ROTOR

MARCH 2022

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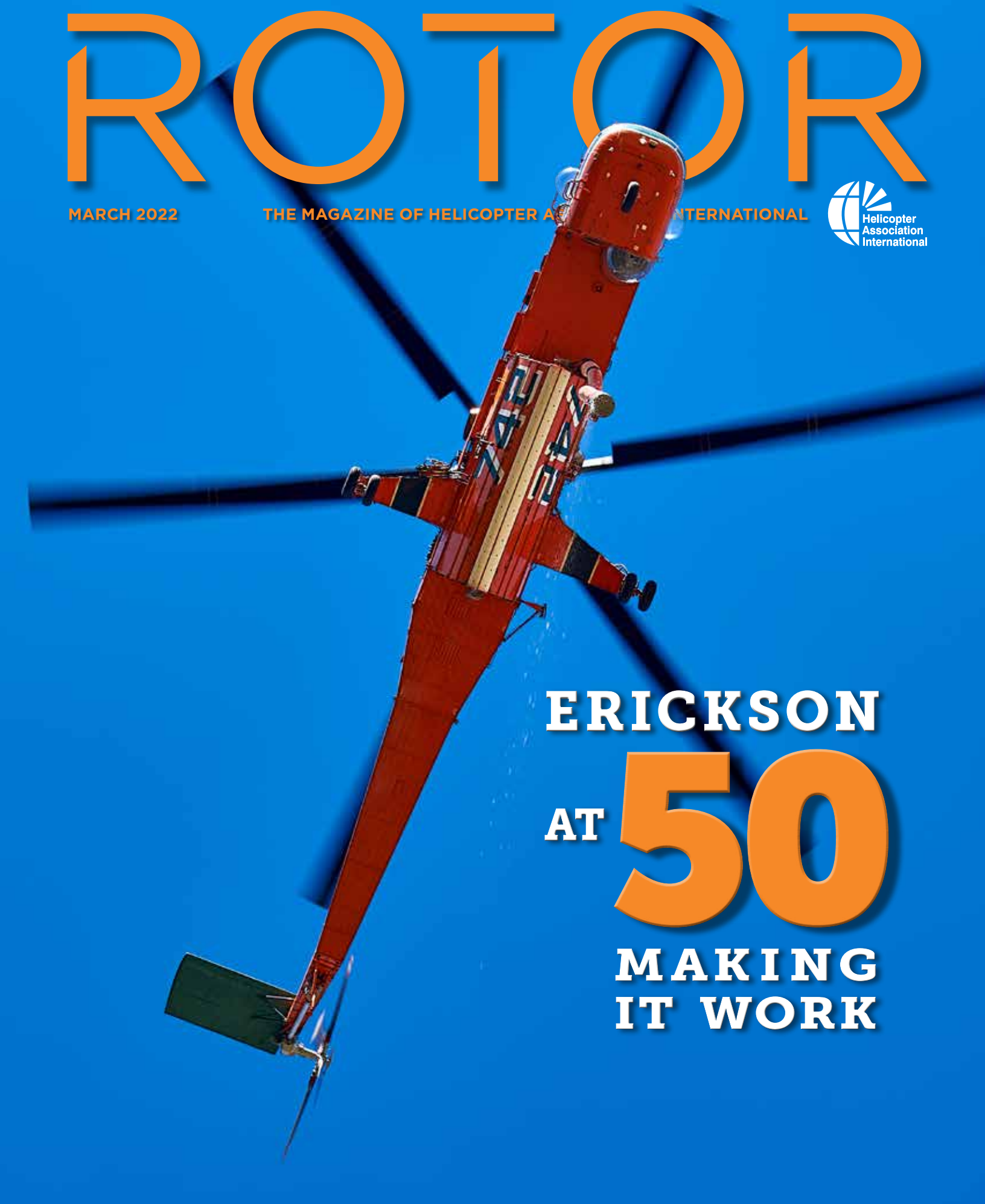

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ROTOR

MARCH 2022 VOL. 34 NO. 4

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ROTOR (ISSN) 0897-831X is published quarterly by Helicopter Association International, 1920 Ballenger Ave., 4th Flr., Alexandria, VA 22314-2898.

Subscriptions: Visit rotor.org/subscribe to sign up for your FREE subscription.

Postmaster: Please send all address changes and correspondence to:

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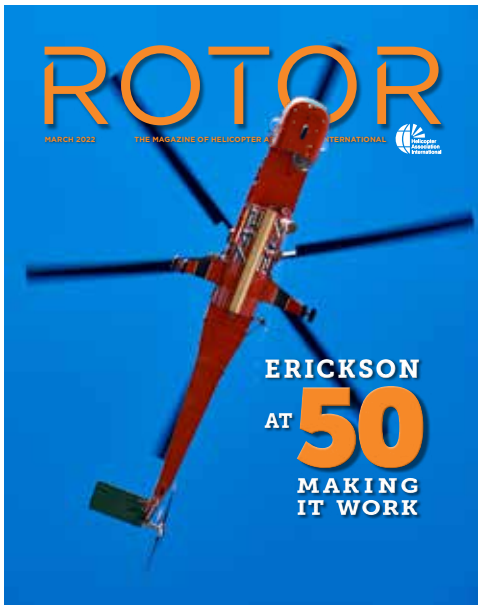

ON THE COVER: Photographer Mark Bennett captured this Erickson S-64F, nicknamed "Elvis," heading for the 2018 Pole Creek Fire, near Spanish Fork, Utah, with a full load of water newly siphoned from a roadside pond.

DEPARTMENTS/COLUMNS


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Mark Bennett
Mark Bennett worked for McDonnell Douglas Helicopter/ Boeing for a decade, then in 1999 cofounded an aerospace-only marketing agency. With 30-plus years of photography and design experience serving the aerospace and defense industries, he founded AeroMark Images to shoot and write for both industry and media.

Chris Hill
After an aviation career in the US Army and Coast Guard, Chris Hill oversaw aviation safety management systems throughout the USCG as aviation safety manager. He holds an ATP rating and has logged more than 5,000 flight hours, primarily in military and commercial helicopters. Chris joined HAI in 2018 as director of safety.

John Shea
John Shea joined HAI as director of government affairs in 2019. He came to HAI from the National Association of State Aviation Officials (NASAO), where he was interim president in 2018 and lead government affairs representative since 2017. Previously, as a legislative staffer, John advised multiple members of Congress on transportation policy.

Jen Boyer
Jen Boyer is a 20-year journalism and public relations professional in the aviation industry, having worked for flight schools, OEMs, and operators. She holds a rotorcraft commercial instrument license with CFI and CFII ratings. Jen now runs her own public relations and communications firm.

David Jack Kenny
David Jack Kenny is a fixed-wing ATP with commercial privileges for helicopter. He also holds degrees in statistics. From 2008 through 2017, he worked for AOPA's Air Safety Institute, where he authored eight editions of its *Joseph T. Nall Report* and nearly 500 articles. He'd rather be flying.

Emma Taylor
Emma Taylor joined HAI as a policy analyst in 2020. She graduated *cum laude* from Villanova University in December 2019 with a major in political science. Driven by her passion for public policy and advocacy, Emma is thrilled to start her career at HAI and has since developed a deeper appreciation for the vertical lift industry.

Cade Clark
HAI's VP of government affairs, Cade Clark has directed association advocacy programs for more than 20 years. Growing up, Cade worked at an FBO where he learned to fly, washed planes, got in the mechanics' way, idolized the old-timers and their stories, and deepened his love for all things general aviation.

Christine Knauer
For more than 25 years, Christine Knauer has written for major aircraft OEMs, MROs, and avionics manufacturers as well as aviation trade organizations and publications. She specializes in editorial and marketing content that shares the stories of aviation's people and machines. Christine holds a master's degree in aviation safety.

Jaasmin Foote
Jaasmin Foote joined HAI as the association's social media manager in March 2020, just a week before the COVID-19 pandemic lockdown. She holds a bachelor's degree in English and is currently pursuing her master's in marketing. Jaasmin is responsible for all the cool posts on HAI's social media platforms. Follow us, drop by, and say hi!

Gina Kvitkovich
Gina Kvitkovich joined HAI as director of publications and media in 2011 after decades of honing her skills in writing, editing, and publishing. As editor of ROTOR, she is responsible for every error in the magazine that you're reading—and for some of the good stuff, as well.

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By Randy Rowles

Prepare for a Great Expo

Welcome to Texas!

An FAA pilot examiner for all helicopter certificates and ratings, Randy Rowles holds an FAA ATP and Gold Seal Flight Instructor Certificate and in 2013 received HAI's Flight Instructor of the Year Award. Chairman of the HAI Board of Directors for 2021–22, Randy operates the Helicopter Institute, a Texas flight school.

WATCH
A Drone Fly in to the Dallas CBD Vertiport

AS THE GLOBAL VERTICAL LIFT INDUSTRY DESCENDS UPON DALLAS, TEXAS, for HAI HELI-EXPO 2022, I'm thinking of how we have triumphed over the adversity of a pandemic, with each vertical aviation operator facing—and meeting—his or her own set of challenges. It's during these times of uncertainty when the grit of the people is measured. Our industry has demonstrated a resolve to succeed, and HAI continues to support our members on a worldwide scale. One way we'll do that is to provide our industry with a safe, in-person HAI HELI-EXPO® experience.

My first Expo was in 1993, in Miami, Florida. I was selected to fly a Sikorsky S-55QT helicopter—an aircraft being introduced to the industry as the Whisper Jet—to the convention center for display. What an opportunity!

As a young person, I was blessed to have no fear of engaging with new people. At HAI HELI-EXPO, this is a good trait to have. The show floor is filled with like-minded people who have come to gain new opportunities, meet people, or find a new product or service. As I began walking the show floor, I felt a euphoric sense of freedom as I explored this new part of aviation.

On the second day of the show, I was admiring a beautiful Bell 209 with animal-skin seats when a guy with long, blond hair came over. We spoke for a while about the Cobra and how he had built this ship himself. That man was Chuck Aaron, who went on to become a global helicopter sensation flying the Red Bull Bo 105.

Many of the people I met that year would become lifelong friends and colleagues. You may not immediately realize all the value you get by attending HAI HELI-EXPO, but I've found that industry awareness and opportunities follow my attendance there.

At another Expo a few years later, I attended the HAI Flight Instructor Refresher Course (FIRC) and was amazed at the caliber of instructors. There were test pilots, production pilots, FAA inspectors, helicopter manufacturers, and several career instructors—all industry icons sharing their experience and knowledge with other flight instructors. Today, I'm the chief instructor of the longest-running FIRC in existence, held annually at each year's show.

Nearly 25 years after that first Expo, I was humbled that the HAI membership allowed me to represent their interests as an HAI board member. HAI HELI-EXPO 2022 is a capstone in my tenure as chairman of the HAI Board of Directors, and I can't think of a better finish than a show that will bring the industry together again.

The Kay Bailey Hutchison Convention Center Dallas (KBHCCD) is a long-standing venue for our show, located right in the heart of downtown Dallas, providing attendees and vendors with ample activities within a short walking distance or shuttle bus ride. A unique feature of the city is the Dallas CBD Heliport/Vertiport, which is colocated with the KBHCCD and is the world's largest urban elevated heliport/vertiport. During HAI HELI-EXPO 2022, attendees will be able to fly to and from local airports directly to the KBHCCD. Additionally, local charter and tour flights will be available to enhance the overall vertical lift experience for show attendees.

We at HAI are excited to share with you all that HAI HELI-EXPO 2022 and Dallas have to offer. So bring your cowboy hat and boots, say "Howdy," and enjoy the greatest vertical aviation show on Earth. See you there!

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By James A. Viola

Over the Horizon

Promising times are ahead for the VTOL industry.

James A. Viola is HAI's president and CEO. After a career as a US Army aviator, he joined the FAA, where he served as director of the Office of General Aviation Safety Assurance before joining HAI. A dual-rated pilot, Jim holds ATP ratings in both airplanes and helicopters and is a CFII. Jim can be contacted at president@rotor.org.

PERSPECTIVE IS AN INTERESTING CONCEPT, particularly in aviation. Sitting on the ground, your perspective is local. As you lift off, rising away from the earth, your field of view expands. You see farther in all directions.

At HAI, I have access to substantial amounts of information about our industry, including from OEMs and regulators around the world. However, as we come out of the COVID-19 pandemic, I enjoy meeting and talking about aviation with people from across our diverse industry.

During 2021, I visited Sun 'n Fun in Florida, where I spoke with aspiring pilots. At July's EAA AirVenture Oshkosh, I met with representatives of the largest companies and saw people flying helicopters they built from kits. In October, I attended the NBAA Business Aviation Convention & Exhibition in Las Vegas, where I listened to the concerns of a Grand Canyon tour operator. And in November, I visited the inaugural EUROPEAN ROTORS VTOL Show and Safety Conference, where a sold-out exhibit floor was an indication of a return to normal levels of activity.

One of the most accurate gauges of our industry's strength is the success of our manufacturers, and from their perspective, too, better times are ahead.

In December, I visited Robinson Helicopter Co. with FAA Administrator Steve Dickson. Robinson reports that in 2021 it sold an average of at least one helicopter each day, with more than 450 confirmed orders. The turbine-powered R66 was the top seller. These numbers are another indication that our industry is ready for takeoff. Company president Kurt Robinson and his team agree, saying they hope to increase production and deliveries in 2022.

Leonardo states that its market is still not back to normal, pointing to a "pandemic plunge" in 2020. However, the company still saw growth in 2021 over the same period in 2020, and Leonardo executives are pleased that the civil helicopter market is reacting better than expected. They forecast a particularly strong recovery in the VIP, air medical, and civil utility markets.

Airbus Helicopters also has seen strong gains, posting a 40% increase in orders in 2021 over 2020. The company recorded strong orders in legacy singles and light-twin helicopters, crediting air medical sales for the boost. CEO Bruno Even points to a stalled offshore market to explain the lower sales of super-medium and super-heavy aircraft.

Both Airbus and Leonardo disclosed that two or three additional years of growth could be required to reach their pre-pandemic production levels.

Bell's production was mostly flat in 2021, recording deliveries that were only slightly higher than in 2020. Bell's parent company, Textron, believes 2022 will be good for its commercial helicopter sales but expressed concern that US military sales will drop.

We are at an interesting point in our industry, where our OEMs are building aircraft for today while researching and designing the rotorcraft of the future. Whether that aircraft is a prototype of an advanced air mobility vehicle or a legacy helicopter, our rotorcraft missions will be the same: to safely and efficiently go where other aircraft cannot go and accomplish what other aircraft cannot do. With our OEMs sharing mostly positive returns and projections, I see exciting times ahead for the VTOL industry.

If you think differently, please email me at president@rotor.org. The diversity of our industry is one of our strengths, and I want to hear your perspective.

Visit HAI at
rotor.org/join

"HAI is our industry advocate; they need to hear from you so they know what to fight for and what is important to you as a pilot or organization."

– Grayson Barrows, repair station general manager

Helicopter Association International

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FOR MORE THAN 70 YEARS, HAI HAS REPRESENTED ALL ASPECTS OF THE VERTICAL flight industry, promoting safety, professionalism, innovation, and economic viability.

Current HAI priorities include:

- Ensuring COVID relief for operators
- Advancing industry integration of unmanned aircraft systems and advanced air mobility aircraft
- Developing the global vertical flight workforce
- Strengthening safety collaboration within the international vertical flight industry

By Cade Clark, John Shea, and Emma Taylor

WATCH Jim Viola Testify before Congress on Effects of 5G

The Impact of 5G on Vertical Flight Operations

5G must be managed so that it can safely coexist with aviation.

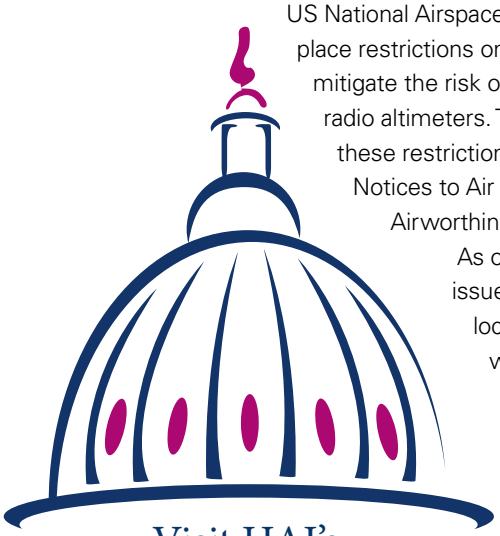
HAI President and CEO James Viola provided testimony on the effects of 5G deployment on aviation safety to the US House Committee on Transportation and Infrastructure's Subcommittee on Aviation on Feb. 3, 2022. Below is an edited version of his remarks to the subcommittee.

