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FEATURES

50

Maxime Paquet, SkyTEM Photo

DEPARTMENTS

On the Cover

Mark VanderSys, Photographer

Aviation Specialties Unlimited's Bell 505 prepares to lift into the night sky during NVG training operations in Boise, Idaho, on Jul. 30, 2025. At the controls are Senior NVG Instructor Pilots Mitch McKinstry and Luke Decker. Read more about the OEM's night-vision solutions, including equipment, maintenance, training, and aircraft modifications, on p. 30.

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Send details to Member@verticalavi.org.

Got Something to Say?
Reach the international vertical aviation community by emailing your story ideas, manuscripts, or questions to News@verticalavi.org.

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POWER UP Is Now a Member Benefit

HELLO, MEMBER! WITH THIS ISSUE, POWER UP becomes an official benefit of membership in Vertical Aviation International (VAI).

Individual members and the member representative of VAI member companies will receive each POWER UP issue in the mail. If you need to update your mailing address, please log in to your member account at verticalavi.org. (And if you need assistance with that, please contact Member@verticalavi.org.)

All VAI members, including the employees of VAI member companies, can also view issues at verticalavi.org/power-up. We think you'll like our new online magazine platform—its responsive design provides an easy reading experience across all devices, including phones, tablets, and laptops. You'll also find tools to search and share content, as well as a printable pdf of the issue.

SCAN HERE TO READ ONLINE

If you have any questions about the magazine, suggestions for content, or feedback on our print or digital issues, please drop us a line at News@verticalavi.org. This is your magazine now!

Maintaining VAI's Focus on You

Amid many changes, VAI serves its members.

By Rick Kenin

ON BEHALF OF THE 2025–26 VAI BOARD of Directors, who took their seats on Jul. 1, 2025, I'm excited to offer my first POWER UP column as board chairman. Although I've served on the VAI Board for four years and worked with the association for over a decade, this year's board is truly the most wide-ranging representation of our membership I've had the pleasure of working with. Good things are coming in the year ahead!

Our board's first months in office have been busy, to say the least. We were so proud to announce on Aug. 18 the selection of François Lassale to be our next president and CEO. As you can read in his profile on p. 46, he brings a wealth of practical flying, aviation association management, and commercial operator experience to the role. We're very lucky to have François leading the VAI staff and representing the industry.

The recent onslaught of US and international policies and rules aimed at restricting airspace access is keeping your VAI staff extremely busy. Our goal, as always, is to support policies that increase safety and efficiency for vertical operations and minimize costly regulatory burdens for our members.

In the United States, the FAA recently released its proposed rules for CFR 14 Part 108, which will provide the regulatory structure for unmanned aircraft systems (UAS, or drone) operations beyond visual line of sight (BVLOS) of their remote pilots or observers. VAI's advocacy team is reviewing the extensive document and working with industry stakeholders, including the VAI industry advisory councils, to assess its implications for the entire vertical flight community. Comments on the proposed BVLOS rule are due to the FAA in early October. VAI is committed to advocating for a regulatory structure that enhances the safe integration of UAS into the National Airspace System without disadvantaging specific sectors of our industry.

RICK KENIN is the 2025–26 chairman of the VAI Board of Directors, as well as the chief operating officer of transport for Boston MedFlight, a nonprofit air ambulance organization based in the Northeastern United States. Rick holds an ATP license for fixed-wing aircraft with multi-engine and jet type ratings, and a commercial rotorcraft license with instrument rating.

The January 2025 airliner–helicopter midair collision in Washington, D.C., released a watershed of ideas and funding to improve airspace safety—some good, some without context. Along this line, several major US airports began evaluating local designated helicopter routes without guidance from FAA headquarters. This resulted in a few summary decisions, made without consultation with stakeholders, to suspend the use of certain routes.

Your VAI advocacy staff jumped into action to inform FAA leadership of these measures. The result was swift direction from FAA headquarters to keep existing helicopter routes in service until comprehensive evaluations could be conducted. These safety risk management panels, with local operator participation, are now underway (read more about this in "FAA Helicopter Route Changes Paused," on p. 8). The value of VAI's direct advocacy contacts at the highest levels of government, whether legislative or regulatory, cannot be overstated.

I'd be remiss if I didn't mention recent activities within my industry sector, helicopter air ambulance. In the United States, a congressionally mandated advisory committee focused on the quality of patient care and transport has made several valid recommendations that will enhance both the safety and economic sustainability of air ambulance services in the United States. Similarly, technology developed for the air ambulance industry in Europe will soon be moving across the Atlantic. Virtual reality simulation, pioneered by Bell and Loft Dynamics, will revolutionize pilot training and proficiency. Safer and more affordable light helicopters are being developed, aimed at the air ambulance industry, and advanced air mobility aircraft will contribute to the next generation of emergency medical transport.

We're lucky to have François leading the VAI staff and representing the industry.

The job of the VAI Board of Directors is to plan for the future and lead the strategic evolution of our association. While we'll leave the day-to-day management of the association and staff in François's capable hands, the board is committed to serving as his advisory group and as a conduit for communications from the membership.

This is a very exciting time to be serving on the VAI Board of Directors. Please reach out if you have comments. We welcome input from our members, and I look forward to meeting and working with many of you over the next year. ■

FAA Helicopter Route Changes Paused

Industry response prompts agency to reconsider.

By Cade Clark, Theresa Marr, and Katia Veraza

PROPOSED HELICOPTER ROUTE CHANGES IN the United States, most recently in Washington, D.C., Las Vegas, Nevada, and Los Angeles, California, have prompted FAA and industry discussions on how such changes are evaluated and the role of safety risk management (SRM) in that process.

> **Even small adjustments to established routes can have far-reaching effects on workload, safety, and coordination between aircraft types.**

Airspace Changes at KDCA, KLAS, and KLAX

In the wake of the January 2025 midair near Ronald Reagan Washington National Airport (KDCA) in which a military helicopter collided with a regional passenger jet, there has been an increased focus on reducing potential risk where helicopter routes operate near commercial airliner flight paths. In some cases, this scrutiny has led to proposals to close or adjust established helicopter routes.

In Washington, D.C., the accident triggered a sudden review of the airspace surrounding KDCA, particularly along the Potomac River where both fixed-wing and helicopter routes converge. The FAA convened a Safety Risk Management Panel (SRMP) to evaluate changes, but the session was cut short before all safety and operational concerns could be fully addressed. (See "Managing Safety in the NAS" on p. 10 for more on the FAA's process for identifying and mitigating hazards resulting from changes to routes or policies.)

Industry participants, including VAI members, raised issues about the lack of data-driven analysis, the absence of local operator input, and the potential for new hazards created by the proposed route alterations. Despite these concerns, the FAA implemented changes to the published helicopter routes. The FAA's prescribed changes remain in place as of this writing.

In Las Vegas, operators received revised letters of agreement that removed several routes in the airspace of Harry Reid International Airport (KLAS) that were viewed as operationally important. When some operators chose not to sign the letters because of safety concerns and the lack of a thorough SRM process, the FAA

closed certain routes without prior notice. These abrupt changes forced both pilots and air traffic controllers to alter well-established flight paths, raising concerns about increased congestion and potential safety hazards in the high-density airspace.

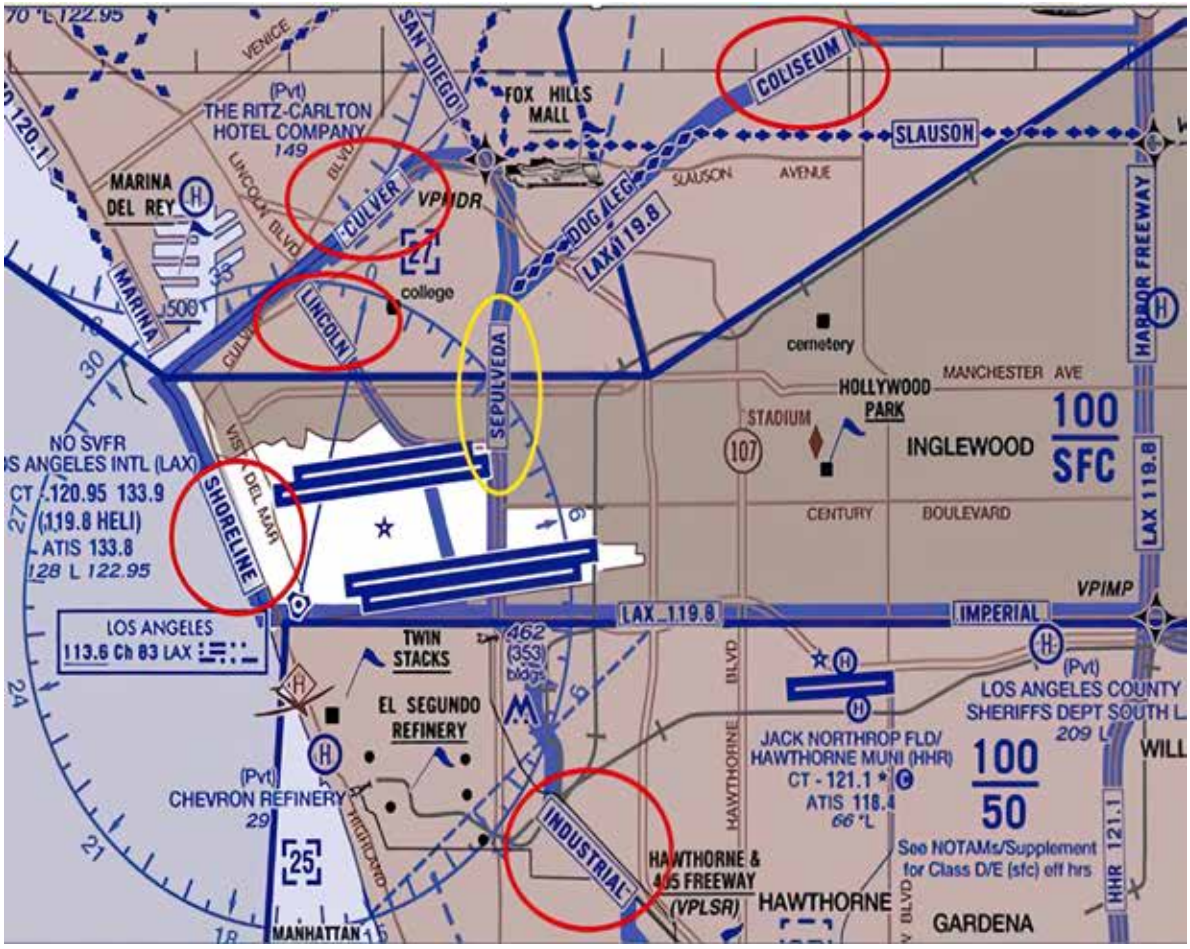
Following additional discussions and engagement with FAA leadership, the closures at KLAS were suspended, and the FAA initiated further meetings with operators to review the proposals and potential impacts. These conversations have yielded positive outcomes, as stakeholders collaborated to produce rerouted paths that maintain safety while accommodating the operational capabilities of all aircraft.

