintenance programs that fully comply with manufacturers' recommendations; structured initial and recurrent training; implementation of SMS; implementation of manual health usage and monitoring systems (HUMS); installation of wire strike prevention systems; implementation of FDM; implementation of automated HUMS; and use of night vision systems when warranted.

Ted Talks

We should aim for perfection — and stop fearing failure

Sometimes trying your best isn't enough; when the situation demands it, you need to be perfect. For Jon Bowers, who runs a training facility for professional delivery drivers, **the stakes are high** -- 100 people in the US die every day in car accidents -- and it's perfection, or "a willingness to do what is difficult to achieve what is right," that he looks to achieve. He explains why we should all be **equally diligent** about striving toward perfection in everything we do, even if it means failing along the way.



<https://www.ted.com/session/new?context=ted.www%2Frecommend>

Why Emirates Has Won With The Airbus A380



<https://nv.vi-serve.com/vis-media/550/1027/N-hNfXABsAhKjBq404Ph> 720p.mp4