5G Flight Restrictions

In carrying out its mission to maintain safety in the US National Airspace System, the FAA has put into place restrictions on helicopter flight operations to mitigate the risk of 5G interference with aircraft radio altimeters. The FAA has communicated these restrictions via two channels: a series of Notices to Air Missions (NOTAMs) and Airworthiness Directive (AD) 2021-23-13. As of Feb. 4, 2022, the agency had issued NOTAMs that identify 1,931 locations around the country where 5G interference occurs.

AD 2021-23-13 states that when operating in US airspace, the following operations requiring radio altimeters are prohibited in areas defined by the presence of 5G C band wireless broadband interference as identified by the NOTAMs:

- Performing approaches that require radio altimeter minimums for rotorcraft offshore operations. Barometric minimums must be used for these operations instead.
- Engaging hover autopilot modes that require radio altimeter data.
- Engaging search-and-rescue (SAR) autopilot modes that require radio altimeter data.
- Performing takeoffs and landings in accordance with any procedure (Category A, Category B, or by Performance Class in the Rotorcraft Flight Manual or Operations Specification) that requires the use of radio altimeter data.



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For each mission, an operator must review their Rotorcraft Flight Manual and Operations Specification to determine if the use of radio altimeter data is required by provisions of Title 14 of the Code of Federal Regulations. If a radio altimeter is required and if the mission's flight path would overlap a geographic location identified by a 5G-related NOTAM, then the restrictions listed in the AD apply to that flight.

The first and third bullets impact specific segments of our industry. However, the fourth bullet, which prohibits takeoffs and landings in areas identified by 5G-related NOTAMs, has significant, far-reaching consequences for the rotorcraft industry's ability to conduct missions and provide public services, especially when you consider that prohibition applies to nearly 2,000 US locations.

The issue is not limited to radio altimeter performance alone. According to the FAA Safety Alert for Operators 21007 of Dec. 23, 2021, "a wide range of other automated safety systems rely on radio altimeter data." The agency goes on to note that 5G interference and the ensuing anomalous radio altimeter inputs could cause flight controls, including autopilots, to operate in an unexpected way, which pilots may not detect in time "to maintain continued safe flight and landing."

Alternative Methods of Compliance

To reduce these impacts of 5G interference, the FAA has implemented an alternative method of compliance (AMOC) process. This process evaluates the installed radio altimeter aboard an aircraft and its ability to withstand spectrum interference.

To date, the focus has been on Part 121 carriers, and the FAA has done an outstanding job of streamlining the process to issue as many approvals as it has. The AMOC process is vital to ensure a healthy, viable US aviation

industry. Currently, the rotorcraft AMOC procedures have not been formally released by the FAA; the process is still being worked on and fine-tuned. It is critical that the FAA continue the same level of urgency and commitment it has had for commercial aviation to mitigate operational impacts upon helicopter operations and the rest of general aviation and the essential services they provide to save lives, protect communities, and support jobs.

The effects of 5G deployment are not limited to the nation's busiest airports, and mitigations by wireless carriers should not be limited to those locations either. As we evaluate AMOCs for rotorcraft, we must recognize that the airlines' operational environment is vastly different from that for rotorcraft. An airliner is only in the zone of potential 5G interference for a short time, generally during the critical periods of takeoff and landing. The vast majority of its flight occurs at high altitudes, out of the range of 5G interference.

Conversely, helicopter operations, which take place at much lower altitudes than airline flights, could very well conduct their entire flight within the zones of interference. In addition, while airplanes must take off and land from airports, rotorcraft can utilize a much wider variety of sites, including heliports and unimproved locations such as streets, parking lots, or fields. The voluntary measures proposed by the wireless carriers would provide modest 5G limitations at the surface of public-use heliports, of which there are only 55 in the country. That number is dwarfed by the estimated 6,533 to 8,533 helicopter air ambulance (HAA) landing sites in the United States, with more than 4,000 being private-use heliports colocated at hospitals.

HAI has partnered with the FAA to maximize the efficiency the AMOC process. Knowing that the FAA would be under immense pressure to approve a large amount of AMOCs, HAI took steps to ensure that critical helicopter operations could be prioritized. In cooperation with the FAA, HAI developed a 5G AMOC Portal (rotor.org/5g-amoc), where operators can report how their operations are being impacted by 5G interference. These reports are shared with the FAA, providing it with additional intelligence on 5G impacts.

My members ask why they should be financially responsible for installing new equipment to mitigate the safety risk imposed by another corporation's decision to deploy 5G wireless systems.

Exemptions

The other avenue to reduce the operational impact of 5G interference is the exemption process. HAI is pleased that the FAA partially approved a petition for exemption that HAI had submitted in anticipation of 5G C band deployment, seeking relief from regulations that require a normally functioning radio altimeter for certain operations.

This exemption allows Part 119 certificate holders authorized to conduct HAA operations under Part 135, Subpart L, to continue Part 135 helicopter operations while employing radar altimeters that may not function normally due to 5G interference. The relief also allows the use of night-vision goggles (NVG) in HAA operations.

These exemptions are contingent on certain conditions and limitations. All pilots conducting operations under the exemption are required to receive and maintain a record of proper training. Additional conditions for NVG operations include the installation of a movable searchlight and a requirement for pilots or crew members to establish radio contact with ground personnel at a landing site so they can receive and confirm a description of the landing site.

To date, 40 HAA operators have submitted letters of intent to use the HAI exemption. This accounts for 1,206 helicopters in operation, or 97% of the approximately 1,250 helicopters used in HAA operations.

This exemption provides a significant path for moving forward, not only for HAA operators but also for the countless communities and hospital networks that would otherwise have been deprived of the critical lifesaving support that can only be offered by helicopter operations. This exemption will allow HAA operators to continue to do what they do best—save lives.

The Path Forward

I want to be very clear: HAI and our members are not against 5G. However, due to our mission profiles and operational parameters, 5G interference is of particular concern to the vertical flight sector. The deployment of 5G must be done so that it can safely coexist with aviation operations.

Under the exemption and with the proper mitigations in place, HAA missions can move forward. However, other rotorcraft industry sectors do not have similar exemptions that enable them to continue operations. Critical public-service missions, including firefighting, utility work, and law enforcement, and economically important ones, such as transportation and flight training, are severely constrained if operating in areas for which a 5G-related NOTAM has been issued. Additionally, emerging

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continued

technologies, such as advanced air mobility, that are projected to begin operations in dense urban areas—the exact areas of 5G deployment—could face severe restrictions.

The development of new radar altimeters with filters that can withstand 5G interference is critical to the vertical flight industry's ability to continue flying and serving the public good. However, developing and certifying new radar altimeters will take time. Additionally, the cost for operators to purchase and install these new altimeters is of significant concern to the industry. My members ask why they should be financially responsible for installing new equipment to mitigate the safety risk imposed by another corporation's decision to deploy 5G wireless systems.

In the short term, HAI is focused on working with the FAA and the AMOC process to determine which radio altimeters and aircraft models can withstand 5G interference. Additionally, HAI will continue to explore FAA approval exemptions and accompanying operational mitigations that will help operators continue to provide aviation services to their communities.

In the long term, we urge Congress to enact the necessary reforms to provide better transparency, efficiency, and coordination on spectrum issues by the FCC and other government agencies. Various parties, including the Department of Commerce and its Federal Advisory Committee, have studied the issue of equitable access to spectrum in the United States and identified several recommendations. It seems clear that misaligned domestic spectrum policy, to the disadvantage of aerospace and aviation users, is what brings us here today.

The deployment of 5G will not be the last spectrum issue to resolve. Let's begin to work now to ensure that the problems we faced with the 5G rollout will not occur in the future.

Ensuring the safety of those who fly—whether pilots, crews, or passengers—is always HAI's top priority. We will continue to advocate for reasonable limitations on 5G deployment that protect safety-critical aviation equipment. HAI will also continue to work with regulators to develop solutions that maintain safety and preserve our industry's ability to operate in a 5G environment.

HAI BRIEFS

Boost Your Publicity Acumen with Communications U

INDUSTRY BUSINESSES SEEKING TO increase their visibility, get the attention of their elected officials, or receive guidance on communicating after an adverse event have a new opportunity at HAI HELI-EXPO 2022: Communications University, a brand-new, free event this year just for small businesses in the helicopter industry.

Produced by HAI's Communications and Advocacy teams and sponsored by ROTOR Media, Communications University comprises four 45-minute courses designed to introduce small businesses with limited resources to the basics of public relations, social media, crisis communications, and communicating with elected officials.

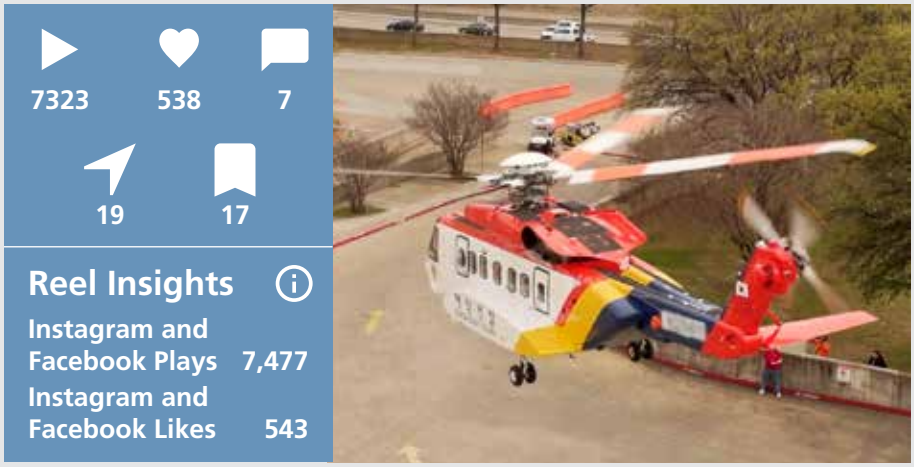
"Small businesses are the backbone of our industry and make up the majority of HAI's membership," says Dan Sweet, HAI's director of public relations and communications. "We wanted to make it easier for them to communicate their news, with the guidance and templates our new Comms U courses offer."

"Small businesses are the backbone of our industry and make up the majority of HAI's membership. We wanted to make it easier for them to communicate their news, with the guidance and templates our new Comms U courses offer."

– Dan Sweet, HAI Director of PR and Communications

Communications University takes place from 8:00 am to 12:30 pm on Thursday, Mar. 10, in the HAI HELI-EXPO News Conference Room (D222) at the Kay Bailey Hutchison Convention Center Dallas. Attendance for each course is limited to 80.

The courses offered are "Getting Your Word Out: How to Write and Distribute a Press Release"; "Social Media 101"; ➤



As HAI gears up for HAI HELI-EXPO 2022, we've been celebrating by posting a "Fly-in Friday" video every Friday on our social media platforms. This video racked up over 7,300 views in one week on Instagram, and with 581 engagements, it's safe to say that Expo fans are excited for our next show, in Dallas. The aircraft pictured, a Sikorsky S-92A, is operated by the Korea Coast Guard.

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➤ "Crisis Communications: What to Say (and Not Say) after the Accident"; and "Communicating Your Value to Elected Officials." Several HAI staff members will present the classes.

The first course of the day is open to all HAI HELI-EXPO attendees (advance registration is required). The remaining courses are open to HAI members only, with advance registration required.

To register for Communications University, visit heliexpo.com/hai-heli-expo-communications-u.

The FAA's partial approval of HAI's petition to allow HAA operations despite potential radio altimeter interference from 5G is good news for air medical services, including Guardian Flight, operator of this AS350 B3e Écureuil.

HAI BRIEFS

FAA Approves HAI Petition for Exemption Allowing HAA Ops

HAI'S PETITION TO ALLOW HELICOPTER air ambulance (HAA) operations despite potential radio altimeter disruptions by 5G C band deployment was partially approved by the FAA in mid-January 2022. The exemption sought relief from regulations requiring a normally functioning radio altimeter for certain operations.

The exemption allows Part 119 certificate holders authorized to conduct HAA operations under Part 135, subpart L, to continue Part 135 helicopter operations while employing radar altimeters that may not function normally due to 5G C band interference. The relief also allows HAAs to use night-vision goggles (NVG).

The exemptions are contingent on specific conditions and limitations. All pilots conducting operations under the exemption are required to receive and maintain a record of proper training. Additionally, NVG operations require the installation of a movable searchlight, and pilots or crew members must establish radio contact with ground personnel at a landing site to receive and confirm a description of the landing site.

"This exemption will allow HAA operators to continue to do what they do best—save lives," says James Viola, president and CEO of HAI. "There is no question that it is in the public interest for these lifesaving operations to continue. HAI's top priority will always be safety, and we will continue to work with the FAA to determine the best solutions, whether through exemptions or through alternative methods of compliance, to provide all our members with the means for continued safe operation."

With the support of HAI member air medical operators, the Air Medical Operators Association, and the Association of Air Medical Services, HAI submitted the petition in late October. The petition sought to mitigate the safety risks imposed on helicopter operations by telecom companies' deployment of new 5G communication equipment that overlaps frequencies used by aircraft radar altimeters. To preserve the safety of the National Airspace System, the FAA issued Airworthiness Directive 2021-23-13 in December, followed by an unprecedented number of Notices to Air Missions on Jan. 13, 2022.

"This is a significant victory not only for HAA operators but for the countless communities and hospital networks that would have been deprived of the critical lifesaving support that can only be offered by helicopter operations," says John Shea, director of Government Affairs at HAI. "While this is great news for the HAA sector, the even bigger story is that the FAA's decision on HAI's petition has outlined a path for replicating this exemption for other helicopter operations that serve the public."

HAI BRIEFS

El Aero Services Is First Customer in HAI SMS Program

NEVADA-BASED HELICOPTER OPERATOR El Aero Services has become the first member to join the HAI SMS Program. The company fully implemented the system on Jan. 1, 2022.

Last fall, HAI introduced its safety management system (SMS) program as an affordable, scalable solution for small rotorcraft businesses seeking to incorporate SMS into their operations. HAI partnered with three industry-leading SMS software providers to offer an affordable range of

HAI/MARK YOUNG

products for interested customers.

El Aero chose Baldwin Safety & Compliance as its SMS partner after a meeting between the company's management and a Baldwin representative during the HAI Aerial Firefighting Safety Conference in Boise, Idaho, last November.

"We'd been looking at options for upgrading our dated SMS program to something digital, with easy access to report generation for received data, and simpler for pilots to utilize," says Jairus Duncan, director of operations at El Aero Services. "Plus, it's compliant with new government contracting requirements."

El Aero, which began providing helicopter services in 1973, operates two Bell 206L-4 aircraft, one Bell 206B-3, and three fixed-wing aircraft. With bases in Elko and Carson City, the company works throughout Nevada, the western United States, and the Midwest. Its primary operations include supporting the federal Wild Horse and Burro Program in Nevada, Arizona, Utah, and Oregon, and performing bison gathers for state and national parks.

El Aero also provides fire support to the Bureau of Land Management, the US Forest Service, and Cal Fire; performs restorative burn seeding; and conducts search-and-rescue and tactical flight operations for the Elko County Sheriff's Office and surrounding agencies.

The HAI SMS Program is a direct result of an HAI membership survey in which many respondents requested turnkey SMS support. The program is available to all HAI member operators in good standing.

"Our members asked for assistance with SMS programs, and one of the most exciting elements of the HAI SMS Program is how quickly and efficiently it helps improve safety across operations," says James Viola, president and CEO of HAI. "We are truly grateful to our partner providers for enabling us to offer this tremendous program that helps members increase safety and save more money than the cost of their HAI annual membership."

The three software providers in the HAI SMS Program are:

- The Air Charter Safety Foundation (ACSF) of Washington, D.C. The ACSF provides a full range of SMS software options.
- Baldwin Safety & Compliance of Hilton Head Island, South Carolina. The company provides the Baldwin SMS Product Suite, which offers options for small, medium-sized, and large businesses.
- WYVERN Ltd. of Nashua, New Hampshire. WYVERN offers its SMS Software and 24/7/365 Support Services package, with affordable options for small operators and other choices with premium SMS software capabilities.

Additionally, both Baldwin and WYVERN offer aviation safety action program (ASAP) reporting modules on their servers for companies participating in the ACSF's third-party–managed ASAP program. The ACSF can access the ASAP reports and conduct event review committee meetings with the participating company and the FAA. ASAP is a voluntary, self-reporting program that identifies and reduces possible flight safety concerns and mitigates risk. Each package offered through the HAI SMS Program allows users to verify their compliance with current and future international and domestic regulations.