In Los Angeles, the air traffic control (ATC) tower at Los Angeles International Airport (KLAX) announced plans to close five helicopter routes, effective Aug. 7, 2025 (see the proposed eliminations circled in red on the map below). Sepulveda Route, which is circled in yellow, was changed to "2500 feet or as assigned by ATC," which maximizes safety.

The FAA initially planned to hold a formal SRMP, but after hearing from local operators, the agency decided not to proceed with the KLAX closures, without ever convening the SRMP. It was the strong pushback from local operators that ultimately halted the changes, underscoring the need for operator engagement before making any major modifications to the airspace.

Why This Matters

Helicopter routes, particularly in busy metropolitan areas, are designed to manage traffic flow, reduce congestion, and separate helicopter and fixed-wing operations. Changing or removing these routes without an SRM process risks



At KLAX, air traffic control originally announced plans to close the five helicopter routes circled in red (left). After hearing from area operators, however, the FAA decided not to proceed with the closures. Meanwhile, changes were made to the Sepulveda Route, circled in yellow, to maximize safety.

Managing Safety in the NAS

When new procedures or routes are proposed for the US National Airspace System (NAS), the FAA's safety risk management (SRM) process is designed to identify and mitigate any hazards that would result from those changes. By systematically identifying potential hazards and evaluating how proposed changes could affect all users of the airspace, the SRM process helps ensure that new procedures or route adjustments do not unintentionally introduce new risks. This collaborative review process allows stakeholders to address safety concerns early, consider mitigation strategies, and preserve the balance between efficiency, safety, and access to the airspace.

SRM is a key element of the FAA's safety management system. It is a structured, proactive process involving hazard identification, risk analysis and assessment, and implementation of risk controls. An SRM Panel (SRMP) is the formal entity—typically including FAA representatives, stakeholders, and subject-matter experts—that applies SRM to proposed airspace or procedural changes, ensuring that decisions are informed, transparent, and safe.

creating bottlenecks, increasing controller workload, and reducing safety margins.

The recent route developments in Las Vegas, Los Angeles, and Washington, D.C., also reveal a broader challenge—the uneven application of an SRM process across different FAA regions. In some cases, SRMPs are convened promptly and operate with robust participation, while in others, route changes move forward without adequate hazard identification, risk analysis, or local operator input. This lack of consistency not only creates operational uncertainty but also risks eroding industry trust in the process.

For operators, especially those in busy metropolitan areas, even small adjustments to established routes can have far-reaching effects on workload, safety, and coordination between aircraft types. By participating in SRMPs, sharing operational data, and engaging early in discussions, VAI members help ensure that FAA decisions are informed by real-world experience. As new demands on the airspace emerge, including the growth of the advanced air mobility sector, the aviation community will need a predictable, transparent framework for evaluating route changes.

The recent events involving KDCA, KLAS, and KLAX illustrate the importance of stakeholder input and the FAA's willingness to reconsider proposals when presented with new information. They also underscore the need for a consistent SRM process nationwide.

Member Impact: Advocacy in Action

The swift and coordinated outreach of VAI members was instrumental in shaping these positive outcomes. Operators provided key data, engaged directly with local FAA facilities, and worked with VAI to elevate concerns to FAA leadership.

This timely advocacy ensured that the FAA paused or canceled the proposed closures at KLAS and KLAX until further review and stakeholder engagement could take place. By speaking with a unified voice, VAI members reinforced the need for a consistent, transparent SRM process for future airspace changes.

Next Steps

VAI will continue to track helicopter route proposals nationwide and will share updates on any upcoming SRMPs or working group meetings.

Members are encouraged to provide operational feedback early when proposals arise. Contact Advocacy@verticalavi.org for more information.

Cade Clark *is VAI's chief government affairs officer.* ***Theresa Marr*** *is VAI's director of government affairs.* ***Katia Veraza*** *is VAI's assistant director of state government affairs and regional relations.*

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VAI BRIEFS

2026 VAI Scholarship Applications Due Nov. 14

ATTENTION, MAINTENANCE TECHNICIANS, PILOTS, and aspiring vertical aviation professionals: there are only two months left to apply for a 2026 VAI scholarship! The program supports VAI members seeking to advance their education and training in commercial helicopter flying, pilot safety, and airframe, engine, and avionics maintenance.

VAI offers eight types of scholarships this year. All applications are due by Nov. 14, 2025, and VAI membership is required.

Several scholarships are generously sponsored by VAI members Bell, Robinson Helicopter Co., and Winco Powerline Services. VAI thanks these companies for their commitment to ease the cost of training for the next generation of vertical aviation professionals.

Pilot Scholarships

VAI's three pilot scholarships help members strengthen their professional credentials and knowledge. Funding is available for both commercial pilot ratings and safety training. In addition to the scholarship cash award, recipients receive complimentary full registrations to VERTICON 2026 for themselves and a guest.

- **Commercial Helicopter Pilot Rating Scholarship:** This $10,000 scholarship supports private helicopter pilots working toward their commercial rating at an FAA-approved Part 141 school or international equivalent.
- **Michelle North Scholarship for Safety:** This award covers full tuition for a safety management course in the Elevations program (formerly Professional Education Courses) at VERTICON 2026. The scholarship is open to commercial helicopter pilots who demonstrate an outstanding aptitude for safe flying and aviation best practices.
- **Winco Commercial Helicopter Pilot Rating Scholarship:** Presented by Winco Powerline Services, this scholarship awards $5,000 toward the cost of obtaining a commercial helicopter pilot rating.

VAI Scholarship Sponsors

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Mechanic/Engineer Scholarships

VAI offers five scholarships for current and aspiring aviation maintenance technicians (AMTs). In addition to tuition assistance, recipients enjoy complimentary full registration to VERTICON 2026 for themselves and a guest.

- **Robinson Pete Riedl AMT Scholarship:** A new addition in 2026, this scholarship honors Robinson Helicopter Co.'s longtime VP of engineering, the late Pete Riedl. The scholarship provides full tuition plus a stipend to attend an aviation maintenance course at Robinson's training facility.
- **Maintenance Technician Certificate Scholarship:** The scholarship awards $5,000 toward the cost of obtaining an aviation maintenance certificate to applicants enrolled in an FAA-approved Part 147 school or international equivalent.
- **Winco Maintenance Technician Certificate Scholarship:** Presented by Winco Powerline Services, this scholarship awards $5,000 toward the cost of obtaining an aviation maintenance certificate to applicants enrolled in an FAA-approved Part 147 school or international equivalent.
- **Bill Sanderson AMT Scholarship:** This scholarship awards full tuition and a stipend for manufacturer-specific maintenance training from Airbus, Bell, Leonardo, Pratt & Whitney, Rolls-Royce, and Safran Turbomeca. Applicants must have obtained their A&P certificate within the past two years or are about to graduate from an FAA-approved Part 147 AMT school or international equivalent.
- **Bell 505 B2 Integrated Avionics Maintenance Technician Scholarship:** This scholarship covers full tuition for Bell's 505 B2 Integrated Avionics Maintenance Course plus $1,600 for travel and lodging. Applicants must be recent avionics graduates or current A&P holders.

To apply, visit verticalavi.org/scholarships. Not a VAI member? Visit verticalavi.org/join to join the world's leading membership association for the vertical aviation industry.

VAI BRIEFS

POWER UP Magazine Photo Contest Open for Entries

OUR READERS LOVE LOOKING AT photos of vertical aviation aircraft, and we know many of you enjoy *taking* them, as well! Why not show off your best images in the 2026 POWER UP Magazine Photo Contest?

The contest, sponsored by VAI, welcomes submissions from both amateur and professional photographers of any aircraft that achieves vertical flight, including helicopters, powered-lift aircraft, cargo drones, and electric vertical takeoff and landing (eVTOL) aircraft. VAI membership is not required, and there is no cost to enter.

VAI will select one photo as the grand prize winner and six photos as category winners, all of which will appear in the March 2026 issue of POWER UP. In addition, the winning entries will be displayed at VERTICON 2026, Mar. 9–12 (exhibits open Mar. 10–12), in Atlanta, Georgia.

We're looking for high-quality, high-resolution photos in the following categories:

- **Vertical Flight Aircraft at Work:** Show off aircraft in action (no AOG shots, please).
- **Vertical Flight Aircraft in the Military:** Pay tribute to the aircraft and aviators serving their countries.
- **People and Their Vertical Flight Aircraft:** Focus your lens on aircraft and the people who love them.
- **Wrench Turners:** Show your maintenance crew working proudly by the aircraft they help keep flying.
- **How We Serve:** Display all the ways we use vertical flight aircraft to keep our communities safe, secure, and prosperous, from fighting fires to keeping the lights on and more!
- **Digitally Enhanced Photos of Vertical Flight Aircraft:** Flaunt your photo-editing skills.

You can submit entries until Dec. 1, 2025. Visit photo.verticalavi.org for more information, to see this year's entries (that is, your competition), and for a chance to win cash prizes!

Entries to the POWER UP Magazine Photo Contest, such as this photo of an Airbus H145 operated by ADAC Luftrettung, a German air rescue organization, illustrate the dynamic nature of our global industry. *(VAI/Rene Spielmann)*

POWER UP
MAGAZINE

2026 PHOTO CONTEST

Have you taken some great photos of vertical flight aircraft?

Show off your camera skills by entering the 2026 POWER UP Magazine Photo Contest!

Submit up to five photos in each category:

- Vertical Flight Aircraft at Work
- Vertical Flight Aircraft in the Military
- People and Their Vertical Flight Aircraft
- Wrench Turners
- How We Serve
- Digitally Enhanced Photos of Vertical Flight Aircraft.