While the FAA doesn't currently require SMS programs for all operators, HAI and the National Transportation Safety Board have recommended that helicopter operators develop and adopt a safety reporting system that allows data collection, analysis, and corrective action where necessary.

The HAI SMS Program packages also offer training, self-auditing capabilities, gap analysis, reporting capabilities, and user support services.

By Jen Boyer

Graham Nickisson, Media and Emergency Service Liaison, Westpac Rescue Helicopter Service

Reflecting on a 40-year career and the changing face of HAA operations in Australia.

AUSTRALIA'S LONGEST-SERVING AIRCREW OFFICER, GRAHAM NICKISSON, started in the field as a volunteer, more than four decades ago, for Surf Life Saving Australia, a volunteer rescue organization. In the years since, the helicopter air ambulance (HAA) service has evolved significantly. What Nickisson has seen and experienced in that time has changed his life as well. Today, he no longer flies but continues to advocate, both for Surf Life Saving Australia and the importance of seeking mental health support as a first responder.

ROTOR: Tell us about your duties and your crew.

Nickisson: As an aircrew officer, I'm often in the left-hand front seat, assisting with navigation, mission details, and such—basically, a nonflying copilot. Our job as aircrew officers is safety in and around the aircraft. We do a lot of confined-area landings, day and night, so we help guide the pilot in. We also work the winch.

Our crew is the pilot and the aircrew officer. We also have a critical-care doctor from NSW Health and a critical-care paramedic from New South Wales Ambulance, for a crew of four.

What attracted you to this career?

When I started, Surf Life Saving Australia was using helicopters. The idea came in 1973 from New Zealand, where they thought helicopters might be able to rapidly get to people in distress in the surf.

We introduced our service in Australia in 1975. It was purely a surf rescue helicopter when I joined, running up and down the beach doing surf patrol and rescues. That's all done a 360 now—we have Jet Skis and all the fancy stuff that can beat a helicopter.

Our helicopter then evolved into the emergency medical service field. We now have a contract with NSW Health to provide rapid-response critical-care helicopter services to people throughout northern New South Wales.

I'm a plumber by trade. I started volunteering for Surf Life Saving Australia in 1981, when I was 17. I loved aviation and helicopters, and that was the natural progression for me. I volunteered for eight years and then became a full-time paid employee in 1989.

When I was volunteering, the service only ran on weekends and on call. In 1982, once we started working with NSW Health hospitals and New South Wales Ambulance, we went 24/7. We first started carrying pagers while off duty, and then we went to living and working on the base during our shifts.

I don't think anyone envisioned when they started the surf helicopter service that it was going to develop into the service it is today.

What stands out from your long career?

Well, it's probably not a good impression. The catalyst that made me leave the service was the trauma associated with Australia's biggest road accident, the Kempsey bus crash. It happened on the mid-north coast of New South Wales.

Two tourist buses collided in the early hours of Dec. 22, 1989. It killed 35 people and is still Australia's worst-ever road accident. Unbeknownst to me at the time, my post-traumatic stress and downhill spiral began there.

It was the start to many traumatic jobs we went on. Not that everything was bad; we had some beautiful experiences. I walked a young lady down the aisle whom we picked up when she was a newborn. The Kempsey bus crash, though, was really something that has dogged me right up to today.

The trauma and the death when we arrived, it was just like a holocaust. It was definitely something a bloke of my age at the time should never see and never expect to see.

It was a catastrophic situation, likened to a major airplane crash with the amount of death and destruction that happened that morning.

I guess it was emphasized so much more because it was three days from Christmas. There were a lot of people who were going home or traveling and a lot of Christmas presents scattered around the

scene. I knew [the accident scene] had knocked me about, but back then, you had to toughen up and get on with it.

Then, five days after that we had Australia's worst earthquake, right on our service's doorstep in Newcastle. I thought my whole world was falling apart. I was the only full-time aircrew officer at the time, and there were none of the rules they have today about fatigue. I was doing it all at the time. I didn't get any downtime.

I was just married, and I thought, "This isn't the life I thought it was going to be." But, like I said, the era then was to toughen up and get on with things. That [attitude] has certainly bitten me in the ass down the track. But I continued until 2018, when I pulled stumps.

How have you seen helicopter rescue change over the years?

As the service grew, the demand grew, as did the technology. We went from single-engine JetRangers and LongRangers to an SA 365 Dauphin ... one of nine made with skids. We evolved from being a VFR helicopter to an IFR helicopter. Twin-engine flying with instrument-rated pilots was a huge transition and move forward for the service.

As demand grew, we moved to bigger aircraft. We then transitioned to the Bell 412 and Bell 407. From there, we moved to the AW139. We have four of those today.

One of the biggest transitions was when we had the Bell 412, when we added night-vision goggles [NVG]. I think that was the biggest game changer in the service's history, in terms of crew safety, to be quite honest. With NVG, we can much more clearly see the hilly terrain where we operate. We needed the technology to get down to our safest and lowest [level] for confined areas, not do any nap-of-the-earth flying you see the military do. We use the NVG strictly for safety. Before, we were using a Nightsun searchlight. Now, everyone on the crew is goggled up on our flights.

Today, we also have a very good system in place to deal with the mental health side of things. Back in the day, it was just sit around and talk about it with your mates and, "Here's a phone number to call if you're having trouble." Now, we have a very good employee assistance program. That [resulted from] people putting their hand up to get out of the job. It was shocking—after 38 years, I was still having nightmares and I knew it was time to put my hand up when we went to a motor accident where an innocent young girl was killed by an intoxicated driver.

I was talking to her one minute and she passed away the next. Unbeknownst to me, she was critically ill. I didn't realize she was as bad as she really was. That knocked me for a six. I'd just had enough. So I went to talk to the HR department.

I'm not averse to talking. I talk about it all the time. I've talked to New South Wales Police about men's mental health and putting your hand up when you're struggling. When I asked to leave, they said who better to talk to people about what it's like to work in the service than someone who's done it for 38 years. So that's what I do now, tell my story and the story of the rescue service.

I'm just as fulfilled doing this job as I was when I was in the air.

WATCH Westpac Transport Young Girl in Urgent Need of Hospital

"Today, we have a very good employee assistance program. That [resulted from] people putting their hand up to get out of the job. After 38 years, I was still having nightmares [from the trauma]."

ROTORCRAFT EVENTS

2022

MAR. 7–10
EXHIBITS OPEN MAR. 8–10
HAI HELI-EXPO 2022

Helicopter Association International
Dallas, Texas, USA
Learn more at heliexpo.com

MAR. 17–19
WAI2022
Women in Aviation International
Nashville, Tennessee, USA
Learn more at wai.org

MAR. 29–30
EASA High Level Conference on Drones
European Union Aviation Safety Agency
Amsterdam, Netherlands
Learn more at easa.europa.eu

APR. 3–5
Army Aviation Mission Solutions Summit
Army Aviation Association of America
Nashville, Tennessee, USA
Learn more at s7.goeshow.com

APR. 5–6
2022 ACSF Safety Symposium
Air Charter Safety Foundation
Embry-Riddle Aeronautical University
Daytona Beach, Florida, USA
Learn more at acsf.aero

APR. 5–10
SUN 'n FUN Aerospace Expo
Lakeland, Florida, USA
Learn more at flysnf.org

APR. 25–28
AUVSI Xponential 2022
Association for Unmanned Vehicle Systems International
Orlando, Florida, USA
Learn more at auvsi.org/events

MAY 10–12
Forum 78: VFS 78th Annual Forum & Technology Display
The Vertical Flight Society
Fort Worth, Texas, USA
Learn more at vtol.org/forum

MAY 23–25
2022 European Business Aviation Convention & Exhibition (EBACE2022)
National Business Aviation Association and European Business Aviation Association
Geneva, Switzerland
Learn more at ebace.aero

JUN. 16–18
RotorTechUK
Cirencester, England
Learn more at rotortechuk.com

JUL. 6–10
The Ninety-Nines International Conference & Career Expo
The Ninety-Nines
Charleston, South Carolina, USA
Learn more at ninety-nines.org

JUL. 25–30
APSCON 2022
Airborne Public Safety Association
Reno, Nevada, USA
Learn more at publicsafetyaviation.org

JUL. 25–31
EAA AirVenture Oshkosh 2022
Experimental Aircraft Association
Oshkosh, Wisconsin, USA
Learn more at eaa.org/airventure

SEP. 3–5
2022 Cleveland National Air Show
Cleveland, Ohio, USA
Learn more at clevelandairshow.com

SEP. 7–8
Helitech Expo 2022
London, UK
Learn more at helitech.co.uk

OCT. 4–6
Global Vertical Aviation Safety Conference (GVASC)
FAA, Helicopter Association International, US Helicopter Safety Team, and Vertical Aviation Safety Team
Hurst, Texas, USA
More information coming soon

OCT. 18–20
2022 NBAA Business Aviation Convention & Exhibition (NBAA-BACE)
National Business Aviation Association
Orlando, Florida, USA
Learn more at nbaa.org

OCT. 24–26
ELEVATE 2022 (formerly the Air Medical Transport Conference)
Association of Air Medical Services
Tampa, Florida, USA
Learn more at aams.org

FlyOver

FORT WORTH, TEXAS | AUG. 6, 2021
HELICOPTER INSTITUTE | EUROCOPTER AS350 B2
PILOT: RANDY ROWLES

PHOTO BY MARK BENNETT

Erickson and the Air Crane

AS ERICKSON INC. MARKS 50 YEARS IN business, the Oregon-based helicopter OEM and maintenance organization is the world's largest operator of and foremost expert on the S-64 Air Crane, a distinction earned through its long-lived relationship with the iconic aircraft.

In 1971, nearly a decade after Sikorsky first flew the S-64 Skycrane, Jack Erickson, who worked for his father's logging business, had the idea to use helicopters to remove timber from a steep slope in Northern California.

"The original logging job was with Columbia Helicopters. They had an S-61 and Jack had the wood. When it proved successful, he formed Erickson Air-Crane," says Kenny Chapman, an S-64 Air Crane pilot and 43-year Erickson veteran.

Wanting more power, Erickson leased three S-64 Skycranes from Sikorsky. With the help of the distinctive aircraft, he pioneered aerial timber-harvesting techniques and expanded into firefighting, power-line construction, and airlifting heavy HVAC units onto high-rise rooftops. Erickson's early success and the S-64's capabilities ensured the two legacies would be intertwined for the next 50 years.

Innovative Ideas, Bold Moves

From the beginning, Erickson leaned into innovation, continually searching for better, faster, safer ways to accomplish tasks. The company developed an antirotation device to stabilize heavy

VASILIS KRANITSAS PHOTOGRAPHY

SEE
An S-64 Lift an HVAC Unit onto a High-Rise Rooftop

Celebrating a 50-year legacy and the aircraft that made it possible.

by Christine Knauer

loads and created the shock and pendant lift to decouple the load from the aircraft and reduce vibrations during longline timber harvesting.

"Jack was always open to new ideas. For a lot of things, people would have said, 'You can't do that,' but Erickson did," says Chapman, who worked alongside the founder in the early days. "He was willing to try."

By 1992, Erickson wanted control of the S-64's type certificate. The aging fleet needed reliable support and parts supply as well as a solution for the frequent in-flight engine shutdowns plaguing the S-64 at the time, which Sikorsky lacked. In addition, the resourceful entrepreneur envisioned capitalizing on the aircraft's unique design to expand its capabilities and his business.

That year, Erickson purchased the S-64 type certificate and renamed the aircraft the S-64 Air Crane. In acquiring the certificate, Erickson set the stage for rescuing the legacy S-64 from obsolescence and creating an aircraft modernization program that would extend the life of the fleet and give operators a truly versatile utility aircraft.

The Right Tool for the Job

Today, Erickson owns and operates 16 S-64 Air Cranes around the world for heavy-lift construction projects, timber harvesting, oil and gas support, and a whole lot of firefighting. Partnering with forest services, Erickson mobilizes its Air Cranes seasonally to fire hot spots—typically in the United States, Canada, Greece, Australia, South Korea, and Italy.

It's a mission made possible because Erickson took its new type certificate and created a 2,650-gal. tank and fire-suppression system that attaches to the aircraft's belly. With the tank, the S-64 can drop more than 25,000 gal. an hour. Along with ushering in an era of nimble aerial firefighting, the hydro-tank proved that the Air Crane could be a multipurpose tool akin to a Swiss Army knife.

"It's not very fast. It isn't made for going cross-country. It's made for picking stuff up. Because of that, there are 32 hard points on the aircraft designed for bolting on equipment," says Chapman, who has fought fires across the globe, including 25 seasons in Australia.

"We can bolt on the tank and take it off. We can bolt on gear for setting power-line towers and take that off. Erickson can build and adapt equipment for just about any mission. If you want to add a tank to the surplus military machines that are coming out, you likely have to make major structural modifications, usually cutting through the floor to put in the doors. From the onset, the Crane was designed to have systems added to it."

In the years ahead, Erickson developed more bolt-on accessories—a water cannon for precise aiming, a Sea Snorkel for quickly scooping up water, and a hydraulic grapple that eliminated ground crews in logging operations, greatly increasing safety.

Despite its beefy airframe, the S-64 Air Crane feels remarkably maneuverable for a helicopter its size, according to Rich Foote, field maintenance aircraft manager for Erickson. "The Crane's single-rotor system makes it so agile. It can juke and dive and do a lot of things other aircraft can't."

Chapman, who has logged some 17,000 flight hours in a variety of aircraft, agrees. "The S-64 doesn't fly like a big helicopter. It looks kind of ungainly, like it would be sluggish, but

Air Cranes, like the one shown here in Greece in July 2020, are used to fight wildland fires on five continents. The aircraft's 25,000-lb. payload, coupled with its ability to refill water tanks in one minute or less, makes it an effective firefighting tool.

it actually flies like a little helicopter. It's amazing what it's capable of. It's so incredibly overpowered. The F model is certified for an external load of 25,000 lb., and it'll do that quite handily, under certain conditions. It's the best thing I've ever found," says Chapman.

Adding to the aircraft's unique design, the Air Crane features an aft-facing pilot seat for precision control of complex aerial heavy-lift operations such as transmission-line and infrastructure building projects.

"The big advantage is its productivity—the pounds per hour of wood, the picks per hour constructing towers, and the gallons per hour firefighting. It's an expensive aircraft to operate, but when you compare its cost against hauling water in a truck or building roads or special scaffolding, it's cheaper and faster," says Chapman. "And it doesn't have to be operations in rough terrain. We've built a lot of power lines on flat ground, setting as many as 105 structures in a day."

Fifty Years Tackling Big Challenges

Erickson doesn't shy away from unusual or difficult projects. Its engineers, fabricators, pilots, and maintenance technicians tackle them with pride—from relocating a 1,091-lb. endangered rhino in Borneo to placing 300-ft. communication towers weighing up to 18,000 lb. in rural Alaska to restoring sod and tundra in the Arctic.

Many times, accomplishing big missions means creating custom solutions as the team did in 1993 when Erickson was asked to remove the US Capitol's massive, 19.5-ft., 15,000-lb. Statue of Freedom for restoration.

"I was involved in taking down and reinstalling the statue.

VASILIS KRANITSAS PHOTOGRAPHY

I was underneath it when we were lining it up," says Ralph Sembach, Erickson's longtime product and technical support manager for the S-64. "They calculated the weight and thickness of the bronze statue and built a special, cagelike harness for it."

The company names these hardworking helicopters—"Elvis," "Olga," "Isabelle," "Lucille," "Bubba," "Incredible Hulk," and so on, a trend picked up by other operators, including the Italian government.

"The Italians like to name their helicopters after famous Native Americans—'Geronimo,' 'Toro Seduto,' which is 'Sitting Bull' in Italian, 'Aquila Rossa' is 'Red Eagle'; another is named 'Cochise,'" says Sembach.

Whenever they're out in the field, the aircraft's unique, Instagram-worthy design—some say it resembles a giant dragonfly—along with its orange color, chosen by Jack Erickson, turns heads.

"It's the big dog when it's out there. Everybody wants to see it and get a picture in front of it," says Foote, who's worked at Erickson for more than 25 years.

A Dedicated Crew

Whether it's logging timber or fighting fires, building bridges or placing power lines, such demanding work takes a toll on the aircraft. As part of its turnkey solution, Erickson supplies the S-64, pilots, and maintenance technicians, and manages the aircraft in the field. A dedicated maintenance team follows the Air Crane everywhere, a pit crew of sorts tending to the aircraft's every fuel and maintenance need.