Contest Closes Monday, Dec. 1, 2025, at 11:59 pm eastern (UTC-5)

Learn More and Submit:
photo.verticalavi.org

VAI BRIEFS

Don't Miss These VAI Events

VAI AIR TOUR SAFETY CONFERENCE

When: Oct. 21–22, 2025
Where: Las Vegas, Nevada, USA
Who: Air tour operators, pilots, trainers, maintenance techs, safety officers, regulators, and OEMs
Why: Gain firsthand insights and practical tools from experts on safety culture and safety tech, the FAA safety management system (SMS) mandate, accident prevention, and emergency response
Register: verticalavi.org/atsc

EUROPEAN ROTORS 2025

When: Nov. 17–20, 2025
Where: Cologne, North Rhine-Westphalia, Germany
Who: Vertical aviation operators, pilots, maintenance professionals, manufacturers, suppliers, regulators, and safety experts
Why: Get direct access to vertical aviation's global network, regulatory updates, and insights into the European market and latest aircraft and tech
Register: europeanrotors.eu

VAI AERIAL WORK SAFETY CONFERENCE

When: Dec. 7–9, 2025
Where: Boise, Idaho, USA
Who: Those working in aerial firefighting or utility patrol and construction, operators of restricted-category aircraft, and those interested in joining these sectors
Why: Hear from industry leaders, the US Forest Service and the US Department of the Interior, and FAA reps on industry updates, safety enhancements, and more
Register: verticalavi.org/awsc

VAI Rotor Pathway Program Expands

VAI'S ROTOR PATHWAY Program (RPP), a US state–level initiative that provides high school students with a direct path to vertical aviation industry careers, is building on its success in Utah with similar efforts in North Dakota, Louisiana, and Oklahoma.

These RPPs rely on public–private partnerships that bring together government, educators, and the rotorcraft industry to collaborate on aviation education in that state. Students receive exposure to rotorcraft aviation in high school, as well as the opportunity to take classes in pilot and maintenance studies. Those students can then pursue college degrees at participating universities in aviation fields that prepare them for professional licensing, while operators and service providers offer internships, mentoring, and career guidance.

The test bed for this innovative program, the Utah Rotor Pathway Program (URPP), was established in 2019. A now-permanent grant by the Utah State Legislature supports instructor salaries and equipment purchases for the program. From one participating school, the program has expanded to provide aviation education to nearly one-quarter of all public high schools in the state. Southern Utah University now partners with 38 high schools to offer aviation courses for which students receive both high school and college-level credit.

Last fall, Cedar Valley High School, located in Eagle Mountain, hosted a fly-in for the URPP that drew thousands from the community. Twelve helicopters representing air medical, law enforcement, utility, and educational operators landed on the campus before a football game. The gathering enabled attendees to meet pilots and maintenance crews, explore different careers, and learn how to start aviation training at URPP universities.

High school students get an up-close view of a Kaman K-Max and enjoy the opportunity to speak with its pilot at the second annual Utah Rotor Pathway Program Fly-In, held Oct. 5, 2023, at the Davis Catalyst Center in Kaysville, Utah. *(VAI/Mark Bennett)*

In North Dakota, an RPP led by the University of North Dakota (UND) began in 2023. The program works with Red River High School in Grand Forks and is currently seeking to expand its reach. UND emphasizes community engagement through yearly fly-ins and open houses at its Grand Forks campus. The events provide a central venue for students and families to see helicopters up close and interact with aviation professionals.

Development of an RPP in Louisiana is in its early stages, but momentum is building, supported by Metro Aviation, PHI, Bristow, and the many other VAI members in the state. The initial focus will be on maintenance careers. With robust support from its local rotorcraft industry, the Louisiana program has the potential to replicate the success seen in Utah and North Dakota while tailoring its efforts to local workforce needs.

VAI is also working with stakeholders in Oklahoma about creating an RPP in that state.

As demand for vertical aviation professionals grows, the RPP has demonstrated the value of its state-based model. By engaging students early and providing them with access to training and industry connections, the Rotor Pathway Program is a bright spot in the industry's efforts to address the pilot and mechanic shortage.

VAI BRIEFS

VAI 2026 Salute to Excellence Awards Program Accepting Nominations

DO YOU KNOW SOMEONE WHO'S had an exceptional impact on the vertical flight industry? Perhaps an outstanding pilot, an expert mechanic/engineer, or a safety professional who's made a difference?

If you know a person or team who's made a significant contribution to vertical aviation, consider nominating them for a VAI 2026 Salute to Excellence Award. The program celebrates the highest standards of professionalism across the industry, in all forms of vertical aviation, including unmanned aircraft systems (UAS, or drones).

Salute to Excellence Awards are open to everyone within our industry; VAI membership is not required to either nominate someone or be nominated. Nominations will be accepted through Oct. 17, 2025.

The winners will be featured in the March 2026 issue of POWER UP and will also be recognized at VERTICON®, Mar. 9–12, 2026, in Atlanta, Georgia. Besides receiving complimentary VERTICON registrations, airfare, and housing for themselves and a guest, each winner will be recognized at a Mar. 9 VIP reception where a short video about their achievement will be shown.

"The Salute to Excellence Awards program is about honoring the people and organizations—often unrecognized—whose work has moved the industry forward in meaningful ways," says Bailey Wood, VAI director of strategic communications. "Some do this by mentoring others, some develop innovative solutions to industry problems, and some earn our respect through the high standards they represent. Through our Salute to Excellence Awards, VAI is honored to tell their stories."

The program includes nine categories recognizing accomplishments in air medical transport, piloting, lifetime achievement, safety, communications, law enforcement, maintenance, humanitarian service, and flight instruction. Two additional awards, the Matthew S. Zuccaro Land & LIVE Award and the Harold Summers Legacy Award, honor two former association leaders by acknowledging, respectively, superior aeronautical decision-making and significant, long-term achievement in the vertical flight industry.

For full award descriptions, eligibility details, a look at previous Salute to Excellence Award recipients, and tips on submitting a winning nomination, visit verticalavi.org/salute-to-excellence.

Air medical services operator LifeFlight of Maine received the 2025 Salute to Excellence Safety Award. The nonprofit organization raised funds to build infrastructure and influenced policy at the state and federal levels to support low-altitude aviation.

SALUTE to EXCELLENCE

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2026 NOMINATIONS NOW OPEN!

Celebrating the highest standards of professionalism in vertical aviation

Help us recognize excellence throughout the vertical aviation industry. Nominate a person or team whose work you respect and admire.

SALUTE TO EXCELLENCE AWARDS

- Communications Award
- Golden Hour Award
- Harold Summers Legacy Award
- Humanitarian Service Award
- Law Enforcement Award
- Lifetime Achievement Award
- Maintenance Award
- Matthew S. Zuccaro Land & LIVE Award
- Pilot of the Year Award
- Safety Award
- W.A. "Dub" Blessing Flight Instructor of the Year Award

Nominations Due by Oct. 17, 2025

VAI membership not required to nominate or win.

Learn more about submitting a winning nomination: verticalavi.org/salute-to-excellence

FOR MEMBERS ONLY

Ask a VAI Staff Expert

VAI members: Contact VAI with your legislative, regulatory, or technical concerns.

ONE OF THE BEST PERKS OF VAI MEMBERSHIP is that you're connected to the deep expertise of our technical, regulatory, and legislative staff. If you're wrestling with a proposed bill, a regulatory issue, or a technical question about aviation operations, you're not alone. Reach out to the VAI Advocacy team (see box below). We'll show up for you, just as we did for our members in the following examples.

Regulatory Representation

When regulators develop new rules that affect vertical aviation, VAI works directly with them to ensure our members' voices are heard. We review proposed rules, provide formal comments, and meet with agency officials to shape policies that promote safety and innovation.

In December 2024, the FAA announced plans to change its medical certification policy to classify incomplete pilot medical certification applications as denied, the same category occupied by pilots who have been evaluated as unfit to fly. VAI, working with 13 other associations and unions, weighed in with concerns. As a result of this outreach, the FAA announced in April 2025 that it would not proceed with its policy change. VAI also contributed to a joint pilot checklist to help our members submit complete applications.

Legislative Assistance

Our legislative and regional advocacy team tracks legislation that would affect vertical aviation, alerting VAI members to critical bills and providing the tools they need so VAI can convey member feedback and priorities to lawmakers. A recent example is a proposal last year from New York State legislators that would have closed New York City's West 30th Street Heliport (KJRA).

With the support of members and industry partners, VAI led an advocacy campaign asking legislators to hear industry concerns. Thanks to these efforts, including more than 96,000 emails sent to New York State legislators, KJRA remains open for business.

Technical Support

Legislation and regulations are usually focused at the macro level, affecting an entire class of aircraft or industry sector, for example. VAI also supports members with technical issues, including those with a singular focus.

When a VAI member and Part 135 commercial helicopter pilot in Florida needed assistance solving a compliance dispute with the FAA, he spoke with Cade Clark, VAI chief government affairs officer, and Zac Noble, VAI director of flight operations and maintenance. Their advice pointed that pilot to additional resources for help.

"Zac assured me I had done nothing wrong. He and others gave me some initial guidance and when the FAA pursued legal action, they connected me to an aviation attorney because it was a precedent-setting case," said the member. "Cade was also working on legislative changes to help future pilots in a similar situation. He appreciated hearing my story and getting new insight.

"VAI truly cares," says this pilot. "I have memberships with several aviation organizations. VAI is my most valuable."

VAI Members

If you have a technical, regulatory, or legislative concern you'd like help with, request assistance through the VAI website or contact Advocacy@verticalavi.org

5 DOS AND DON'TS

Be Ready if Disaster Strikes

Have a plan in place before an accident occurs.

AFTER A MILITARY HELICOPTER COLLIDED WITH A REGIONAL PASSENGER JET near Ronald Reagan Washington National Airport (KDCA) in January 2025, Tim and Sheri Lilley, the parents of one of the pilots killed, spoke at the 2025 Air Charter Safety Foundation Safety Symposium. According to an AIN article on their presentation, Tim spoke on the importance of emergency response plans, saying, "No matter what size operator you are, you've got to plan for the very worst thing to happen. You've got to plan that every flight that goes out isn't going to come back." Below are some tips to get you started.

1 **DON'T wing it.** In a crisis, you won't have time to figure out how to notify and support next of kin, how to comply with agency requests for records and data, or who will communicate with the media. Develop a well-thought-out emergency response plan now, while you're able to think clearly.

2 **DO assign clear roles, and train for them.** Decide who will handle each step in your emergency response plan and how. Who will liaise with first responders, notify the regulator, speak with reporters, manage social media, and handle logistics? Annually, update your plan. Practice several scenarios together to spot gaps and ensure you're prepared.

3 **DO form a family care team.** When faced with an unexpected tragedy, the families or loved ones of the victims need support from a team who can help them through the worst days of their lives. Is travel necessary? Is the media calling? Sheri Lilley said of her experience with her son's employer, "Their director of flight ops was right there with us every day. That personal touch meant a lot to us as a family." Tim Lilley echoed those remarks, saying, "That care team is so invaluable. We're all in shock. We have no idea who to talk to, what to do." He urged smaller operators to pool resources to put a team together, if necessary.