"The aircraft requires ongoing maintenance attention. We're part of the daily operations. The assigned crew chief stays with the aircraft at all times along with a fuel truck and a service vehicle containing parts and consumables," says Foote.

Technicians feed the S-64 fuel all day, then continue to work at night, visually inspecting the aircraft nose to tail; servicing fluids; looking for leaks, cracks, and worn parts; performing any necessary scheduled and unscheduled maintenance; and cleaning the aircraft so it's ready for the morning. It can easily add up to a 16-hour day, according to Foote.

"Assigning a specific crew that knows the history and health of the aircraft means we can see things before they become a discrepancy. The continual maintenance keeps the aircraft flying, enhances safety, and leads to our operational readiness rate of 99% fighting fires in the US," he says.

MRO, Manufacturing Expertise

Opened in 1997 in Central Point, Oregon, Erickson's FAA Part 145 certified repair station performs maintenance, repair, and overhaul for its fleet of aircraft as well as those owned by third-party operators. Its sheet-metal experts fabricate components and light structural pieces. The company's expansive warehouse stores rough forgings ready for machining and an extensive inventory of parts, which are shipped to operators worldwide.

The Erickson S-64 Air Crane's distinctive design and orange-and-green livery make it hard to miss.

VASILIS KRANITSAS PHOTOGRAPHY

A partial list of mission-specific equipment that can be added to an S-64 includes hoists, a fire tank, a foam cannon, a grapple, and a sea or pond snorkel.

As type certificate holder for the S-64 with OEM capabilities, Erickson offers in-house design, engineering, and production services, from creating mission-specific equipment to completely rebuilding legacy aircraft.

"We take old CH-54s, the military version of the S-64, and rebuild them with new skins, new formers, and new parts and pieces. We add all the improvements that Erickson has developed along the way, from ceiling materials and component connectors to the tail boom and parts on the landing gear. The aircraft is then about 90% new," says Sembach. "Our goal is to make it last indefinitely."

Over the past 50 years, Erickson's engineers have made more than 1,350 improvements, large and small, to the S-64's airframe, instruments, and payload capabilities. Still, the company continues to look for ways to improve and modernize the Air Crane, from adding a glass cockpit with night-vision capability to developing an automatic flight control system. Composite main rotor blades are one of the most recent and impactful additions.

"I flew the new composite blades last summer. At 8,500 ft. and 85 degrees, I could pick up an additional 700 gal. Plus, we noticed a slight decrease in the fuel burn because

Each S-64 operated by Erickson receives its own name. "Gypsy Lady" is shown on the left, and to the right, "Elsie" sits on the ramp.

DAVE SODA PHOTOGRAPHY

the aircraft wasn't working as hard," says Chapman. "The blades are just one more innovation. Erickson was the first to successfully log timber with a helicopter. We innovated many of the systems for power-line construction that improved productivity and safety. We developed the tank for helicopter firefighting."

Always Moving Forward

Today, Erickson employs 565 "problem solvers" who keep the global fleet of 30 S-64 Air Cranes flying, including the 14 owned by other operators. In addition to its civilian aviation services, Erickson flies, maintains, and modifies fixed-wing and rotary-wing aircraft for the US Department of Defense and other national security and government agencies. Erickson provides a variety of air services, from shipboard deliveries and troop transport to assisting with search-and-rescue missions, nighttime operations, and more.

As with any company, the accomplishments come with hardships—recessions, shifting regulations, declining log values, ownership changes, bankruptcy, pandemic-driven supply chain challenges, and more. Still, Erickson perseveres.

"It's kind of like the US Marine Corps. Their slogan is 'improvise, adapt, and overcome.' That's Erickson's model. We keep going until we figure out how to make it work, to overcome the issue," says Sembach. "We're constantly pushing the aircraft to be more useful and more versatile."

"We're constantly working to ensure the Air Crane is always best in class. Most recently, in partnership with Helicopter Transport Services, we developed, produced, and received final FAA approval for the composite main rotor blades, allowing for increased performance and payload. We're also finalizing flight testing on a new and improved water cannon that will really enhance the aircraft's capabilities and effectiveness for a variety of mission types, including urban firefighting," says Brittany Black, senior vice president of sales, marketing and business development, who has worked for Erickson for nearly six years.

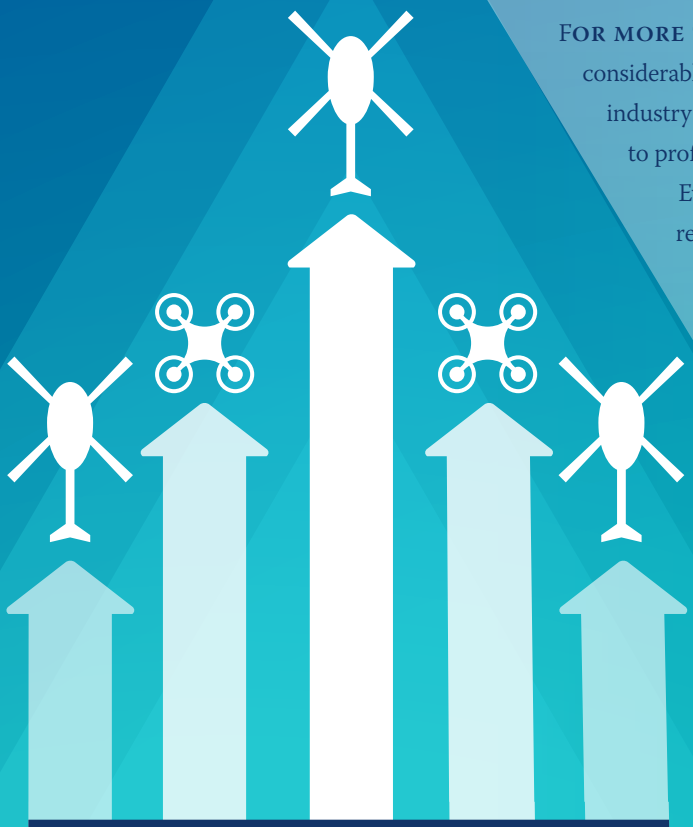
Clearly, Jack Erickson's pushing hard during the company's early days has instilled a cultural mindset of try, try, and try again until it works. The employees continually tweak, add to, and perfect the S-64.

"It's easy to just see the airframe. It's an impressive machine. But we can't forget the people. The real asset is the people who keep the aircraft flying, making sure that it's operated safely and accomplishing the mission. I don't think anyone realizes the commitment, amount of care, and maintenance that go into making sure these machines stay in great condition. I know from experience, when you're a crew chief, the aircraft becomes a part of your life. I love that machine. I've spent more time with the Air Crane than with my own kids," says Foote, who served as crew chief for "Incredible Hulk." "It's a labor of love. There's an enormous amount of pride."

Helicopter Association International

Salute to Excellence

HAI Salutes Excellence in Vertical Lift



Honoring the Best in Vertical Aviation

FOR MORE THAN 80 YEARS, VERTICAL LIFT AIRCRAFT HAVE MADE considerable differences in lives, communities, and businesses worldwide. Our industry's achievements are the result of an exceptional level of dedication to professionalism and safety by aviation professionals.

Every year, through its Salute to Excellence Awards, HAI strives to recognize a handful of these outstanding members of the vertical flight community who went above and beyond in their work. Whether in a single instance or throughout a career, it is these pilots, maintenance technicians, flight instructors, safety professionals, operators, and industry leaders from around the globe who remind us to always aim for excellence.

For 2022, HAI recognizes the remarkable achievements of the following honorees across our industry, including the recipient of the inaugural Matthew S. Zuccaro Land & LIVE Award. We congratulate all of them and celebrate their extraordinary contributions to aviation and their example for the vertical flight community.

Nominations for the 2023 Salute to Excellence Awards, to be celebrated at HAI HELI-EXPO 2023 in Atlanta, Georgia, will be accepted beginning Jun. 1, 2022. Visit rotor.org/salute for more information.

2022 HAI HELI-EXPO
BY HELICOPTER ASSOCIATION INTERNATIONAL

For outstanding aeronautical decision-making, crew resource management, and/or coordinated actions

Andrew Champagne

AET2, US Coast Guard Air Station Cape Cod, Buzzards Bay, Massachusetts, USA

US Coast Guard Avionics Electrical Technician Second Class Andrew Champagne joined the Coast Guard with a desire to save lives. Since joining the service in 2011, he's made a lasting impact on countless lives, including those of his own crew.

Stationed at Coast Guard Air Station Cape Cod in Massachusetts, Champagne is responsible for maintaining the electrical systems of all the station's Sikorsky MH-60T Jayhawk aircraft. As a part of his training, he attended vibration-analysis school for the aircraft's systems. For rescues, Champagne serves as a flight mechanic and as a member of the flight crew working the hoist and with the rescue swimmer and pilots.

AET2 Andrew Champagne

Early in the pre-dawn morning of June 8, 2021, Champagne's rescue crew was dispatched to support a search near Boothbay Harbor, Maine, more than 175 miles away. Local conditions were 300 ft. with visibility down to half a mile with mist. Due to the distance and IFR conditions, the crew chose to load the full 5,800 lb. of fuel on board, filling all three of the aircraft's external tanks.

Shortly after takeoff, Champagne began to feel a vibration in his seat, but it wasn't immediately obvious where the vibration originated. After ruling out his seat, he announced an abnormal vibration. No other crew member felt it, yet the aircraft commander immediately asked if Champagne thought the flight should be aborted.

"I could barely see the runway lights, so I knew we were close to where the clouds were starting," Champagne recalls. "If we waited any longer, we'd need to climb and follow IFR procedures to return to the airport. That would put us over densely populated areas and extend the flight, increasing the chances something could go wrong."

> "No matter what you feel, see, or smell, it's so important to speak up. A lot of people will second-guess themselves or are afraid to speak up, and that's when accidents happen."

Champagne called for the abort without hesitation. Once back at the hangar, he inspected the aircraft. When he reached the left inboard external tank, he was able to move it back and forth. It was loose and, with a full load of fuel, could have easily come off the aircraft. He and his crew immediately realized the potentially catastrophic situation they'd narrowly avoided. Had the 120-gallon tank come loose in flight, it would have landed over a populated area and could even have caused the aircraft to crash.

"The biggest thing we've all taken from this experience is no matter what you feel, see, or smell, it's so important to speak up," Champagne says. "A lot of people will second-guess themselves or are afraid to speak up, and that's when accidents happen. We're fortunate to have a culture in the Coast Guard where any of us can decide to abort a flight and it's never questioned. Maybe it's nothing. But what if it was something?"

Thanks to Champagne's bold and concise actions and directions during takeoff, the crew averted a potentially deadly situation. His actions and the culture of the US Coast Guard to trust and follow any crew member's call to abort illustrate the value of former HAI President Matt Zuccaro's initiative Land & LIVE.

COMMUNICATIONS AWARD

For creative distinction in disseminating information about the helicopter industry

Georgina Hunter-Jones

Editor, Helicopter Life *Magazine, Chichester, West Sussex, England*

For more than 35 years, UK resident and *Helicopter Life* editor Georgina Hunter-Jones has highlighted the importance of helicopters in our everyday lives.

Hunter-Jones's passion for rotorcraft began early. She remembers writing creative stories as a little girl. While in university, she discovered her second passion in a most uncommon way. She wanted to work a summer in Kenya, but her mother offered her a different adventure: If Hunter-Jones stayed in the United Kingdom, her mother would pay for her private-pilot single-engine land airplane license. Hunter-Jones took her mother up on the offer, a decision that changed her life.

Georgina Hunter-Jones

Hunter-Jones was hooked. She went on to earn additional airplane ratings, including flight instructor, before receiving similar ratings in helicopters. Since earning that first license, she's flown around the world in a variety of helicopters and airplanes, accumulating more than 8,500 hours of flight time. She's competed in the World Helicopter Championships, set a world altitude record in a helicopter, and gained UK CAA examiner authorization for both aircraft categories.

While she had difficulty finding paid writing opportunities before she stepped into aviation, Hunter-Jones found the helicopter journalism industry fertile ground. Not long after she started flying, she began writing about aviation in a variety of publications, including *Rotor and Wing, Flight International, Air Pictorial, Helicopter World, 4 Rotors,* and *Flyer Magazine.* In 1997, she became the editor of the Helicopter Club of Great Britain's periodical, *Rotor Torque,* turning it into a full-color magazine and expanding its content. In 2004, she developed her own publication, *Helicopter Life,* dedicated to educating and inspiring those in the helicopter industry.

Hunter-Jones's aim has always been to promote and drive an interest in helicopters. Her magazine has covered a diverse selection of subjects, including firefighting, helicopter safaris, film work, international air ambulance work, and charter flying, to illustrate how helicopters are utilized by civilian and commercial operators worldwide. She has also written regular flight-test reports for the magazine for aircraft ranging from the piston Bell 47 to the S-64 Skycrane.

Hunter-Jones focuses particularly on promoting alternate technologies in the aviation world and has championed small start-up helicopter companies looking to make helicopter flying accessible to everyone.

Hunter-Jones also dedicates her time to mentoring and inspiring the next generation through her writing. Her children's book *Biscuit and Oscar Learn to Fly* opens the world of flight to young minds. She's also written two nonfiction books about her aviation experiences, one about her flight across the Atlantic and the other about her flight across Russia.

A member of the Whirly-Girls, she often mentors the next generation of female helicopter pilots and volunteers as a member of The Skinners' Co., a London charitable organization dating to the 15th century that supports educating youths.

> Hunter-Jones has always aimed to promote helicopters, including championing small start-up companies seeking to make helicopter flying accessible to everyone.

For outstanding service in using helicopters to provide aid to those in need

MD Helicopters

Navajo Nation COVID Relief Missions, Mesa, Arizona, USA

When the coronavirus pandemic began sweeping across the United States in 2020, the Navajo Nation quickly experienced the country's highest per-capita rate of infections and deaths. Located mainly in Northeast Arizona, the reservation also expands into the high desert of Southeastern Utah and Northwestern New Mexico.

The Navajo Nation's nearly 300,000-member population is spread throughout the 27,000-square-mile reservation. Many members lack utilities and live in communal groups far from modern medical facilities. It can take hours to reach some members of the tribe by vehicle. As the pandemic raged, the Navajo Nation was forced to close its borders to outsiders, including supply trucks, to reduce spread.

MD Helicopters

"Early on, we wanted to do something to help," MD Helicopters COO Chris Jaran says. "We had helicopters, and the unanimous support from our leadership board, to volunteer our time, pilots, fuel, and maintenance to fly supplies into the Navajo Nation."

Jaran began reaching out to organizations offering helicopter support. The Veterans Medical Leadership Council (VMLC) was one of the few with permission to enter the Navajo Nation. The VMLC immediately took MD up on the offer.

"We thought we'd be flying out PPE [personal protective equipment] and such, but there was a more dire need initially," Jaran says. "Winter temperatures drop into the 30s there, and many tribal members rely on wood for heating and cooking. Usually, it's delivered to them. Without the supply trucks, they needed to collect their own wood. The first load of supplies we flew was chainsaws."

> "Our aircraft are used for life-protecting missions worldwide. It was our honor to step up and do what we could to support these efforts in our own backyard."

VMLC brought supplies to MD Helicopters' factory in Mesa, Arizona, that were then flown to the Nation in an MD 902 helicopter. The first flight, filled with chainsaws to the helicopter's maximum cargo weight of 900 lb., was to Winslow, Arizona, where the aircraft was topped off with enough fuel to reach any corner of the Nation. For more than a year, MD Helicopters provided nearly weekly deliveries of everything from chainsaws to PPE.

While almost every flight delivered critical supplies, one brought pure joy. In December 2020, most tribal members were sequestered in their homes, missing out on Christmas. So, for its final relief flight, on Jun. 25, 2021, MD Helicopters participated in a Christmas-in-summer operation.

"One of the veterans dressed as Santa, and we stuffed that helicopter with toys and gifts for all the kids," Jaran says. "We landed at a reservation airstrip, and a long line of cars was waiting. We handed out gifts and left the rest to be distributed to kids who couldn't be there. It was a really special day."

To date, MD Helicopters has flown 52 volunteer supply missions to the Navajo Nation, delivering more than 40,000 lb. of supplies and equipment.

W.A. "DUB" BLESSING FLIGHT INSTRUCTOR OF THE YEAR AWARD

For upholding high standards of excellence in flight instruction

Scott Tinnesand

Flight Instructor and Experimental Test Pilot, The Boeing Co., Gilbert, Arizona, USA

Flight instructor and experimental test pilot Scott Tinnesand got to where his is today thanks to mentors who supported him along his journey. A pilot with 33 accident-free years of flying experience, he's dedicated to giving back whenever possible.