4 **DON'T neglect the impact on your employees.** They may be grieving the loss of colleagues or processing their connection to the tragedy, so offer them the resources they need too.

5 **DON'T avoid the media—but stick to the facts.** Appoint a spokesperson to respond to media inquiries by answering the Who, What, and Where—leave the How and Why to the accident investigators. Don't assume anything. Yes, the pilot may have been a stellar employee or longtime friend, but until the investigation is complete, you don't know what really happened in that aircraft.

IN THE SPOTLIGHT

Aaron Fitzgerald, Helicopter Aerobatic Pilot

Aviator describes what it's like flying for Red Bull.

By Mark Huber

AARON FITZGERALD IS A helicopter aerobatic pilot for the Red Bull demonstration team, flying an unmodified 1985 MBB Bo 105. Based at Whiteman Airport (KWHP), just outside Los Angeles in Pacoima, California, Fitzgerald, 56, began his flying career at age 15 as a fixed-wing student pilot. After a stint as a paratrooper in the US Army's 82nd Airborne Division, he flew helicopters for the news-gathering, offshore, utility, firefighting, charter, and media production support sectors. Fitzgerald has accumulated more than 9,000 flight hours in a wide variety of helicopters and has flown as a Part 135 helicopter pilot since 1999.

In addition to his role on the Red Bull team,

Fitzgerald operates Airborne Images, a company that provides stunt flying and media production support for the television and movie industries. He has more than 100 television and movie credits, 2 Emmy nominations, and a BAFTA (British Academy of Film and Television Arts) award.

Fitzgerald is decidedly deadpan about his contributions to the big and small screens, commenting about his role in the 2025 Amazon MGM series *Countdown*: "I have one line. It's laughably brief. I'm on camera for about three seconds."

POWER UP caught up with Fitzgerald on his way to the 2025 EAA AirVenture Oshkosh air show and fly-in in Oshkosh, Wisconsin, in July.

This interview has been lightly edited. All photos this spread courtesy Predrag Vuckovic/Red Bull Content Pool.

POWER UP: ***How did you get your start in aerobatics?***

Fitzgerald: Aside from a few casual rolls and loops in a friend's airplane, my first exposure to aerobatics was in a helicopter, beginning in 2016. I was trained by Rainer Wilke, who trained all of the Red Bull helicopter pilots. He was a German Army demonstration pilot for many years and started the Red Bull helicopter program for Mr. [Dietrich] Mateschitz [the late Austrian cofounder and co-owner of Red Bull].

How often do you train, and do you do any special physical conditioning?

I try and fly something every day. [Fitzgerald personally owns two fixed-wing aerobatic airplanes.] If I have a show coming up, I try and fly in the helicopter every day.

I don't know that it's completely necessary to stay in good physical condition, but that's my preference. I run almost every day and work out.

I believe it helps me to be accustomed to having an elevated heart rate. Before a performance, I hydrate as much as I can without creating urgent bathroom needs.

Do you wear any special protective clothing?

I wear gloves and a helmet. The gloves aren't for safety—sometimes I'm wearing sneakers, a short-sleeve shirt, and shorts. The gloves provide a consistency of control feel. Usually, air shows are in the summer and you're sweating a lot, so I like a good grip on the controls.

There are no comfort measures whatsoever in that helicopter—no air-conditioning, no heating, no cup-holders, nothing. The instrument panel is basic VFR-only operations, save for an accelerometer.

But you do have two radios in the panel?

I'm on with the air boss [the controller who runs the air show], and then we have a discrete frequency, where I talk to my team when we do an individual performance, which is what I'll be doing at Oshkosh.

But we also do a team performance with skydivers and an aerobatic airplane where we all fly in the [aerobatic show] box and do various things together. So that requires a lot of communication on the discrete channel. Either way, I always have two radios going during the performance.

How long does your individual routine typically last?

It's quick, only about seven minutes long. We've determined that's the crowd's attention span.

And what is the performance's g envelope?

We try to keep it between 3 *g* and –1 *g*. It's pretty gentle.

What's your most difficult maneuver?

That's funny, because some of the ones that are less complicated are hard to do well, and then some of the complicated ones that look crazy are fairly easy. I do one with a flip with a roll—that one's hard to do perfectly. It requires good energy management and fairly precise entry. I do it every show, but I wouldn't say I've ever done a perfect one.

What goes through your head during a performance?

When you're flying the show, the crowd disappears. You are by yourself and must concentrate.

There are a lot of control inputs throughout the course of each

Joerg Mitter/Red Bull Content Pool

individual maneuver. MBB Bo 105s are pretty much impervious to any aerodynamic situation; you can't hurt them with air. But you can certainly overtemp, overtorque, and overspeed—all the usual parameters for helicopters.

You must make constant and continuous power setting changes through every maneuver to squeeze out maximum performance without any exceedances and stay very focused on energy management. You need cyclic inputs, pedal inputs, everything. You enter a flow state after you've been doing it for a while, and some of it comes from muscle memory. But it's very busy in the cockpit.

The MBB Bo 105 seems to be the ship of choice for civil helicopter aerobatics. Why do you think that is, and do you have any concerns about flying aerobatics in a 40-year-old helicopter?

The only other rotorcraft that can do such a wide variety of aerobatics are military attack helicopters, and those are just not financially feasible to operate in the civilian world. The 105 is compact, with a rigid rotor system, and has a wide performance envelope, so you have a big margin for error. It's the perfect mixture of everything. While still economical to support, it's getting less so every year. There are fewer of them out there and it's getting harder to find parts, so it's simple math. I don't know when it is, but there is an end date.

Mark Huber *is an aviation journalist with more than two decades of experience in the vertical flight industry.*

VERTICAL AVIATION CALENDAR

Upcoming Events

2025

Oct. 7–9
Vertical MRO Conference
MHM Publishing
Kelowna, British Columbia, Canada
Learn more at verticalmro.com

Oct. 14–16
NBAA Business Aviation Convention & Exhibition (NBAA-BACE)
National Business Aviation Association
Las Vegas, Nevada, USA
Learn more at nbaa.org/events
Visit VAI at Booth #1926

Oct. 21–22
VAI Air Tour Safety Conference
Vertical Aviation International
Las Vegas, Nevada, USA
Learn more at verticalavi.org/atsc

Oct. 27–29
2025 Air Medical Transport Conference
Association of Air Medical Services
Omaha, Nebraska, USA
Learn more at aams.org/page/events
Visit VAI at Booth #1335

Nov. 4–6
HAC 30th Annual Conference & Trade Show
Helicopter Association of Canada
Abbotsford, British Columbia, Canada
Learn more at https://www.h-a-c.ca/conference.html

Nov. 10–12
Vertical MRO Conference
MHM Publishing
Irving, Texas, USA
Learn more at verticalmro.com

Nov. 11–13
CHC Safety & Quality Summit
CHC Helicopter
Vancouver, British Columbia, Canada
Learn more at chcsafetyqualitysummit.com

Nov. 17–19
Ag Aviation Expo
National Agricultural Aviation Association
Reno, Nevada, USA
Learn more at agaviation.org/ag-aviation-expo

Nov. 17–20
EUROPEAN ROTORS 2025
European Helicopter Association and European Union Aviation Safety Agency
Cologne, North Rhine-Westphalia, Germany
Learn more at europeanrotors.eu
Visit VAI at Stand #219-B

Dec. 7–9
VAI Aerial Work Safety Conference
Vertical Aviation International
Boise, Idaho, USA
Learn more at verticalavi.org/awsc

2026

Mar. 9–12
(exhibits open Mar. 10–12)
VERTICON 2026
Vertical Aviation International
Atlanta, Georgia, USA
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Pilot: Senior Line Pilot Ken Janik

Photo by Mark Bennett, Jul. 27, 2025

Aviation Specialties Unlimited

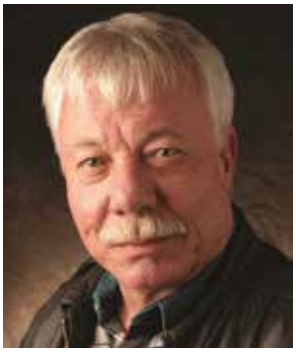
Lighting Up the Night for 30 Years

Pioneering OEM of civil night-vision goggles continues to drive innovation.