Tinnesand remembers wanting to be a pilot but questioning the feasibility of achieving his dream. When he discovered the US Army ROTC program at the University of North Dakota (UND), the dream became possible. He enrolled at UND in the ROTC program, earning his private, commercial, and instrument helicopter ratings. Upon graduation, he attended Army flight school to become an AH-1 Cobra and AH-64 Apache pilot.

Scott Tinnesand

After eight years of service, ending with the Army's 101st Airborne Division, he entered the civilian world as an instructor pilot and test pilot for gyroplane manufacturer Groen Brothers Aviation. Tinnesand thrived at Groen, gaining gyroplane commercial and instructor ratings and mentoring by coworker and fellow pilot Terry Brant. Tinnesand returned the favor by, in turn, mentoring customers who were learning to fly.

After leaving Groen, Tinnesand took a helicopter air ambulance position that grew into an opportunity to earn his helicopter CFI and mentor, train, and support his fellow company pilots. Then, in 2011, he landed what has been his dream job.

Today, Tinnesand is a lead flight instructor and experimental test pilot for The Boeing Co.'s Vertical Lift division. He trains domestic and international pilots as well as conducting experimental test flights in the AH-64E Apache, A/MH-6M, and AH-6 Little Bird.

His experience at Boeing wouldn't be the same without his own mentor in the organization, Rich Lee, chief developmental test pilot for rotorcraft. Lee took Tinnesand under his wing and supported his rise in the company. He also encouraged him to become a designated pilot examiner (DPE) in the region. All he asked in return was that Tinnesand pay it forward.

When not working, Tinnesand continues to mentor others. He spends extra time after practical test examinations to teach and guide pilots. He encourages female pilots to apply for Whirly-Girls scholarships and offers free SFAR 73 checkouts for new CFIs to help them save money as they begin their careers. He shares his contact information with pilots and responds to numerous phone calls and texts every week from prior students, air mission applicants, flight instructors, and professional pilots requesting assistance.

> "I am so lucky to have the life I live. It gives me such satisfaction to help others reach their dreams."

Tinnesand also donates his time to the Arizona DPE Advisory Group and the Phoenix Airspace Users Work Group and has participated as a speaker in HAI's HFI Pilot Mentoring Panel, HAI's Military-to-Civilian Transition Workshop, the US Helicopter Safety Team Annual Meeting, and several other local and national training and safety seminars.

"I wouldn't be where I am today without the great people who supported and mentored me every step of the way," Tinnesand shares. "There truly isn't anything more satisfying than helping remove an obstacle keeping someone from achieving their dream. I am so lucky to have the life I live. It gives me such satisfaction to help others reach their dreams."

For contributions to the promotion and advancement of helicopters in support of law enforcement activities

Matt Rogers

Sergeant, Michigan State Police Aviation Unit, Lansing, Michigan, USA

Growing up, Matt Rogers dreamt of being a state trooper like his dad. As he got older, his interests turned to his grandfather's profession, aviation. He earned his airplane private pilot license in high school and, after graduation, enrolled in Western Michigan University's aviation technology program. Yet, Rogers couldn't shake his police-work dreams. So he left college and enrolled in Michigan State Police Recruit School in 1995. During the next 19 years, Rogers worked assignments including road patrol, narcotics, training academy, drive track, and desk sergeant. Then, in 2014, an opportunity came to blend his two passions.

SGT Matt Rogers

That year, Rogers was selected to join the aviation unit as the police department's first tactical flight officer (TFO). Until this time, the Michigan State Police (MSP) had operated its fleet of helicopters and airplanes with two pilots. In his new position, Rogers would help develop the MSP's TFO program from the ground up. After attending the Los Angeles Police Department's TFO school, he came back home to help establish an extensive curriculum to train all incoming MSP TFOs.

Rogers then focused on building the MSP's UAS program. While the aviation unit had already purchased an Aeryon SkyRanger, the UAS program had yet to be created. Through the work of Rogers and his team, the MSP became the country's first police agency to receive a statewide certificate of authorization for UAS operations in uncontrolled airspace. He soon added to the authorization approvals for day and night operations in controlled airspace, including emergency exceptions into Class B airspace.

Again, Rogers built the program from the ground up, creating a framework that would not only ensure unit and personal growth, but also create opportunities for a diverse UAS mission set. As the program grew, additional UAS platforms and personnel were added and the missions were expanded from crime and crash-scene documentation to tactical overwatch and building searches.

"The big thing for our unit is being able to deploy the best tool for the job," Rogers explains. "If someone calls for an aerial search, by having helicopters, airplanes, and UASs in our unit, we can present the best tool for that specific mission. Having UASs in the aviation unit has been instrumental in providing that service. That isn't something that's necessarily done in other agencies."

> "If someone calls for an aerial search, by having helicopters, airplanes, and UASs, we can present the best tool for the mission. Having UASs has been instrumental in that effort."

Rogers meticulously developed processes and procedures for the UAS program that exceeded all FAA and legal requirements while ensuring full privacy protection for the citizens the agency serves. He also became a founding member of the National Council on Public Safety UAS and held a governor-appointed position on Michigan's Unmanned Aircraft Systems Task Force. Along with this work, he has spoken at conferences and given demonstrations to help other agencies use UAS effectively.

"Our team's training sessions and seminars give us the chance to talk about policies and procedures, share what worked and what didn't, and explain how to implement this new technology in a way that [honors] a person's constitutional rights," Rogers says. "We as law enforcement don't want to create bad case law that could make manned aircraft police work more difficult. I'm always eager to emphasize the importance of that."

Children's Health Neonatal/Pediatric Transport Team

Dallas, Texas, USA

In the early morning of Aug. 10, 2021, a vehicle carrying two adults and five unrestrained children was traveling 65 miles northeast of Dallas, Texas, when it was struck by a semi-truck. The vehicle rolled, severely injuring all occupants and ejecting at least one of the children.

First responders on the scene alerted the local community hospital of multiple casualties and five pediatric patients with significant traumatic injuries. Unequipped for such a large patient load, especially children, the hospital's emergency-room staff called Children's Health Access Center to request support. Children's Health operates 12 neonatal/pediatric-equipped ambulances, one Citation Encore jet, and one Sikorsky S-76 C++ helicopter.

Members of Children's Health Neonatal/Pediatric Transport Team

Children's Health critical care nurse Brandon Gardner, RN, was standing by at the hospital's airbase at Dallas Love Field (KDAL) when the Access Center's team called. Gardner, his pilots, and medical crew at the station sprang into action to devise a plan to transport all the children to Children's Health, a Level I trauma center. It was agreed that Children's Health would send an ambulance, helicopter, and pediatric medical specialists to help assess, treat, and transport the children to Dallas.

Gardner and a paramedic immediately left in an ambulance with the intention of providing support in advance of the helicopter's arrival. Before launching, the rest of the crew—medics, respiratory therapists, and the two pilots—quickly reconfigured the helicopter to transport two patients.

Gardner and the paramedic arrived on scene first and promptly triaged, assessed, and helped stabilize the children. Two children were identified as critical enough to require helicopter transportation, and Gardner coordinated with the receiving ER physicians at Children's Health. The helicopter landed within 20 minutes of the ambulance's arrival and the two most critical patients were loaded onto the aircraft.

The Children's Health ambulance transported a third child while the other two children were transported by local EMS services. In the end, all five children were safely and quickly transported to Children's Health, where they eventually made full recoveries.

> The specialized transport team at Children's Health operates under the mission of making life better for children. On this day, as on so many others, the team truly did make life better.

Children's Health, based in Dallas, Texas, is the eighth-largest pediatric health system in the United States, transporting more than 5,000 children in 2021 alone. The transport team attributes its success to a philosophy of maintaining a variety of highly equipped transportation vehicles. All the hospital's ground vehicles and aircraft are equipped to support critical needs. Onboard equipment includes nitric oxide, high-frequency ventilation, extracorporeal membrane oxygenation (ECMO), and TeleCooling and TeleTransport for NICU/PICU.

For outstanding contributions to the promotion of helicopter safety and safety awareness

Safety Department, US Coast Guard Air Station Cape Cod

Buzzards Bay, Massachusetts, USA

Initiatives in the safety department at Air Station Cape Cod, the US Coast Guard's only New England–based aviation unit, have not only increased safety at the air station but have had far-reaching effects across the service branch, as well.

Fostering a strong reporting culture, the air station's safety department conducts in-depth analyses following unit mishaps. The department's expertise was leveraged on at least 70 occasions during the past fiscal year alone, capturing lessons learned in the wake of mishaps and making recommendations for both unit- and fleetwide change. In the process, the safety department accounted for more than $390,000 worth of malfunctioning or damaged equipment that ultimately led to a reportable event.

Safety Department, US Coast Guard Air Station Cape Cod

Historically, the department flags potentially catastrophic aircraft malfunctions. For instance, when erroneous radar altimeter readings of 70 to 100 ft. above true altitude were observed while crews were practicing instrument approaches to water at night, the safety department investigated. Upon contacting the USCG Aviation Logistics Center, the department learned that the anomaly was known and occurred around electromagnetic interference (EMI).

Though engineering solutions had been implemented to mitigate the effects of EMI, the experience of Cape Cod's crew proved the hazard had not been entirely eliminated. Understanding that this remedy may have been widely overlooked, Air Station Cape Cod's safety department led an effort to increase awareness across the entire Coast Guard rotary-wing fleet. This invaluable exchange of information following a near catastrophic mishap is one of many examples in which sharing lessons learned and potential equipment vulnerabilities has sparked training and safety-related discussions within Coast Guard units across the country.

The air station also strives to maintain a high state of readiness for potential mishaps with frequent, realistic drills and a tiered approach to training that begins with traditional classroom-style presentations, progresses to a tabletop mishap exercise, and culminates in full-scale drills.

The safety department extends its work beyond air operations to include the overall safety of all personnel. When trace amounts of hexavalent chromium were identified in rotary-wing shop spaces, for example, the air station's safety department rapidly developed a plan to conduct both in-house and contractor-led cleanings to address the concern. Similarly, during lead-abatement efforts on the unit's aging hangar floor, safety department personnel observed flaws in the contractor's containment system and issued on-the-spot corrective actions for those conducting the work. These actions prevented lead-dust contamination, which could have posed a significant health hazard for unit personnel.

Through its tenacious drive and commitment to safe practices both on the ground and in the air, the safety department has been a model of sustained high-safety performance.

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For significant and distinct contributions to helicopter maintenance

Jeffrey Donnell

Mechanic, Panther Helicopters, Picayune, Mississippi, USA

For more than 25 years, aircraft and powerplant mechanic Jeffrey Donnell has ensured that helicopters are safely and properly maintained while providing superior customer service.

Donnell began developing his mechanical prowess when he was only seven years old, working in his stepfather's auto shop and gas station in Maine.

Jeffrey Donnell

"If it ran on gasoline, we worked on it," Donnell recalls. "Cars, trucks, outboard engines, boats, tractors, motorcycles, lawn mowers—you name it. I worked there [starting at age] seven, but after high school, I wanted to work for the airlines."

Donnell enrolled in East Coast Aero Technical School in Bedford, Massachusetts, receiving his airframe and powerplant license in 1976. While he planned to work for the airlines, it was the helicopter industry that was hiring at the time. He landed his first mechanic job at Petroleum Helicopters Inc. (PHI) in the fall of 1976 with no helicopter experience.

"The position at PHI was the best job I could have taken because of the incredible amount of experience I received while I was there," he shares. "That job set me up for my career, giving me the opportunity to gain experience on numerous aircraft and attend Bell factory training."

In time, Donnell's reputation preceded him. He was dedicated, focused on doing the job right the first time, and had a special skill at getting along with everyone he encountered. It wasn't long before he was offered other positions.

In the early 1980s, Donnell took a lead mechanic job that soon led to a director of maintenance position in Houston maintaining Bell 222s operated within a helicopter airline. When the airline lost a major client, Donnell accepted a position at Helitrans Co., where he worked as a mechanic maintaining a fleet of Bell 206 and 206L helicopters.

Eight years later, he was recruited away again, this time by Dallas Airmotive as a regional sales manager and field service technician for the Rolls-Royce 250. While he had no sales experience, Donnell's expert maintenance skills and customer-support focus quickly won over customers. In 2001, he was recruited by StandardAero, only to be laid off 13 years later due to budget cuts.

> "The happiest time of my life is when I'm a mechanic. The pilots are like family, and I really enjoy keeping them, my family, safe."

"I took a year to decide what to do next and was approached by Panther Helicopters, a customer I'd known for 20 years, to be a mechanic," Donnell recalls. "The happiest time of my life is when I'm a mechanic. The pilots are like family, and I really enjoy making sure the aircraft operate properly and keeping them, my family, safe."

Now in the industry more than 45 years, Donnell is a mechanic at Panther, based in Picayune, Mississippi. He plans to retire in the next two years to enjoy reflecting on a career that made a difference.

Joe Patrick, a program manager at StandardAero, sums up what most everyone who's worked with Donnell says: "From his early days as a hands-on mechanic, through his time as DOM of a Houston-based operator, to his days as a salesman for an engine MRO, and now back as a hands-on mechanic (his true love), Jeff has shown himself to be unwavering in his dedication to excellence in maintaining these complicated machines."

Travis Christy

LCDR, US Coast Guard Air Station Cape Cod, Buzzards Bay, Massachusetts, USA

Travis Christy joined the US Coast Guard (USCG) out of a desire to help people. While attending the Coast Guard Academy, he chose to serve in the aviation community, receiving his wings in 2013. He has since helped save numerous lives at sea, inland, and in post-disaster support efforts.

One such day came on Mar. 2, 2021. At 8 pm, a call came in to USCG Air Station Cape Cod in Massachusetts. Atlantic Destiny, a 140-ft. fishing vessel with 31 onboard, had caught fire and was taking on water more than 200 nautical miles east of Cape Cod.

Facing darkness, freezing cloud layers, and turbulent winds, Christy set out for the disabled vessel. Shortly after his aircraft arrived on scene, the decision was made to evacuate most of the boat's crew. After a Royal Canadian Air Force helicopter hoisted six crew members, Christy maneuvered his helicopter into position to begin rescuing survivors. Battling 40- to 60-kt. winds and 33-ft. waves, Christy and his crew lifted eight survivors from the dark, pitching vessel. With a full cabin, Christy departed and flew 125 miles through pockets of unidentified precipitation to Yarmouth International Airport (CYQI) in Nova Scotia, Canada, where the survivors were transferred to awaiting rescue personnel.

LCDR Travis Christy

Christy rose to the occasion again on May 30, 2021, when he and his crew responded to rescue an injured skier at 4,000 ft. on Mount Washington in New Hampshire. The skier had fallen 400 ft. and suffered severe head trauma and a spinal injury. No other aircraft in the area could support the mission due to the patient's high-altitude location and reported visibility of 1/16 to 0 statute mile.

In the midst of seemingly insurmountable challenges, Christy has benefited countless lives through careful judgment, aviation skills, and trusted leadership capabilities.

Christy flew under an IFR flight plan to Eastern Slope Regional Airport (KIZG) near the injured skier. From there, he identified a safe route and briefed his team on how they would transit the remaining 20 nautical miles to the injured skier, including an inadvertent-IMC plan. The aircraft followed the road, navigating around clouds and mountainous terrain at 40 to 70 kt. and altitudes of 100 to 200 ft. agl.

Once on scene, Christy used the aircraft's direction finder to pinpoint the injured skier's position. As the helicopter hovered near its maximum available power, Christy served as the safety pilot while the skier was hoisted via litter and secured safely on board.

In August 2021, Christy was also instrumental in discovering and rescuing eight people and two pets from a severely damaged beach hotel on Grand Isle, Louisiana, while supporting post-hurricane rescue efforts in the wake of Hurricane Ida.

Throughout his years with the Coast Guard, Christy has found himself in the midst of seemingly insurmountable challenges. Yet, by exercising careful judgment, aviation skills, and trusted leadership capabilities, he has benefited countless lives.

For long and significant service to the international helicopter community

Dwayne Williams

Pilot, Aero Dynamix, Euless, Texas, USA

Dwayne Williams has enjoyed a long and storied career in the helicopter industry. Since learning to fly in 1965 with the US Army, he's accrued more than 16,000 hours of accident-free flight time and 57 years of experience flying combat, offshore oil-support, flight-training, and test-pilot operations.

Williams's career began with a tour in Vietnam, followed by two years as an instructor pilot at Fort Wolters, Texas. After leaving the army, he joined Petroleum Helicopters Inc. (PHI), where he flew offshore in the Gulf of Mexico for almost five years.

Dwayne Williams

In 1974, Williams was offered the opportunity to train Iranian Army pilots in Isfahan, Iran, for Bell Helicopter International. There, he put his military-standardization and instructor-pilot skills to strong use, soon becoming the chief pilot for the advanced flight training program, a position he held until the program ended in 1979.

Upon returning to the United States, Williams joined Bell Helicopter Textron as a production test pilot, demonstration pilot, and international delivery pilot. During this period, he traveled to virtually every corner of the globe promoting Bell and its products. He later joined Bell's experimental test-pilot staff at Bell's Flight Research Center and in 2000 became Bell's chief pilot.

Williams was the first person to fly several Bell aircraft, including the 206L-3, 400, AH-4BW SuperCobra, and 230. He was also a test pilot on the first Bell/Agusta Model 609 commercial tiltrotor flight.

> "To be recognized by the industry for doing a job the way I felt it should be done is very humbling. It's not just a measure of your skill; it's a reflection of your entire career. I'm honored."

Williams also served as a test pilot for flights on the Bell XV-15 tiltrotor, the forerunner of the Marines' V-22 tiltrotor aircraft. During this time, Williams was appointed a designated engineering representative (DER) flight test pilot by the FAA.

Not long after retiring from Bell in 2005, Williams accepted the position of chief pilot, director of flight operations, at MD Helicopters, where he directed helicopter production and delivery flights as well as pilot and maintenance training. While there, he served on Embry-Riddle Aeronautical University's advisory council, where he developed an annual MD 530 transition scholarship for the school's top helicopter student-pilot graduate.

In 2013, Williams became chief test-pilot at Marenco, designer, developer, and producer of the first Swiss-made helicopter, the SH09. There, he had the honor of performing the aircraft's first test flight. In 2015, he received the FAA's highest honor for a pilot, the Wright Brothers Master Pilot award, which recognizes 50 years of safe flight with no accidents on a pilot's record. Today, Williams serves as chief test pilot and certification pilot for Aero Dynamix, a company that designs cockpits that are night-vision goggles (NVG) compatible.

Through all his positions and experiences, Williams has left his mark across the industry.

"I've always thought of myself as just a pilot," Williams says. "I've taken this very seriously. In the world of test flying, you're responsible for everyone who flies in that aircraft after you. It's a big responsibility, and it's difficult. I have a strong work ethic and always aimed to do my very best. I always told the engineers the truth, whether they'd like it or not."

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ROTOR MAGAZINE PHOTO CONTEST

Helicopter Association International

IN 2022, THE ROTOR MAGAZINE Photo Contest celebrates its tenth year of showcasing the best in vertical lift photography.

This year's Grand Prize winner, shown opposite, features a father–daughter flight. The photographer (and father), David Chow, was introduced to aviation by his grandfather, who served in the Taiwanese Air Force during World War II. David says taking sunset flights with his children in his Rotor X Phoenix A600 Turbo is one of his favorite things to do.

In the following pages, you'll also see an encounter between two aviators in Oscar G. Bernardi's winning entry in the Helicopters/Drones at Work category, as well as Michal Adamowski's dynamic photos, which took the top prize in two categories: Helicopters/Drones in the Military and People and Their Helicopters/Drones. Pilot and photographer Scott Moak's category-winning Helicopter/Drone Digitally Enhanced Photo shows a quiet sunrise moment, shot from a hospital rooftop helipad.

Finally, Tom Houquet's winning entry in our Wrench Turners category reminds us of the essential work that maintenance technicians do every day to keep us in the air.

We thank every photographer who submitted an entry. Your photos provide a window into our industry, and we love the view!

The ROTOR Magazine Photo Contest will open for its eleventh year on Aug. 1, 2022. Please visit photo.rotor.org to enter.

Grand Prize

David Chow

Atlanta, Georgia, USA

Great photos about and for helicopter folks.

Helicopters/Drones at Work

Oscar G. Bernardi

Varese, Italy

Helicopters/Drones
in the Military

Michal Adamowski

Zaskale, Poland

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People and Their Helicopters/ Drones

Michal Adamowski

Zaskale, Poland

Helicopter/Drone Digitally Enhanced Photos

Scott Moak

Richmond, Virginia, USA

1st Source Bank Provides Some Lift for American Huey 369

1st Source Bank supports the mission of the nonprofit organization known as **American Huey 369**. The organization is dedicated to preserving the historical significance of the Huey helicopter and supporting all military veterans, especially those who served in Vietnam. It works to maintain Huey helicopters for current use and is raising money to build a **National American Huey History Museum** at the Grissom Aeroplex in Peru, Indiana. **1st Source Bank** has contributed to the fundraising campaign for that museum.

Rendering of the National American Huey History Museum
Paul Fitzsimons, Architect

"As a flying member of American Huey, I can attest that the organization is a great ambassador for the entire helicopter industry, as well as a highly effective military veterans outreach organization," said Chris Craft, President and Chief Operating Officer of the **Specialty Finance Group** at 1st Source Bank.

Truly Iconic

Dave Hudak, Helicopter and Aircraft Finance Division President of the 1st Source Bank Specialty Finance Group, loves the effort to preserve the history and relevance of the Huey. "**The Huey Helicopter is truly iconic in the annals of helicopter history** and we continue to finance commercial variants of the Huey, along with the MD530, Bell 206, 407, 505, UH-60, Airbus H125,135, 145, and others to this very day," said Hudak. "We applaud American Huey for keeping these historically significant helicopters flying."

Originally delivered to the U.S. Army in 1971, the lovingly restored Huey Air Ambulance "Dustoff" 369 flies again.

American Huey 369 Founder John Walker says they set a fundraising goal of $4 million for the new museum. He says $3 million will be used for construction and $1 million will be used as a rainy-day fund and to provide **scholarships for children of veterans** who were killed in action. The organization has raised more than $2.3 million so far, mostly from smaller donations known as founder donations. Anyone who contributes $1000 is considered a founder and their name will be printed on a large bronze plaque in front of the new museum.

Keep on Flying

"I am grateful for the support offered by Dave, Chris and **1st Source Bank**. Contributions like this matter as we strive to keep these Hueys flying and continue with the building of our museum facilities," said Walker. "**Your support goes towards our ongoing fundraising goal for the new building project** that is already underway. To date, we have met two-thirds of our goal. For more information about American Huey or to join 1st Source Bank in support, please visit our website (**americanhuey369.com**) or contact me at **(765) 469-2727**."

Scan to learn more and to support American Huey 369

Wrench Turners

Tom Houquet

Berg, Vlaams-Brabant, Belgium

QUICK FACTS

Patrick Bory

Groupe SAF (Secours Aérien Français), French Alps

CURRENT JOB

I'm a helicopter pilot with 4,000 hours specializing in aerial work, mostly sling, including wire pulling. I also work in assembly, construction, mountain flying, and firefighting operations.

FIRST AVIATION JOB

My first job was at Héli-Tremblant with Jean-Benoit Daigneault, president of the company and a pilot. He gave me my first chance to increase my hours, in an R44. My first real aerial-work position was with François Ricard, director of flight operations east at Canadian Helicopters Ltd., as a bush pilot.

FAVORITE HELICOPTER

My favorite helicopter to fly and handle is the AStar, but the Bell 212 has a special place in my heart because, growing up, I would always see the 212 on TV.

LEARN MORE
About Groupe SAF

How did you decide helicopter aviation was the career for you?

Since the first time I saw helicopter EMS operations in Saint-Étienne, France, where I was born, I realized helicopters can do what airplanes can't. But it was too expensive a vocation to pursue in France, so I gave up for a while.

Ten years later, as an engineer with the French army, I met a civilian pilot in Kandahar, Afghanistan, where the United States subcontracted Canadian helicopters for sling work. He told me about an affordable Canadian training school as well as some promising job opportunities. Four months later, I got a Canadian visa and left everything behind. I was in Canada, living my dream.

What are your career goals?

My career goal is helicopter hoist operations and search-and-rescue work in the mountains. But for now, I'm continuing to evolve in my mountain-operations experience and fostering the type of mentality needed for longlining in this rugged environment.

What advice would you give someone pursuing your path?

Never give up. Stay diligent and humble.

Who inspires you?

When I started in the industry, my chief pilot with Canadian Helicopters, Stacy Lamoureux, inspired me with his rigor and precision. I remember him saying, "62 knots isn't 65!" He was so fair, and good; I thank him so much for that.

My training pilot, Dominique Deschamps, taught me aerial work; pilot Denis-Claude Imbeau showed me how to sling; and, of course, Michel Côté, chief base engineer at Canadian Helicopters, who, though not a helicopter pilot, helped me so much while I was training in the bush.

In my current company, Groupe SAF, Alain Mermoud is a training-pilot legend in mountain rescue. The company's senior pilots are also a continual source of inspiration to me.

I'd like to thank all the people I've met along the way in the industry who've offered their advice—those discussions over coffee are so

important. And I'd like to extend my gratitude mostly to the engineers—all those who work hard to make aviation safer.

Tell us about your most memorable helicopter ride.

As a bush pilot, my most memorable flight was my first drill move in the Arctic. In longlining, disassembling a drill piece by piece and assembling it somewhere else is a huge step for a pilot.

On this particular morning, I wasn't expecting to do the drill move; I was just the second pilot on that contract. But when the other pilot got sick, I was asked to replace him. With the first pilot's advice in my head, and the sympathy of the drillers, and with my own patience—and some nervousness—I succeeded.

A 24-minute drill [like that one] seems as long as a full day! It was an amazing moment that helped develop my career as a sling pilot.

What still excites you about helicopter aviation?

Flying in the mountains is always a challenge, even if it is really beautiful. I'm never satisfied with my precision.

What challenges you about helicopter aviation?

The precision required, day in and day out.

What do you think poses the biggest threat to the helicopter industry?

The drone industry? LOL! For real, the routine and procedures that are so essential to our safety can also lead to complacency precisely because they are so routine.

Complete this sentence: I love my job, but I'd rather work for a paper company in Scranton when ...

… the plans keep changing. You stay one night in a hotel. "Oh no, come back … no, stay! No, come back!" But that's the helicopter life; [so much] depends on the client's orders and what the weather permits.

 By Jaasmin Foote

Matt Goodrich, Helicopter Pilot, Instructor, and Operator

Former computer scientist finds his passion, career success in rotorcraft flight.

FOR SOME, THE INSPIRATION TO fly for a living comes from family members who work in aviation. But that wasn't what drew Matt Goodrich to flying.

His love of the aviation industry, Matt says, stems from the US Air Force Academy, located in Colorado Springs, only an hour's drive from his childhood home in Parker, Colorado. Matt's experience attending events at the academy and seeing the aircraft fly largely fueled his passion for aviation.

A New Career

The first time Matt seriously considered becoming a pilot came following a helicopter tour he took in Alaska in summer 2012. He dismissed the idea as unrealistic, however, and pursued a career in computer science instead.

While working behind a desk for a few years and reflecting on his early enthusiasm for aviation, Matt decided to take helicopter flying lessons. He knew by the end of his private pilot license training that he wanted to switch careers and find a job as a professional helicopter pilot. But it wasn't easy.

Matt faced several setbacks early in his new career.

"The first series of trials occurred during the training itself, where I struggled to learn a brand-new skill," says Matt. "I remember failing my first stage check and questioning if I was fit to become a pilot. But I didn't give up. I collaborated with other students and studied every day.

"I built muscle memory practicing maneuvers in a hangared helicopter, a technique called 'chair flying,'" Matt continues. "The training was rigorous, but it taught me the skills I needed to become a professional."

Matt found the training process demanding not only mentally but monetarily, as well. "It was financially challenging to make it through my CFII training," he says. "All my paycheck and personal savings went toward training. Every minute of flight time counted."

After completing his studies, Matt had to find a job, an experience that left him "taking steps to create my own work," he says.

One such step entailed acquiring turbine flight time as well as networking with other professionals through his training and attending HAI HELI-EXPO® and other conferences.

"Seeking work as a new pilot taught me the importance of networking," Matt says. "Becoming qualified to fly turbine helicopters took patience and perseverance, in part because the experience and insurance requirements for turbine helicopters are much higher than for piston helicopters."

Networking and Collaboration 'Mean Everything'

Matt is quick to credit those who've mentored and trained him along his path to becoming a rotorcraft pilot, including the person he says was his biggest role model, helicopter CFI Gary Cleveland, owner of Cleveland Helicopter Services in Plymouth, Indiana. Cleveland guided Matt as a new instructor.

"Gary opened my eyes to the commercial aviation world," Matt says. "I had come from a rigid flight school, where I was trained effectively as a private pilot but wasn't given the freedom to explore my limits. Gary showed me that side of aviation and taught me how to mentor other new pilots in an industry where it can be difficult to get started. Most importantly, he taught me how to build a helicopter business."

Those business lessons sparked Matt's strong entrepreneurial spirit. After teaching a few students with Gary, in June 2020 Matt began his own flight-instruction business, Pilot In Command, also based in Plymouth. The venture involved collaborating with Gary in Plymouth and traveling to students in places as far apart as Florida and Wyoming.

In October 2020, Matt teamed up with friend Jessica Meiris to open a second business, a tour company called Columbus Helicopter Tours in Columbus, Ohio. He

says his ability to start a new business was possible in part because of his background in computer science, his original career track. It turns out the graphic design, marketing, and website-development abilities he used in computer science are also key skills needed to run a helicopter business.

"My schedule [just starting the businesses] was busy, instructing in Indiana during the week and flying tours in Ohio on the weekend," says Matt. "But the two businesses were unique, and the variety kept it exciting."

Matt cites Meiris, a "Future Faces" alumnus (see December 2021 ROTOR, p. 56), pilot, and HAI ambassador, as another mentor. "Our careers are parallel, as we're both helicopter pilots with similar flight hours," Matt says. "We share our experiences with each other, which lets us learn twice as much. The biggest lessons Jessica has taught me are patience and resourcefulness."

Matt is a firm believer in networking and collaboration and says he couldn't have produced the same results without help from others.

"Networking and collaboration mean everything to me," he says. "It's how I've found mentors, jobs, students, and friends."

Matt has cultivated three additional, important skills on his journey as a pilot—perseverance, humility, and ambition.

"It can be dangerous to think we know it all, but confidence is equally important," he says.

Entrepreneurial Spirit

Now a chief pilot with 1,300 flight hours, Matt runs several thriving businesses. In addition to Columbus Helicopter Tours and Pilot In Command, in December 2021, Matt began a new company in Fullerton, California, called Horse Creek Helicopters. The company provides tours and flight instruction in various types of aircraft, including the Aérospatiale Alouette III, Bell 206L-4, and Robinson R44.

Matt eventually hopes to fly helicopter air ambulance operations and is interested in exploring its business potential.

He encourages new aviators not to give up, even when the journey gets difficult. "It's important to be open to constructive criticism to strengthen your skills," Matt says.

Matt also has a word of advice for other aviators who dream of starting their own business: when things inevitably become overwhelming, he says, take it one step at a time.

Matt also stresses the importance of planning.

"Always think a few steps ahead in your career," he advises. "This is just like flying, where you want to stay ahead of the aircraft. Network in preparation for future opportunities."

RECENT ACCIDENTS & INCIDENTS

THE ROTORCRAFT ACCIDENTS AND INCIDENTS LISTED BELOW OCCURRED FROM NOV. 1, 2021, TO JAN. 31, 2022. The accident details shown are preliminary information, subject to change, and may contain errors. All information was obtained through the official National Transportation Safety Board (NTSB) website, at bit.ly/2lueqZa, unless otherwise noted. There, you can learn more details about each event.

November 2021

Robinson R44
Belo Horizonte, Brazil
Nov. 8, 2021 | NTSB GAA22WA035
0 injuries, 0 fatalities | Private flight

No description available.

Bell OH-58A
Holtville, CA, USA
Nov. 9, 2021 | NTSB WPR22LA032
0 injuries, 0 fatalities | Flight type unknown

No description available.

Robinson R22 Beta
Freer, TX, USA
Nov. 10, 2021 | NTSB CEN22LA033
0 injuries, 0 fatalities | Flight type unknown

No description available.

Robinson R44 II
Fort Davis, TX, USA
Nov. 10, 2021 | NTSB CEN22LA034
0 injuries, 0 fatalities | Business flight

No description available.

Hughes 269C
Klinga, Germany
Nov. 14, 2021 | NTSB GAA22WA030
Injuries unknown, fatalities unknown | Flight type unknown

No description available.

Bell OH-58A
Molalla, OR, USA
Nov. 15, 2021 | NTSB WPR22LA034
0 injuries, 0 fatalities | External-load flight

Helicopter experienced power loss, and pilot jettisoned load and attempted autorotative landing, resulting in significant damage to the aircraft.