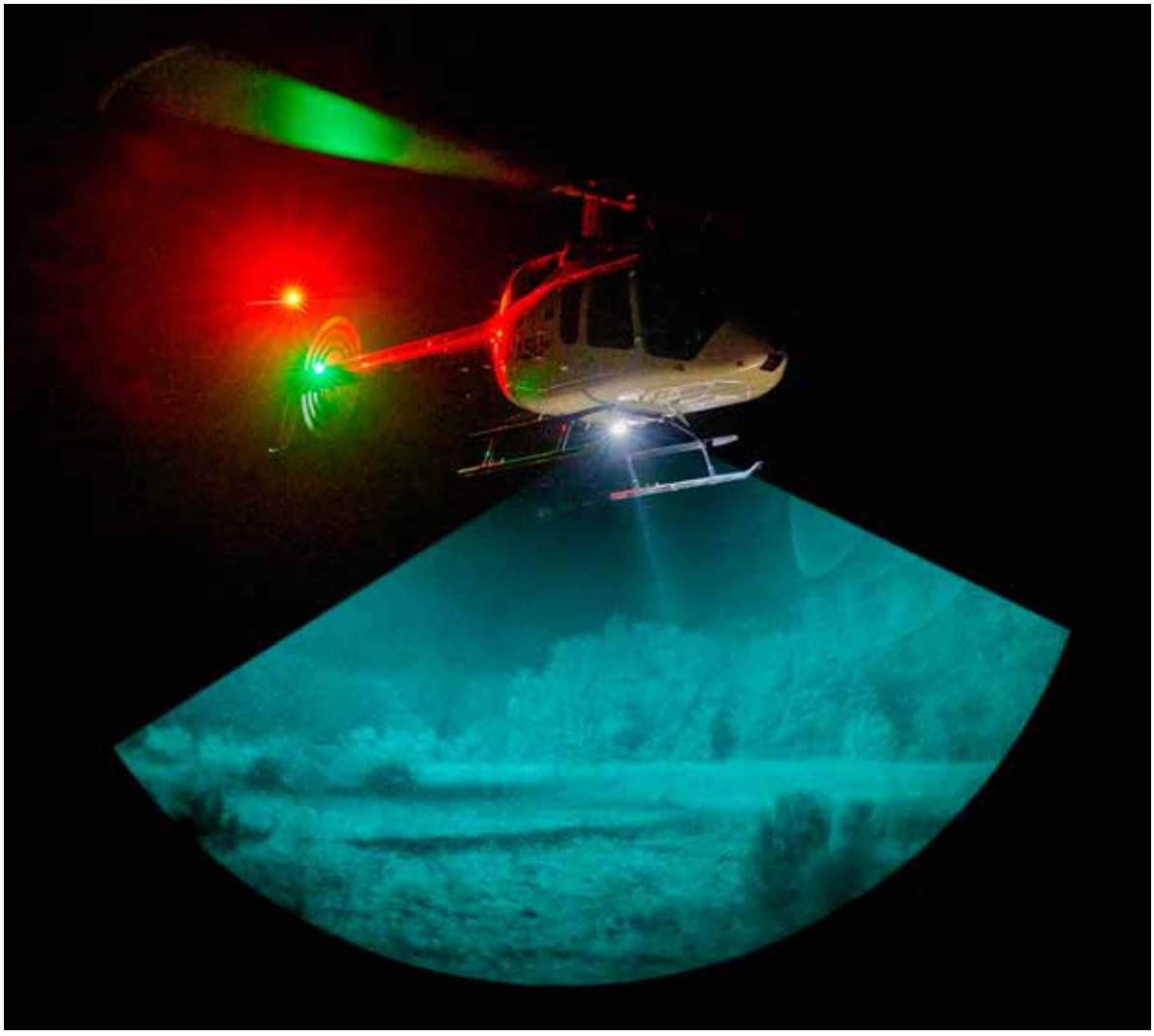
By Jen Boyer

All photos ASU

MIKE ATWOOD FIRST STARTED using night-vision goggles (NVGs) in 1978 when he flew UH-1M helicopters for the Idaho Army National Guard. These early goggles, the AN/PVS-5 model, were a large, heavy, full-face system that obscured the pilot's peripheral vision. They weren't compatible with prescription eyeglasses and often fogged up due to lack of air circulation. While the AN/PVS-5 goggles weren't specifically designed for aviation, they did light up an otherwise dark world for the human eye and helped military pilots fly with increased safety.



In 1982, after extensive pilot input and testing, the US Army approved an aviation-specific NVG design, the aviation night-vision imaging system (ANVIS), and its first model, AN/AVS-6. This NVG model differed significantly from previous versions. It no longer covered the whole face, thus giving pilots some limited peripheral vision and increased capture of light. It also featured automatic breakaway, making it easy for the pilot to quickly disconnect from the NVG when needed, as well as a dual battery pack and improved weight-and-balance characteristics.



Above center: For his leadership in bringing NVG technology to civil aviation, Mike Atwood, ASU CEO and founder, received the Salute to Excellence Lifetime Achievement Award in 2012. At right: NVGs amplify small amounts of light—as little as starlight—to create clear, detailed images, enabling pilots and crews to operate more safely in low-light or dark conditions.

Bringing NVGs to Civil Aviation

Production on AN/AVS-6 goggles for sale to nonmilitary users began that same year, 1982, with deliveries starting in 1985. Shortly after they hit the market, Atwood was flying a Bell 222 for the Idaho National Engineering Lab (INEL), providing airborne security operations for that US Department of Energy facility. Deeply familiar with NVGs from his military career, he decided to test the goggles in his public-service job. He discovered the AN/AVS-6 goggles were even more capable than what he had worked with in the military.

"They were the coolest thing in the world and had four times the capability of what we were flying with in the Guard," Atwood says. "I went down to Tempe, Arizona, to [NVG manufacturer] Litton and, because of its contract with the Department of Energy, I was able to pick up seven brand-new AN/AVS-6 goggles off the assembly line and bring them back to Idaho. We used them to put together our INEL goggles program."

Because his flights for INEL were considered public aircraft operations, Atwood wasn't limited by FAA regulations on NVG use—or the complete lack thereof—while establishing a night-vision program for the lab. When government cuts came for Atwood's job in 1995, he had become such an advocate of NVGs for civilian use, he decided to dedicate the next chapter of his career to using NVGs to increase the safety of civilian aviation night operations.

"I can't imagine anybody going out flying missions in the dark without goggles, especially in the West in mountainous and desert areas," Atwood says. "I saw getting these goggles out into the civilian sector as a way to help make aviation safer and save lives."

Atwood started Aviation Specialties Unlimited (ASU) on May 25, 1995, with the aim of becoming an ANVIS distributor and helping civilian companies incorporate NVGs into their aviation operations. At the time, only two US manufacturers made the image-intensifier tubes in ANVIS goggles, Litton and ITT (see the "The Magic of NVGs" on p. 38 for more on how these tubes create visible images in low-light conditions). Both manufactured the same goggle design to military

The evolution of NVGs, beginning with the cumbersome whole-face AN/PVS-5 model (top). Design improvements over the years provided pilots with better peripheral vision, as shown by the ASU AN/AVS-9 NVG (center). In response to customer comments about NVG weight, ASU in 2024 introduced the E3 (bottom), which is 30% lighter than the AN/AVS-9.

specifications using their own tubes. ASU signed an agreement with ITT to become the exclusive distributor of its goggles.

Putting these new tools to work was another issue altogether, however. The hurdles were immense. For starters, there was no official guidance for developing civilian NVG programs. There were also no FAA regulations for operating aircraft with NVGs.

"At one point, we had someone from the FAA come and say if we operate with night-vision goggles, they'd consider it dangerous and reckless use of an aircraft and we'd be fined," Atwood says. "We realized there was a need to develop guidance."

To help develop the rules that would govern NVG use in civil aviation, Atwood joined about 300 experts across all aspects of aviation on a committee supported by RTCA, the global standards development organization for aviation technology. In 2001, RTCA published DO-275: Minimum Operational Performance Standards for Integrated Night Vision Imaging System Equipment, providing guidance to civil operators and regulators, including the FAA, on how to put a goggles program together safely and responsibly.

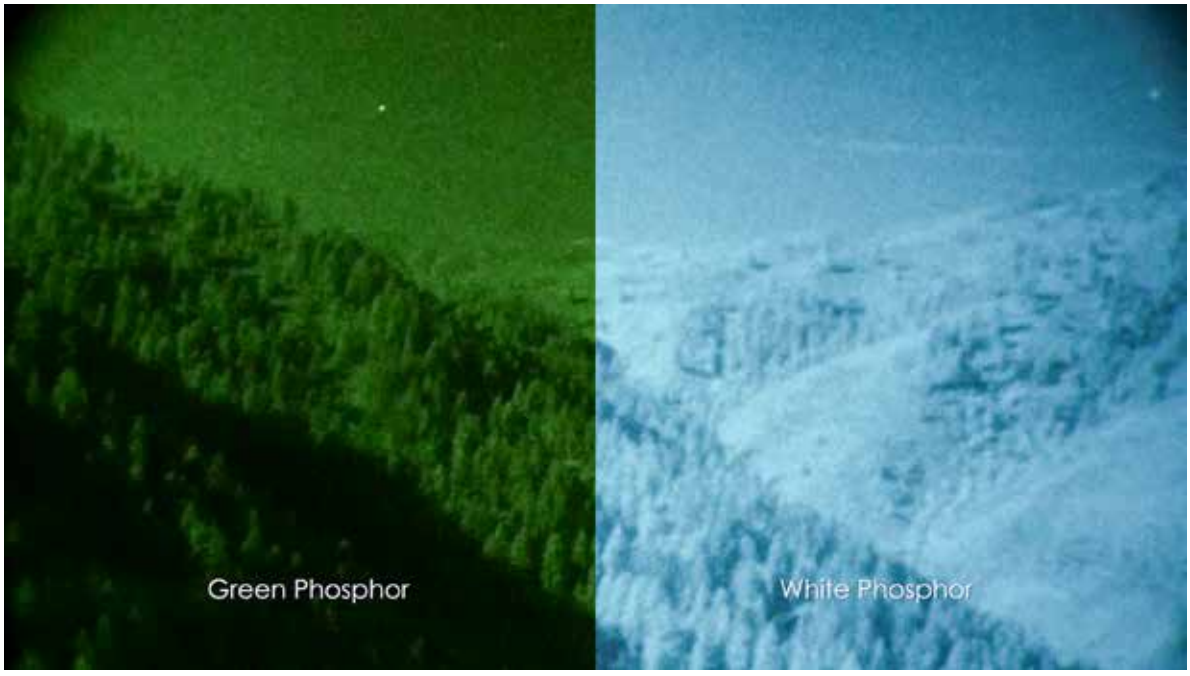
Until DO-275 was adopted, opening up NVG use by civil operators, ASU provided goggles and NVG consultation services to police departments and other public-sector operators, including the US Department of State and the country of Colombia in their counternarcotics efforts. ASU also became an NVG training facility, with Atwood being the first NVG-rated civilian instructor pilot in the United States.

After the DO-275 guidance was published, business increased for ASU as the company helped more civilian customers develop programs. The ASU team also helped individual operators navigate FAA approvals, celebrating Mercy Medical Center of Redding, California, when it received the first US operational approval for unrestricted NVG use in a civil helicopter.