Robinson R22 Beta
Miamisburg, OH, USA
Nov. 19, 2021 | NTSB CEN22LA041
0 injuries, 0 fatalities | Instructional flight

No description available.

K COPTERS 47G-2
Lancaster, PA, USA
Nov. 20, 2021 | NTSB ERA22LA069
2 injuries, 0 fatalities | Instructional flight

No description available.

Leonardo AW169
Austin, TX, USA
Nov. 22, 2021 | NTSB CEN22LA057
0 injuries, 0 fatalities | Air taxi flight

No description available.

RotorWay Exec 162F
Scio, OR, USA
Nov. 22, 2021 | NTSB WPR22LA045
0 injuries, 0 fatalities | Personal flight

No description available.

Bell 206B
Perry, OK, USA
Nov. 28, 2021 | NTSB CEN22FA053
1 injury, 1 fatality | Personal flight

During low-altitude operation, helicopter impacted terrain for unknown reasons and was destroyed in ensuing post-impact fire.

December 2021

McDonnell Douglas 369E
St. Louis, MO, USA
Dec. 2, 2021 | NTSB CEN22LA063
0 injuries, 0 fatalities | Business flight

No description available.

Russell W Dyer Vortex
Lakeport, CA, USA
Dec. 2, 2021 | NTSB WPR22FA053
0 injuries, 1 fatality | Personal flight

Experimental, amateur-built gyrocopter impacted terrain for unknown reasons and was destroyed.

Robinson R22 Beta
Hachita, NM, USA
Dec. 3, 2021 | NTSB WPR22LA059
1 injury, 0 fatalities | Aerial observation flight

No description available.

CHR International Safari 400
McKinney, TX, USA
Dec. 9, 2021 | NTSB CEN22LA068
1 injury, 0 fatalities | Personal flight

No description available.

Robinson R66
Mrassu, Russia
Dec. 10, 2021 | NTSB GAA22WA043
0 injuries, 1 fatality | Flight type unknown

No description available.

Bell 206
Midrand, South Africa
Dec. 11, 2021 | NTSB GAA22WA044
0 injuries, 0 fatalities | Flight type unknown

No description available.

Schweizer 269C
Silesia, Poland
Dec. 11, 2021 | NTSB GAA22WA046
0 injuries, 0 fatalities | Flight type unknown

No description available.

Bell 429
New York, NY, USA
Dec. 13, 2021 | NTSB ERA22LA091
0 injuries, 0 fatalities | Public aircraft

No description available.

Bell 407
Bridgeport, TX, USA
Dec. 14, 2021 | NTSB CEN22LA078
0 injuries, 0 fatalities | Personal flight

No description available.

Bell 407
LaPlace, LA, USA
Dec. 14, 2021 | NTSB CEN22FA073
0 injuries, 1 fatality | Personal flight

Helicopter descended to 50 ft. agl over highway, struck a guy wire, impacted terrain, and was destroyed during post-impact fire. Marginal VFR and dense surface fog were reported near the accident site by rescue aircraft.

Hughes 269A
Crowley, TX, USA
Dec. 14, 2021 | NTSB CEN22LA077
0 injuries, 0 fatalities | Instructional flight

No description available.

Hughes 369D
Strawberry, AZ, USA
Dec. 21, 2021 | NTSB WPR22LA078
0 injuries, 0 fatalities | Aerial observation flight

No description available.

Robinson R44 II
Cosby, TN, USA
Dec. 29, 2021 | NTSB ERA22FA096
1 injury, 1 fatality | Personal flight

Helicopter impacted mountainous terrain for unknown reasons, destroying the aircraft. Witnesses indicated that foggy conditions were present near the accident site.

Bell 206B
Livingston, TX, USA
Dec. 30, 2021 | NTSB CEN22FA086
3 injuries, 1 fatality | Personal flight

While hovering at low altitude, helicopter impacted trees and terrain and was subsequently destroyed.

Robinson R44 II
Bronson, FL, USA
Dec. 30, 2021 | NTSB ERA22FA098
0 injuries, 4 fatalities | Personal flight

During nighttime flight, helicopter impacted terrain for unknown reasons and was destroyed in post-impact fire.

January 2022

Robinson R44
Puy-de-Dôme, France
Jan. 6, 2022 | NTSB GAA22WA069
0 injuries, 1 fatality | Flight type unknown

No description available.

Eurocopter EC135 P2+
Drexel Hill, PA, USA
Jan. 11, 2022 | NTSB ERA22FA105
1 injury, 0 fatalities | Air ambulance flight

Helicopter impacted terrain for unknown reasons.

Bell 407
Houma, LA, USA
Jan. 14, 2022 | FAA ASIAS
0 injuries, 2 fatalities | Offshore flight

Aircraft crashed into marshy area under unknown circumstances and was destroyed.

Bell 205A-1
El Cajon, CA, USA
Jan. 15, 2022 | NTSB ANC22LA014
0 injuries, 0 fatalities | Instructional flight

No description available.

Helicopter Association International

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Please watch HAI's latest Spotlight on Safety videos here:

 By David Jack Kenny

Black Night at Black Rock

An unlikely confluence of circumstances causes a well-trained crew to perish during a rescue operation.

OPERATORS WHO CONDUCT high-consequence flights under difficult conditions have learned to construct multitiered systems of risk management: redundant equipment, sophisticated automation, multiple sources of flight-critical information, rigorous adherence to standardized procedures, and a constant cycle of review and improvement.

The various tiers vastly reduce the chance that any single error, omission, or failure will put aircraft and crew in jeopardy. Yet, it seems impossible to eliminate risk altogether. Exactly the wrong confluence of overlooked information, mistaken assumptions, and an inhospitable environment can still yield tragic consequences.

The accident aircraft, photographed on May 14, 2016.

The Mission

At 9:39 pm on Mar. 13, 2017, the captain of a fishing vessel about 140 nautical miles (nm) west of the Irish coast contacted the Marine Rescue Sub Centre (MRSC) in Malin Head, Ireland, to report that a crew member had suffered the traumatic amputation of most of one thumb. After consultation with medical staff, the MRSC decided to request helicopter evacuation of the injured sailor.

Under contract with the Irish Coast Guard, Sikorsky S-92A helicopters are operated from four search-and-rescue (SAR) bases around the country: Dublin on the east coast under the designation "Rescue 116" or R116; Shannon and Sligo on the west (R115 and R118, respectively); and Waterford on the southern coast (R117). All are qualified for helicopter emergency medical services as well as SAR missions, including offshore rescues in degraded visual environments (DVE). Sligo was the base nearest to the vessel's location, and the R118 SAR duty pilot accepted the mission.

The commander of R116 had gone home for the evening when the Dublin Marine Rescue Coordination Centre contacted her to request that her crew fly "top cover" on the rescue flight, following R118 to the scene after a delay to provide assistance in the event of difficulty with the extraction or an in-flight emergency.

While driving back to the airport, the commander called the Sligo base to coordinate plans, speaking to R118's winch operator. He suggested they could refuel at the helipad adjacent to Blacksod Lighthouse, the westernmost fuel stop available along their route. After reaching the base, however, she commented that she expected the weather to be too low to get into Blacksod and planned to refuel at Sligo instead.

The four-person crew boarded, and 900 L (238 gal.) of fuel were added to bring the total load to 5,000 lb. R116's multipurpose flight recorder (MPFR) registered the engine start at 10:55 pm.

The Crew

Both pilots held European Union airline transport licenses issued by the Irish Aviation Authority with S-92A type ratings. Both had qualified to fly as captains.

On this flight, the 45-year-old mission commander was the pilot flying. Since beginning her training in 1990, she'd logged 5,292 hours of flight time. She earned her instrument and multi-engine ratings in 1993 and all-weather SAR qualification the following year.

She flew the Sikorsky S-61N for 19 years, upgrading to captain in 2000. In 2013, she transferred from Waterford to Dublin and completed transition training to the S-92A. Her 825 hours in that model included 725 as pilot-in-command (PIC).

The 51-year-old copilot began learning to fly helicopters in 1996 and got his first professional job in 1999, flying the Bell 206 in

The main wreckage was located on the seabed southeast of Black Rock at a depth of approximately 40 m (131 ft.). The position of the wreck is indicated by the yellow arrow.

The accident aircraft's tail pylon, including the tail-rotor assembly, was recovered from the seabed on Apr. 10.

western Ireland. In 2001, he earned his multi-engine and instrument ratings, S-61N type rating, and all-weather SAR qualification. He was upgraded to captain in December 2007 after assignment to the Dublin base and obtained his S-92A type rating in 2013. Of his 3,435 hours of flight experience, 795 had been flown in the S-92A, 695 of them as PIC.

Both rear crew members held dual ratings as winch operators and winchmen, having gained their initial SAR experience in military service. The 53-year-old winch operator had begun his civilian career as a senior SAR crew member in 1998, while the 38-year-old winchman entered civilian service in 2004. Like the pilots, both completed their S-92A transition training in 2013 during the operator's fleet upgrade from the S-61N.

In addition to their scheduled flight-competency checks, all four crew members were up-to-date on six recurrent training modules, including emergency and safety equipment, helicopter underwater egress, crew resource management, and fatigue risk management. The pilots had also completed recurrent training in controlled flight into terrain less than six months earlier.

The Aircraft

The helicopter operated as Rescue 116 was manufactured in 2007 and registered in Ireland in 2013 as EI-ICR. It was equipped with a Rockwell Collins avionics suite that included five multifunction displays (MFDs); a Universal Navigation UNS-1 flight management system (FMS) with GPS; a Honeywell Enhanced Ground Proximity Warning System (EGPWS) modified for SAR flight profiles; a weather radar, also from Honeywell; a forward-looking infrared (FLIR) camera integrated with the optical camera and searchlight systems; two Honeywell AA-300 radar altimeters; and a Euroavionics EuroNav 5 moving map display. A Zone 4 50-hour inspection had been carried out four days and three flight hours before the aircraft's assignment to the top-cover flight.

The FMS included a multimission management system programmed with six search patterns and eight additional flight profiles (four descent/approach, three hover, and one departure). All could be modified by the pilots as the situation required.

The operator's standard procedure was to fly the helicopter coupled, with all mode selections, changes, or adjustments called out by one pilot and confirmed by the other.

The FMS was also programmed with the operator's proprietary low-altitude arrival routes to off-airport refueling sites and landing zones, many based on user-defined waypoints. These weren't charted instrument approach procedures, but lateral course guidance for use in visual meteorological conditions.

Hard-copy documentation was provided in a series of three-ring binders in which overlays of the navigation waypoints on scans of standard aeronautic charts were matched with text descriptions of the headings and distances plus comments, if any. No vertical profiles were specified, though some comments did suggest minimum altitudes for individual segments.

The aircraft's progress along the route could be displayed on one of the MFDs

against either the EuroNav moving map or the EGPWS database, and could also be superimposed on any number of marine, topographic, or aeronautic charts or even on road maps displayed on a laptop at the SAR operator's console.

The Flight

R116 took off from Runway 16 of Dublin Airport (EIDW) at 11:02 pm, turning to a heading of 300 degrees. After handoff, Dublin Departure assigned a heading of 270. The helicopter climbed to 3,000 ft. and was handed off to the lower-north sector of the Dublin Area Control Centre (ACC). At 11:11, a member of the rear crew made radio contact with R118, about to land at Blacksod. They reported conditions at the pad as "fine … kind of some low cloud approximately 500 ft. up to the north while we were inbound through Broadhaven Bay."

Two minutes later, R116 turned direct to Sligo; the crew then began calculating whether stopping at Blacksod instead would offer a time or fuel advantage. After double-checking computations showing that doing so would save 30 minutes and 700 lb. of fuel, they advised the Malin MRSC and Dublin ACC at 11:20 of a change in destination. Dublin handed them off to the north sector of the Shannon ACC, which confirmed the helicopter was operating under IFR, would shortly climb to 4,000 ft., and was going to Blacksod rather than Sligo.

After R116 leveled at 4,000 ft., the pilot told the crew she was entering the APBSS (approach to Blacksod from the south) routing into the FMS. Initial radio contact with the helipad elicited a report of west-southwest winds of 25 to 33 kt. and 2 nm visibility under ceilings of 300 to 500 ft.

The pilots initiated the DVE approach checklist as the helicopter crossed the Mayo coast westbound at 4,000 ft. Having confirmed that the ship was over open water and the DVE checklist was complete, the pilot switched the FMS to altitude preselect to descend to 2,400 ft. The copilot advised Shannon of their descent and was instructed to report again when airborne.

On reaching 2,400 ft., the pilot requested the APP1 approach profile, which commanded a 500-ft.-per-minute (fpm) descent to 200 ft. as measured by the radar altimeter while reducing airspeed to 90 kt. Descending through 2,000 ft., R116 crossed BLKMO, the initial waypoint on the APBSS arrival route. As Ireland's Air Accident Investigation Unit (AAIU) noted in its report, "BLKMO was almost coincident with Black Rock."

The pilot turned 10 degrees right to facilitate turning back onto the approach route. Descending through 700 ft., she asked the copilot to "confirm that we're clear on radar and EGPWS." The copilot responded, "You are clear ahead on … 10-mile range."

After leveling off at 200 ft., the copilot turned the heading bug from 291 to 137 degrees over the course of 14 seconds to direct the aircraft back toward BLKMO. Strong southwesterly winds tightened the turn, and the pilots slowed to 75 kt. airspeed in anticipation of the tailwind. They switched the FMS back to "NAV … or Search" mode and completed the landing checklist, the pilot interrupting the final step to report visual contact with the ocean.

At 12:45:37, the copilot called out "small targets at six miles, 11 o'clock … large out there to the right." Three seconds later, an altitude alert caused the FMS to first climb and then descend at 125 fpm as they crossed a pair of rocks that reduced radar altitude to 171 ft. The captain said, "There's just a small little island that's BLKMO itself."

At 12:45:56, the winchman said he was "looking at an island directly ahead of us now, you guys; you wanna come right." The helicopter was closing on BLKMO at a groundspeed of 90 kt. The captain asked for confirmation: "OK, come right; confirm?" and the winchman responded, "20 degrees right, yeah."

The captain instructed the copilot to "come right, select heading … select heading."

At 12:46:04, the copilot replied, "Roger … heading

selected," but less than one second later, the winchman urged, "Come right now … come right … COME RIGHT!"

The helicopter pitched up and rolled right, hit the western end of Black Rock (also known as Blackrock Island), and crashed into the sea.

At 1:08 am, Blacksod Lighthouse staff asked the Malin MRSC if they could determine the whereabouts of R116. At 1:13, Malin relayed a MAYDAY call to all stations. After hoisting aboard the injured sailor from the fishing vessel, R118 flew to Black Rock to initiate a search. They arrived at 2:10 and almost immediately saw strobes in the water, a life raft, and an apparent casualty the winchman was unable to recover in rough seas.

The Achill Island lifeboat reached the scene and pulled the captain from the water at 2:37. She was unresponsive and couldn't be revived. The body of the copilot, still strapped into his seat, was subsequently recovered from the wreckage by naval divers. Despite extensive searches both underwater and along the shore, the remains of the two rear crewmen have not been found.

Exhaustive examination of the wreckage identified a series of oversights that allowed an experienced crew to remain unaware of the hazard that lay ahead.

The Investigation

Several pieces of debris, including fragments of the intermediate gearbox fairing and casing, most of the horizontal stabilizer, fragments of a wheel rim, and several tail-rotor blade tips were found in the vicinity of Black Rock Lighthouse and the adjacent helipad. Floating wreckage included the center portion of the right sponson containing the right fuel tank, fragments of the shattered left sponson, the cargo hatch, main ramp, and forward-sliding cabin door.

The approximate location of the MPFR's underwater locator beacon was determined the day after the accident. One week later, on Mar. 22, a submersible remotely operated vehicle (ROV) found the main wreckage on the ocean floor at a depth of 40 m (131 ft.) and compiled a detailed photographic and videographic survey. Irish Naval Service divers recovered the MPFR and the memory card from the aircraft's health and usage monitoring system (HUMS). Most of the wreckage was brought to the surface in April in a series of operations by heavy-lifting vessels, during which the cockpit separated from the major portion of the fuselage. Additional ROV dives on Jul. 22 retrieved the FLIR system's control panel, including the digital video recorder (DVR).

Despite the units' extended immersion in salt water, data from the MPFR, HUMS, and DVR were eventually downloaded with the assistance of laboratories in the United Kingdom and the United States. The DVR proved to have been set to "Play" rather than "Record" and captured no images during the accident flight. The MPFR, however, recorded the communications and flight data that investigators used to reconstruct the accident narrative.

Exhaustive examination of the wreckage disclosed no evidence of failure of any powerplant, rotor, flight control, or avionics component before impact. Instead, the AAIU's admirably detailed report identified a series of oversights, both organizational and individual, that allowed an expert and experienced crew to remain unaware of the hazard that lay ahead.

The operator's arrival routes were "base-centric," not only in the sense that crews were most familiar with the arrival routes in their usual operational areas, but also in that each base was considered responsible for defining and revising the routes it "owned." Yet, no formal process had been established for validating or approving these routes or conducting test flights under different weather conditions using different combinations of fly-over and flyby waypoints.

Neither R116 pilot was familiar with the APBSS route. While still in cruise flight at 4,000 ft., the captain remarked, "God, I'd say I haven't been in Blacksod in about 15 years," and the copilot agreed: "No, not recently; been awhile."

More than half an hour later, as they briefed the winchman (responsible for monitoring the FLIR) on the approach course, the captain acknowledged that "it's been donkey's years since I've been in here."

The operator provided the AAIU with a copy of the approach route. Black Rock wasn't shown on the visual depiction, apparently obscured by the symbol for the BLKMO waypoint, though the height of the obstruction was noted in the comments. No minimum crossing altitude was suggested. Each pilot briefed the approach route separately, but the MPFR didn't record either pilot mentioning the 282-ft. pinnacle at the initial fix.

The voice circuits of the MPFR did record the captain complaining that the "bloody lights in this thing drive me mad," and the copilot agreeing, "Yeah, eh, they're atrocious," which the AAIU suggested hindered their reading of the comments on the approach. They selected a later waypoint for flyby or "smart turn" anticipation but kept BKMO as an overfly waypoint.

The EGPWS database didn't include Black Rock, and the EuroNav 5 moving map ended just to the east, showing BLKMO against a blank blue background. The radar, set to the high-sensitivity terrain-mapping mode, showed both the terrain and the aircraft's routing in magenta, obscuring the obstruction beneath the waypoint symbol.

There is no evidence that any member of the crew either saw the beacon of the Black Rock light or expected to. The FLIR relies on temperature differences relative to the background that had diminished many hours after sunset. By the time the winchman identified Black Rock in the FLIR, the helicopter was a scant 0.3 nm away and closing at 90 kt., leaving just 12 seconds in which to avoid the collision.

The crew followed their employer's standard procedures, which called for heading or altitude changes below 500 ft. to be requested by the pilot flying and performed by the pilot monitoring while continuing to fly coupled. The final pitch and roll inputs suggest the pilot might have responded to the winchman's urgent warnings just a moment too late.

The Takeaway

Prudent operators protect their crews with multiple layers of equipment and procedures, minimizing the risk of single-point failures, lapses in memory, or errors in judgment. The record shows that the crew of Rescue 116 was disciplined, professional, and thorough, flying the mission by the book.

They completed the correct checklists at the appropriate times, confirmed their position and scanned for obstacles before descending, conducted a detailed landing-site briefing to determine the airspeed and altitude necessary for a successful go-around if one engine failed, and repeatedly cross-checked the fuel on board against that required to divert if they couldn't get into Blacksod.

But as the investigation concluded, they probably believed that the design of the APBSS arrival route "would provide adequate terrain separation if the FMS was used to follow the route, and that obstacles only need be considered if going off the route."

The AAIU's final report includes extensive comments on organizational flaws at multiple levels, from the operator's informal procedure for establishing and proving routes to the Irish Coast Guard's lack of a safety management system. But most immediately, it was the highly unlikely convergence of missing data, incomplete charts, indistinguishable colors, and an obstruction noted only in comments difficult to read in the "atrocious" cockpit lighting that sent R116 flying straight and level toward a tall black rock in a pitch-black night.

By Chris Hill

WATCH Randy Rowles on Rating Your Safety Intelligence

Is Our Reluctance to Share Killing Us?

Reporting safety events can uncover hazards, reveal mitigations, and save lives. So why aren't we doing more of it?

"WE CORRECTED THAT RIGHT AWAY, so there was no need to report it," the grizzled maintenance officer declared.

"Congratulations," I replied with thinly veiled frustration. "Do you think any OTHER operator might encounter this same issue but fail to find and fix it before it led to a costly mishap? Wouldn't it be GREAT if we could alert them before that happened?"

I occasionally engaged in conversations like this one in my previous role as a safety auditor in a different organization. Exasperating exchanges like these underscore how easily operators could help others avoid the same, preventable mistakes if only they'd share a lot more information with each other.

Our desire to suppress critical safety information is killing us and causing serious reputational damage to the helicopter industry. Why do pride and embarrassment so often prevent us from doing the right thing and helping to prevent costly repeat events? Our flawed expectation of a zero-defect industry has been historically unkind to those who make mistakes, or worse, have had the audacity to admit one while revealing a systemic problem.

Many company leaders lack even the basic curiosity to uncover the root causes of a problem and instead attempt to sweep it—and the employees involved—away. I can still recall the words of one of my former executives when they were informed of a costly operational mishap. "What happened, and whom do I need to fire?"

The opposite of a just culture, the "blame, fire, and forget" culture hasn't yet been eradicated. Its continued existence supports the claim that senior executives are

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unaware of 96% of workplace hazards, a figure cited in a 1989 study by manufacturing consultant Sidney Yoshida. These leaders occupy the "iceberg of ignorance," as Yoshida called it, shutting down voluntary reporting programs and suppressing the discovery and correction of killer norms, near misses, and unsafe acts that influence the next preventable and costly accident or incident.

The practice of routinely sharing valuable safety data isn't limited to large air carriers or well-financed operators, though we'd do well to model some of their safety practices. Many VTOL operators understand that rock-solid just and reporting cultures serve as the catalysts for other key safety program elements. Open, anonymous reporting programs that obsessively focus on finding and fixing safety issues is a crucial first step in this process.

Self-Assessments and Surveys

A simple self-assessment or survey can help us identify gaps in our safety culture and then create a plan to close those gaps. Below are two helpful resources from SKYbrary, an electronic repository of aviation safety knowledge from various organizations, that can help you plan safety surveys and culture assessments.

- Safety surveys. SKYbrary's comprehensive explanation of safety surveys includes best practices for conducting them as well as the results you can expect and how to manage them. Visit skybrary.aero/articles/safety-surveys for more information.
- Industry Safety Culture Evaluation Tool and Guidance. This tool helps facilitate self-assessment activities and is available in an editable, downloadable version that enables operators to tailor their own surveys to their organization's needs. Visit skybrary.aero for more details.

Confronting Hard Realities

Whether you conduct a safety survey or a safety management system (SMS) self-assessment, some of the first questions you'll likely see in either will focus on your organization's commitment to safety. The answers to these questions could vary widely between managers and frontline employees. Management may discover some hard truths from the surveys and audits; how they choose to respond will reveal their commitment to safety and the value they place on employee feedback.

Employees, in turn, must demonstrate a personal commitment to safety when management makes it clear that safety is a core value. But what happens if you work for a manager who doesn't get it?

Perhaps you've already considered leaving a bad culture, or maybe you even have one foot out the door. That can be a risky career move. But we can't ignore the risk that comes with remaining with an operator that doesn't value your personal safety.

Continued on page 70

How I Survived IIMC

By Julie Pearson

I ALWAYS THOUGHT IT WOULDN'T HAPPEN TO me—not that it couldn't but that it wouldn't. I thought that I would see the signs. I thought of myself as a vigilant pilot, always watching the clouds, always aware of what's in the miles ahead of me so that I can't get caught off guard.

Julie Pearson is a pilot, flight instructor, and safety manager for JBI Helicopter Services. She is grateful for the mentors she has had throughout her seven years as a pilot. Her motivation for sharing her story comes from a desire to give back to the aviation community that has given her so much.

I also thought that if it ever did happen to me, an instrument-rated pilot and CFII with experience teaching instruments, I'd be mentally prepared to handle it.

I often wondered why pilots in a helicopter in this situation didn't just slow down to a hover and land. I thought that's what I'd do. But the truth is, when you're in this situation the initial fear of realizing you're getting backed into a corner triggers your fight-or-flight response.

My field of vision had already started to narrow. My ability to weigh my options and choose the best one was already limited before I punched into the clouds. As many helicopter pilots would say, I trained more for emergency response than how to prevent emergencies in the first place. (And, prior to this experience, I had no actual wet windshield time.) So I reverted to my inadvertent entry into IMC (IIMC) training.

In a split second, I decided turning was too dangerous because of the mountainous area, slowing anywhere near a hover was too dangerous because of the precipitation and how quickly the fog was coming in around me, and landing wasn't an option because all I could see was treetops.

While watching the clouds and checking weather, I had lost sight of the road. The precipitation and fog skewed my depth perception. I looked at my radar altimeter and saw 300 ft. I now had one option left—commit 100% to my emergency response training.

I thought briefly about my family and about my baby at home. Then I thought about the instrument-rated pilots before me who didn't successfully transfer to IMC in declining weather. Then I made my decision to climb.

First, I transferred to my instruments, and then I initiated a climb. Within minutes, I punched into the clouds, and everything went white. As instructed, I never looked outside again, to avoid being more disoriented than I already was. I knew there was a mountain to my right, so I attempted to turn left.

Every time I looked at my instrument panel, something was wrong. I couldn't get my attitude indicator to stay level. I couldn't hold a climb. I couldn't hold a turn or heading.

I pulled in power to climb but saw my torque was getting high, so I reduced it again. This happened several times before I finally had the capacity to set it to 80% and leave it alone. I kept trying to turn away from the mountain, but I never chose a heading, so, ultimately, I just ended up in and out of the leans while getting closer to the mountain.

After about two minutes of utter panic, trying to get my aircraft to do what I wanted it to do, I knew if I didn't get control, these were my last seconds to live. I told myself, "Climb and breathe. Climb and breathe."

I narrowed down my instruments to two, the vertical speed indicator and the airspeed indicator. After several minutes of focusing only on them, I finally started putting some distance between myself and the ground.

Finally, I was able to add my altimeter to the scan. I knew once I got above 4,000, I'd be at a safe altitude. I knew the valley was at about a 300-degree heading, so, finally, I chose to fly that heading instead of turning.

Once I got to my safe altitude, I tuned to the nearest

flight service station and told the controller I had gone inadvertent IMC and I needed help. He asked me to squawk 7700 and call Albany Approach. I complied.

During this time, my track shows I did a full, 360-degree right turn and was completely unaware. From the time I went IMC to the time I was in straight and level flight was a good 15 minutes.

Once I was on with Albany, the controller essentially told me I was at a good altitude and assigned me a heading of 280 toward the valley, blue skies, and several airports. The Albany controller informed me of any time my altitude or heading fluctuated and served as a crew member to me. I found it very comforting to know someone else was helping me essentially watch my instruments.

A local pilot in the area chimed in on the radio and said VFR conditions were ahead. He was right, and soon I broke between two cloud layers, the lower one being scattered, and I could see the ground.

"After about two minutes of utter panic … I knew if I didn't get control of my aircraft, these were my last seconds to live."

After completely emerging from the area of bad weather, I informed the controller I could see the ground and requested to descend visually. Eventually, I asked for landing clearance at a nearby airport, where I landed safely.

Once on the ground, I was asked to call the Albany tower on the phone. I complied, and the same controller I was on the radio with asked me for my information. He commended me for getting on the ground safely, and I thanked him for his help.

What would I do differently if I could do the day over? I wouldn't have flown at all! I had already delayed three hours, and the marginal conditions, combined with mountainous terrain, were more than enough to warrant rescheduling. However, we can't see into the future and will never be right in our decision to fly 100% of the time, so assuming I did fly, I still had several more opportunities to make a safer decision and avoid getting backed into a corner.

One by one, I had lost my "outs." As I approached the mountainous terrain, in seeing any low-level clouds, I should have gone around the mountain chain, rather than into the valley, so that I could have maintained the ability to divert. Once approaching the valley, I should have assumed that the reduced visibility would be precipitation and not have relied on the outdated weather report, which stated that the airport ahead of me had 10 miles of visibility.

In deciding to proceed, I should have slowed down more significantly so I would have had more time to react to the changing conditions. Once I started descending, to stay below the clouds, I should have acknowledged that the rising terrain was putting me below my personal minimums.

Once I started having trouble seeing, I should have turned around before it was too late. I shouldn't have lost sight of suitable landing areas, but once I did, that should have immediately been my signal to turn around.

Just before reaching the mountain chain, there were blue skies with a few clouds high overhead. In my mind, the bad weather was behind me. Everything I'd been watching on the forecast, including the AIRMET for mountain obscuration, was all behind me. So as I approached the mountains, I let optimism and the idea that the bad weather was behind me skew my judgment of what I could see outside.

Once I accepted the situation I was in and decided to climb, there are a few things I did that saved my life, and a few things I could have done better.

Committing to my instruments and deciding to climb are what saved me. But I wish I had set the power sooner. I wish I had set the heading bug and stopped worrying about the mountain to my right. Lastly, I wish I had narrowed down my instruments to two primary ones sooner.

Had I done these things, I likely would have gained control of the aircraft in a few minutes rather than 15.

I feel very lucky I was able to hang on and stay calm that long. If the situation were to be repeated, I don't know if I'd be able to hang on that long again. If I had known how hard it was going to be, I'd have been more determined to prevent it.

I never gave up. Once I hit the clouds, I never thought of my personal life again. I shifted 100% into training. That's the biggest reason I'm alive today.

If you find yourself struggling in this area, consider the late Matt Zuccaro's sage advice: "When you believe safety is being compromised, 'I cannot safely do that, and so I will not do that' is the only acceptable response." If such a response isn't supported in your organization, the former HAI president and CEO recommended that aviation professionals "get a cardboard box" and be prepared to use it in the event you have to pack up your personal items and go home (see ROTOR, Summer 2018, p. 6).

"When you believe safety is being compromised, 'I cannot safely do that, and so I will not do that' is the only acceptable response."

– Matt Zuccaro

What's Next?

Has your organization completed the first steps in implementing a sound safety culture, with leaders and staff who actively encourage and participate in the identification and resolution of safety issues?

Maybe you've built the foundation to an effective SMS but could use some help getting to the next level. Or perhaps your safety efforts have matured to a point that you're now ready to serve as a model or mentor to others.

If you're seeking continuous improvement in any of these areas, here are a few ideas to consider:

- **Establish an SMS.** There are abundant resources available on establishing and sustaining an effective SMS, including an extensive library from the Vertical Aviation Safety Team (vast.aero).
- **Use SMS software and other safety support services.** HAI members can access the HAI SMS Program on rotor.org to contact three industry-leading SMS software providers that also provide other safety support services.
- **Use the Aviation Safety Reporting System (ASRS),** a voluntary, confidential, nonpunitive incident-reporting program established by the FAA and administered by NASA.
- **Participate in the Aviation Safety Action Program (ASAP).** Go to rotor.org/asap to learn more.
- **Share data through the Aviation Safety Information Analysis and Sharing (ASIAS) system.** This FAA program has transformed the way valuable data is exchanged between a growing number of US operators. Go to asias.faa.gov to learn more.
- **Care enough to share.** Tell others your story. Even when recounting the events of a mundane flight or maintenance procedure, there's almost always something that didn't go as anticipated and is thus worth sharing to enhance operational efficiency, effectiveness, and safety.
- If you're attending HAI HELI-EXPO 2022 in Dallas, Texas, Mar. 7–10 (exhibits open Mar. 8–10), come join the HAI Safety Working Group for the annual HAI Safety Symposium, Mar. 7, from 8:30 am to 10:30 am. We'll hear personal stories from one guest speaker who'll share how she survived an IIMC encounter and from another who lived through two separate crashes into the water. (For a preview of the first speaker's presentation, see "How I Survived IIMC," p. 68.) Visit heliexpo.com/safety for more details. Can't make the symposium? Check back to that web page, where we'll post a recording of the event shortly after Expo.

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LAST LOOK

By Mark Bennett

Anthelion Helicopters
Guimbal Cabri G2
Robinson R44
Long Beach, California

HAI member Anthelion Helicopters, based at Long Beach Airport (KLGB) in California, started in 2014 as a flight-training company with a single Robinson R22. Eight years later, the operator uses nine aircraft and has expanded its services to include aerial tours, Part 135 charters, aerial photography and cinematography, gender reveals, and more. They can even fly you out to your yacht!

In this photo, assistant chief pilot Kate Pederson stands by an Anthelion Guimbal Cabri G2 as one of the company's R44s departs on a short flight around the airport.

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