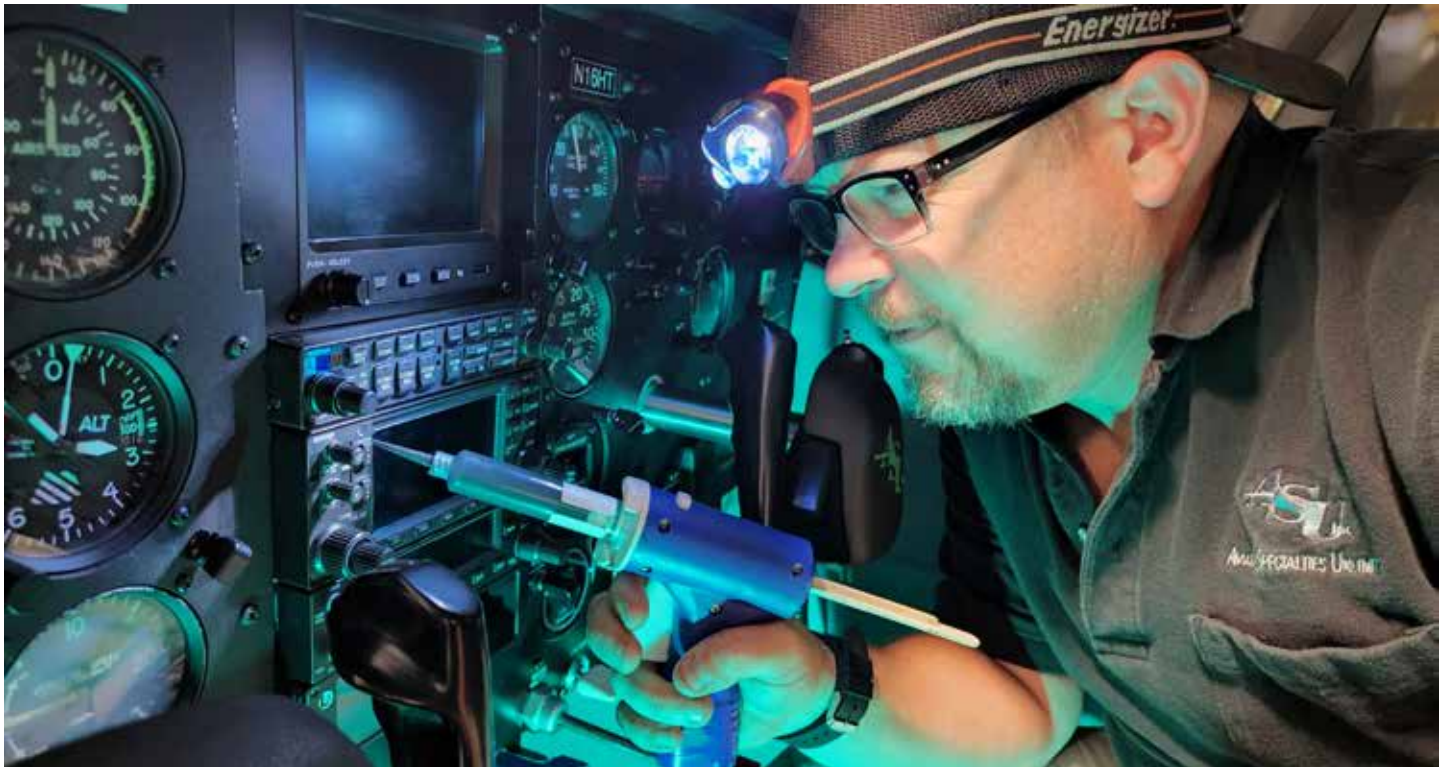
Expanding to Meet the Need

As ASU's goggles sales grew, Atwood saw opportunities for additional support services. ASU received a supplemental type certificate (STC) for Bell 206 night-vision aircraft modifications in 2003 and began offering NVG cockpit modifications that include specialized lighting and filters.

In 2004, the company added NVG maintenance services and recertifications to its Part 145 capabilities. Goggles must be inspected



Earlier NVGs were available only in green-phosphor models. When white-phosphor NVGs became available in 2014, users preferred them for their ability to provide improved clarity, contrast, and detail while reducing eyestrain.



and recertified every 180 days to remain in compliance with regulations.

In 2005, ASU experienced a major growth spurt, with civilian goggles sales climbing from 25 units per year to more than 300. At the time, military demand was also surging, lengthening delivery times for civilian customers. ITT prioritized military requirements, limiting its research and development capabilities for civilian applications, an area ASU believed was critical based on direct feedback from its customers.

Meanwhile, ITT's counterpart, by then known as L3, had begun exploring white phosphor technology as an alternative to the green phosphor traditionally used in night-vision systems. Early results showed white phosphor improved clarity, contrast, and detail while reducing eyestrain.

ASU became the exclusive distributor of L3's ANVIS models and started selling the white phosphor goggles when they were released in 2014.

"White phosphor really did a jolt to the industry," says Hannah Gordon, ASU chief operating officer. "The human eye can decipher black and white in way more shades than it can with green, so our eyes are less fatigued with white phosphor, on top of better resolution and visual acuity."

While the introduction of white phosphor further ignited interest in NVGs, ASU continued to see little progress in solving one of the biggest complaints about the goggles: weight. Neither US-made goggles systems had decreased much in weight since that first model in 1982: the AN/AVS-6, with batteries, could weigh up to 1.3 lb. (590 g), causing neck strain for pilots.

"While L3 was pioneering innovations in white phosphor at the time—and both manufacturers now offer it—neither was approaching the system holistically to make it better and lighter," Gordon says.

In 2019, the ASU team began exploring design options for a smaller, lighter white-phosphor system that would reduce fatigue and neck strain while increasing comfort and usability. The result was the ASU E3 NVG, released at HAI HELI-EXPO 2024 (now VERTICON®). The new goggles system is 30% lighter than the latest ANVIS model, AN/AVS-9, when its battery pack and counterweights are considered. To achieve this weight savings, ASU machined the goggles housing from

(Continued on p. 38)

Using NVGs in an aircraft might require some modifications to ensure its cockpit, cabin, and external lighting systems are compatible and safe to use with night-vision technology. ASU holds more STCs for NVG modifications than any other company in the world.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(Continued from p. 35)
aluminum, replacing the bulky plastic of legacy systems.

The new design also incorporated customer input on increased ergonomics, comfort, and usability over the ANVIS models. A flip switch, or cam lock, was engineered to move the goggles fore and aft on the mount, replacing the previously used adjustment knob. Knobs for interpupillary adjustments (for moving the lenses closer together or farther apart) were retained for ease of use with gloves. Resistance in the hinge was strengthened to keep the goggles from moving out of proper alignment due to the vibrations of flight. All focusing adjustment dials were also moved to the front of the goggles, allowing faster setup, while the overall goggles were designed for ease of maintenance.

Despite all these improvements, the feature customers rave about the most is the increased look-around, or peripheral field of view, the E3 gives pilots, says Tony Tsantles, ASU director of operations.

"The eye relief, or the distance between the goggles and the eye, increased from 25 mm to 32 mm, giving pilots much better look-around while maintaining the same 40-degree field of view through the goggles," Tsantles says. "This improves the user's ability to quickly transition to unaided night vision as part of the scan. So, overall, the goggles made pilots happier by taking significant weight off their necks while also giving them access to additional cues and safety advantages."

The Magic of NVGs

Night-vision technology works by collecting the small amount of available light—this can be as little as starlight on a moonless night—and amplifying it to the point where the human eye can clearly see detail.

The process begins when visible and near-infrared light enter the goggles through a conventional lens. The lens focuses that light to the image-intensifier tube, which is where the real magic happens.

Inside the image-intensifier tube is a photocathode, a microchannel plate (MCP), a phosphor-coated screen, and an automatic gating high-voltage power supply. Powered by a battery pack, the tube delivers battery current to its components to set the transformation in motion.

Light first hits the photocathode, which converts units of light, or photons, into electrons. The electrons then pass through the MCP, a tiny vacuum-sealed glass disk with millions of microscopic holes. As the converted electrons pass into the holes, they hit MCP wall atoms, causing them to release more electrons. These electrons hit yet more MCP wall atoms that release more electrons, creating a chain reaction that multiplies the number of electrons exponentially.

The amplified electrons, which maintain their original position in relation to how they entered the goggles, then hit the phosphor-coated screen. The energy of this collision causes the phosphor to reach an excited state and release photons (visible light) in the same pattern as the electrons.

The result of this nearly instantaneous process is a green or white image, depending on the type of phosphor used, seen through the eyepiece of the goggles.

A Bright Future

ASU has already sold more than 1,000 E3s, in addition to more than 10,000 sets of ANVIS goggles over the past 30 years. Today, it continues to grow to meet demand, manufacturing E3s, performing maintenance for ANVIS and E3 goggles, conducting inspections and recertifications within 48 hours of goggles receipt, manufacturing NVG aircraft modifications for its more than 100 helicopter and fixed-wing STCs, and conducting NVG pilot training.

The company is continually modifying the E3 to increase its usability, comfort, and performance. Building on this commitment, ASU recently developed and began manufacturing the E3 Pano, a lightweight panoramic NVG designed for both military and civil aviation. Developed from the E3 design and supported by a US Special Operations Command contract, the

E3 Pano integrates four tubes into a single lightweight aviation platform. This gives pilots a 97-degree field of view, enhancing operational capability and situational awareness while preserving the proven performance of the original.

In addition to goggles development and sales, ASU remains actively involved in helping expand civil NVG use globally. Australia's Civil Aviation Safety Authority and the European Union Aviation Safety Agency have both consulted with ASU on regulation development. Both now have helicopter NVG regulations and are currently developing them for fixed-wing aircraft.

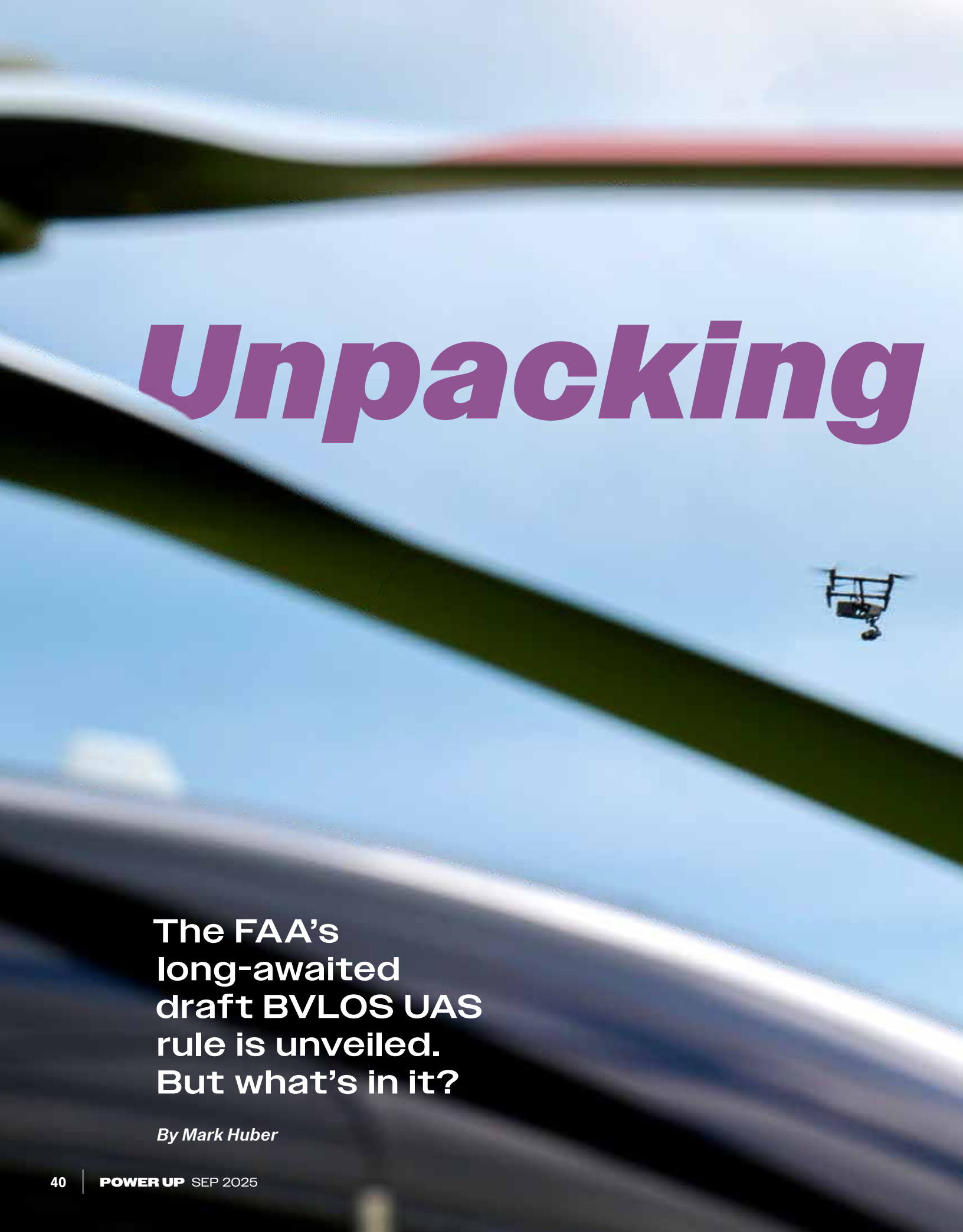
The company is also growing its NVG training business. Offered in ASU's Bell 505 and Cessna 206 or the customer's own aircraft and location, the four-day immersive course is tailored to each student's operational requirements, covering everything from the aeromedical and physiological aspects of night-vision operations to the equipment and its limitations.

Students receive several hours of hands-on practice with NVGs, including startup, flights in multiple environments from city lights to zero artificial light, and landing approaches. ASU also holds a contract with the FAA to provide NVG initial and recurrent training for all FAA flight standards operations inspectors and aircraft certification pilots in both helicopters and fixed-wing aircraft.

"General aviation is expanding, so while we just celebrated our 30th anniversary this year, we truly feel as though we're just getting started," says Gordon. "The modern pilot and operator have high performance expectations for their NVGs, and they know they can come to ASU to have those expectations met."

Jen Boyer *is a journalist and marketing communicator specializing in aviation. She holds commercial, instrument, flight instructor, and instrument instructor ratings in helicopters and a private rating in airplanes.*

Unpacking



The FAA's long-awaited draft BVLOS UAS rule is unveiled. But what's in it?

By Mark Huber

PART 108

EVEN BY WASHINGTON, D.C., STANDARDS, the FAA's recent proposed rule for the operation of unmanned aircraft systems (UAS, or drones) beyond visual line of sight (BVLOS) of their remote pilots or observers was developed at a glacial pace—nine years by some counts. Meanwhile, the FAA continued to govern BVLOS operations on a case-by-case basis via the granting of waivers and exemptions according to 14 CFR Part 107, the 2016 rules established for small UAS.

But as the demand for BVLOS operations quickly grew, one thing was crystal clear: The Part 107 framework was becoming increasingly cumbersome and maybe unworkable. Operators were required to submit lengthy, detailed plans to the FAA documenting their detect-and-avoid technology and plans for safety and security. And then they would wait—sometimes a long time—for approvals.

The FAA took no action on a 2022 report by its UAS BVLOS Aviation Rulemaking Committee that suggested a framework for BVLOS flights. From the outside looking in, FAA action on the issue seemed stalled.

To be clear, the FAA was attempting to resolve substantial concerns about integrating BVLOS flight into the US National Airspace System (NAS), including vexing items such as obstacle clearances and see/sense/detect-and-avoid responsibility when it came to the deconfliction rules for manned and unmanned aircraft. BVLOS integration would require both technological innovation and, at some level, changes to fundamental airspace rules.

Amid the global competition to reap the rewards of this new and exponentially growing, lucrative, and exciting sector of aviation, the Part 107 waiver and exemption process threatened to leave the United States in the dust. Armed drones, meanwhile, became one of the weapons of choice in the Ukraine conflict and in other geopolitical hot spots, prompting national security concerns. Against this backdrop and largely in frustration, Congress in May 2024 set a deadline: The FAA would issue a notice of proposed rulemaking (NPRM) for BVLOS operations in September 2024.

That deadline came—and went.

But it was not forgotten.

Photos VAI/Mark Bennett

FAA Acts on BVLOS

On Jun. 6, 2025, President Donald J. Trump issued an executive order mandating release of a BVLOS NPRM within 60 days. US Secretary of Transportation Sean Duffy announced the release of the proposed rule on Aug. 5, proclaiming "it's going to change the way people and products move throughout our airspace."

The NPRM, "Normalizing Unmanned Aircraft Systems Beyond Visual Line of Sight Operations," released by both the FAA and the Department of Transportation, is substantial (a pdf download of the document clocked in at 589 pages). The 60-day public comment period ends on Oct. 6, 2025, and a final rule could come as early as February of next year.

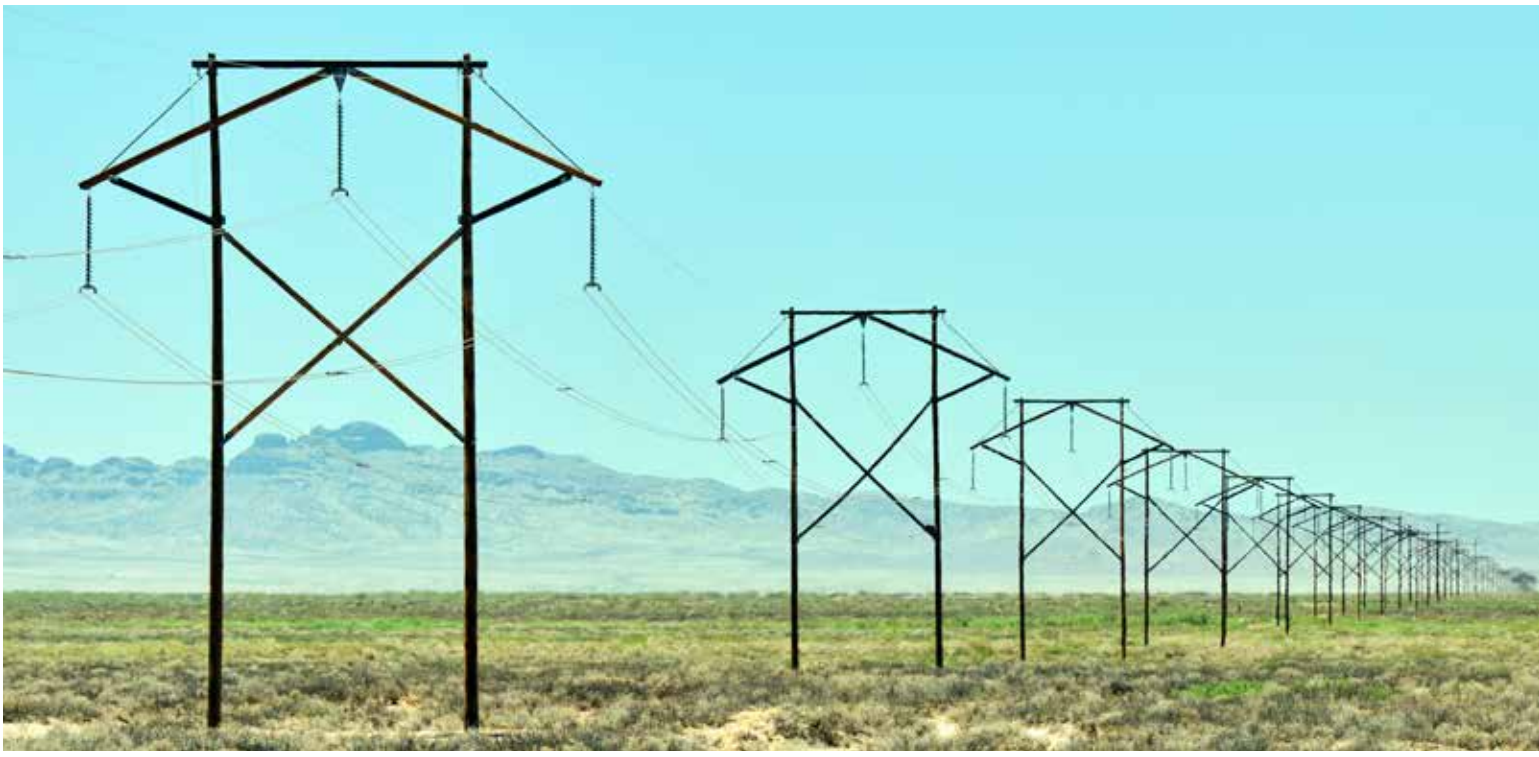
Stakeholders initially reacted positively to the NPRM—in part because it had been highly anticipated for months—but most gave nuanced remarks about the document's provisions. VAI released a statement on Aug. 5 that the NPRM "aims to enhance the safety, efficiency, and scalability of drone operations across the United States and is a major step forward in the maturation of this aviation sector."

"By releasing this monumental rulemaking, the FAA is working to balance the need for safety with continued utilization of UAS technology," said Cade Clark, VAI chief government affairs officer, in that Aug. 5 statement.

Other organizations familiar to VAI members responded in kind, balancing optimism for the long-delayed integration of UAS and manned aircraft with a realistic assessment of the amount of work that still needs to be done to safely achieve that integration.

Jana Williams, president and CEO of the Association of Air Medical Services (AAMS), which represents helicopter air ambulances and others in the air ambulance industry, said AAMS is "grateful" that the FAA is taking up BVLOS rulemaking. She urged the FAA to "work closely with air ambulance services and air ambulance industry associations to enhance the safety of low-level aircraft operations by helicopter and fixed-wing air ambulances and to prevent any encounters between manned and unmanned aircraft that may jeopardize the safety of air ambulance patients, crews, and aircraft."

The Air Line Pilots Association, International (ALPA) similarly praised the FAA's effort for integrating new users into the NAS but was cautiously optimistic about the impact on safety. "ALPA remains committed to working closely with the Department of Transportation to ensure that emerging technologies and drone operations do not compromise aviation safety. Recent tragic events have underscored the critical importance of maintaining rigorous safety standards in our increasingly complex airspace, and we will continue



advocating for policies that require all airspace users to operate with adequate surveillance, communication, and collision avoidance capabilities," the organization said in a statement provided to POWER UP.

To be sure, there's a lot to like in the NPRM. The aviation industry as a whole has long advocated for performance-based and streamlined aviation standards and regulations as opposed to seemingly arbitrary ones based on yesterday's technology rather than tomorrow's. Less than a month before the BVLOS NPRM was released, this new regulatory attitude was on full display when on Jul. 22, the FAA released its final MOSAIC (Modernization of Special Airworthiness Certification) rule, which made sweeping changes to the light-sport aircraft category. This, apparently, is not your father's FAA.

Diving into the Details

But like anything else, the devil is in the details, and there are plenty of details in the NPRM that are of concern to VAI and other aviation organizations (see "Key Provisions of the Proposed Part 108 Rule" on p. 44 to learn more). According to Amber Harrison, VAI director of regulatory affairs, some of those areas of concern include:

- Provisions for "shielded" operations
- Circumstances in which drones would have right-of-way over manned aircraft
- Exemptions to the 400-ft. ceiling for UAS flights over tall towers or other obstacles.

"The rule as proposed creates ambiguity; it creates complexity. In some situations, the pilot of the manned aircraft must make a series of determinations if they need to avoid the drone or the drone needs to be avoiding them," says Harrison, who is leading the association's review of the NPRM.

Then there's the matter of the automated data service providers (ADSPs), which the proposed rule says will manage deconfliction, the see-and-avoid responsibility historically relegated to the pilots of manned aircraft, UAS remote pilots and observers, and air traffic controllers.

Erin Roesler is the deputy executive director of the Northern Plains UAS Test Site, an FAA-designated UAS test site in North Dakota. She also led the creation of Vantis, North Dakota's statewide technology network that enables UAS

According to figures compiled by the US Department of Energy, the US electrical grid contains 642,000 miles of high-voltage transmission lines and roughly 6.3 million miles of local distribution lines—making utility patrol and inspection a likely focus of UAS expansion once the BVLOS rules are finalized.

BVLOS operations—in other words, its ADSP. Roesler, not surprisingly, sees the proposed rule as a positive development that will encourage industry growth by relieving operators of sometimes going through "a year's worth of waiver and exemption work."

Citing the massive effort and millions of dollars it took to stand up Vantis, however, Roesler is concerned that the industry is "going to be woefully unprepared for having automated data service providers." The rule places substantial demands on this new class of technology providers, including developing processes and capabilities for training, quality control, data management, and cybersecurity. "Looking at the requirements that are on an ADSP, I think there are those in the industry that are going to fall short of this rule," she says.

Removing Barriers for UAS

The appetite for commercial BVLOS operations is undeniable. The worldwide drone market is forecasted to grow exponentially over the next five years. A recent study by Spherical Insights valued it at $260 billion by 2030. That's $10 billion more than the combined forecasted annual revenue of the US airline industry in 2025. In the consumer market, Amazon has driven down the cost of its Prime Air drone deliveries from $484 per package in 2022 to an estimated $63 today, and 85% of those packages weigh 5 lb. or less. The online retail giant already has built—and field-tested—a series of delivery drones in test markets.

What will a BVLOS future look like? A company called Arrive AI has created a system that uses secure, automated consumer mailboxes that are fed by aerial and ground drones. CEO Dan O'Toole told POWER UP that once it's rolled out, consumers could pay a subscription price as little as $30 per month for the service.

"As the drone approaches, it sends an encrypted signal [to the mailbox]. We receive that and authenticate it. We send it back to the drone, and its cargo door opens and allows the drone to deliver or pick up the accurate item. Once we know the drone has secured the cargo and the door closes, notifications are sent out to the recipient and the shipper." O'Toole says the mailboxes could have secondary functions as low-altitude weather stations and/or security devices. Bye-bye, porch pirates.

Roesler thinks rural areas hold some of the most promising potential for BVLOS consumer operations. "Until recently, North Dakota didn't have Amazon two-day delivery; it was still five-day delivery for most of the state. That's where you can really [commercially] enable BVLOS. We're not talking about a last-mile challenge, we're talking about a last 100-mile challenge. This rule set really opens that up, and you might start seeing connectivity into those rural areas at lower cost."

None of this is going to happen overnight, however, according to Juliet Jordan, managing director of industry affairs and innovation for the National Air Transportation Association (NATA). Jordan has extensive career experience in the UAS industry, including obtaining BVLOS waivers under Part 107.

Once the final BVLOS rule is published, Jordan says, "there is going to be a pretty substantial educational process to implement the safety procedures the FAA has required. Right now, the FAA is still doing reviews and data collection on elements of the NPRM. Even after the comment period closes, the FAA is still going to be utilizing a risk-based and data-based approach to their assumptions."

Key Provisions of the Proposed Part 108 Rule

- Drone operations must be at or below 400 ft. above ground, structures, or obstacles in FAA-approved areas.
- The proposed rule covers UAS up to 1,320 lb. with certification based on "industry consensus standards."
- All UAS must have the ability to detect and avoid other traffic.
- The proposed rule creates private-sector automated data service providers (ADSPs), which are third-party companies or other entities, including some UAS operators, charged with separating UAS aircraft from each other and from manned aircraft.
- There will be five different categories of operation based on population density; UAS flights over people are allowed but not over large open-air assemblies.
- There will be two different categories of authorization:
  - Permits for low-risk, low-scale operations, including for market research and related purposes
  - Certificates would be available for larger-scale operations.
- Extensive recordkeeping, including flight logs, will be required for UAS.
- UAS operators must manage their security, including physical access to equipment, security screening for personnel, and cybersecurity policies and processes.

VAI Preparing Industry Response

VAI is working diligently to review the NPRM and compile comments for submission to the FAA. In addition to Harrison and other staff, the association is leveraging the input of its industry advisory councils (IACs) for members. These councils, organized around industry sectors, such as tour operators, or industry issues, such as workforce development, enable members to communicate and collaborate directly with VAI staff. The VAI UAS Industry Advisory Council has established six working groups, each focused on a different aspect of Part 108. These working groups, in coordination with other affected IACs, will be instrumental in developing the association's unified, safety-focused response.

Harrison encourages all VAI members to submit their own individual comments on the rule as well. "This regulation is an important moment for the US vertical aviation industry, and I encourage everyone who will be affected by it to review it and use their voice. That's precisely what the public comment period is for," she says.

"I'm just glad that the NPRM is out and we can see it, really dig into it, and understand it," Harrison says. "In not having a rule, I think we were getting to a dangerous place for a lot of these UAS operators who were depending on being profitable businesses at some point. We were getting close to seeing a lot of them having to shutter because they didn't have a framework that they could operate under in any kind of meaningful or scalable way."

For Roesler, the complexity of the proposed rule makes sense. "This aligns with right-sized expectations that help ensure the safety of the NAS," she says. "It's more akin [to the existing FAA rules governing] commercial operations, and for the privileges these operators get, more should be expected of them. While it might seem daunting and a big jump from the requirements of Part 107, I really do feel that it is right-sized from a traditional aviation perspective."

Mark Huber *is an aviation journalist with more than two decades of experience in the vertical flight industry.*

François Lassale Joins VAI

By Gina Kvitkovich

New president and CEO brings diverse, global experience.

ON AUG. 18, 2025, THE VAI BOARD of Directors announced the results of their global talent search: aviation executive François Lassale would be the association's next president and CEO. François succeeds James Viola, who left in March to head the General Aviation Manufacturers Association.

"The Board of Directors is excited to bring François Lassale on board at this critical phase in our industry's evolution," says Rick Kenin, the 2025–26 board chairman. "François has deep experience in operations, safety, and advocacy around the world. He's also a proven leader who thinks strategically about the future of vertical aviation and acts collaboratively with partners to create that future."

Emphasizing the *I* in VAI

François is the first non–US citizen to lead the association staff in its 76-year history. In fact, a quick run through his bio brings up more countries than some people can find on a map.

François was born in Zimbabwe to a French father and a South African mother of Dutch descent. Having emigrated to the United Kingdom (UK) in his early 20s, he speaks English with a British accent, as well as French and Afrikaans, an official language of South Africa. He's served in the South African Defence Force (SADF) and the UK's Royal Air Force (RAF). His experience in aviation operations and management covers the globe, including Southeast Asia and Oceania, where he most recently managed three aviation companies in Australia, Indonesia, and Papua New Guinea.

Many see François's selection as another step in the association's maturation into a truly international organization. "Our industry is quite diverse, and my operational experience reflects that," says François. "I've worked with operators that fly twin-engine, two-pilot, complex IFR operations offshore, as well as in places where pilots are paid in lumps of gold or pigs. Conducting safe, profitable, and sustainable operations is a challenge for all of us—and that's where an organization like VAI, which connects all of vertical aviation, can help."

In his previous role as CEO of SGi Group in Indonesia, François had signed on with advanced air mobility manufacturer Vela to be an early adopter of their aircraft, and he thinks it's essential that the industry embrace its diverse sectors. "VAI's rebrand in 2024—that really started the conversation about a unified industry. Now we have to operationalize that viewpoint. To me, it's not about old tech versus new—it's about the tested technology of the helicopter and the promising technology that's coming to the flight line. But as the FAA's recent proposed rules for drone flights demonstrate, we all share the same low-altitude airspace. We deal with the same challenges: regulations, community compatibility, safety, and so on.

"The media will ask, 'Which one is better?' as though there's one answer for that, when it's really about choosing the right tool for the job. You may as well ask which is better, a spoon or a knife, when it depends on what you're trying to accomplish," he says. "The critical point that keeps getting lost is that we will have more tools at our disposal, providing us with ways to operate more efficiently and effectively—and therefore more economically."

It was during François's service as an infantry officer that he saw the appeal of being a helicopter pilot.

A Passion for Flight

It was during his time in the SADF that François realized he wanted to fly. "I was always flown into combat in the back of a helicopter, flying across the treetops with my feet dangling out the door, thinking, *This is so cool.* As I was dropped off to get into a firefight, I looked back at the pilot, who was waving goodbye as he was going back for a cold beer. And it was at that moment I had an epiphany: I want to be that guy."

After leaving the SADF and moving to the UK, François joined the RAF and became a pilot. "Even though I wanted to fly helicopters from the outset, my initial training was learning to fly

fixed-wing. But eventually I asked enough times that they found a rotary slot for me—and I took to it like a duck to water."

François served as a VIP captain, flying various members of the British royal family. He was also a UK Special Forces training captain and a flight safety officer. That may seem like an odd mix of duties, but these roles shared the same demands: meticulous planning, rigorous training, and an approach that left nothing to chance.

However, François's military roles, in particular, meant months away from his young family—he had married a woman from Northern Ireland, Miranda, and they had two sons, Zachary and Noah. So François left the RAF to fly Boeing 757 jets for a British airline. Then he moved to the United Arab Emirates, where he first flew its royal family, ultimately becoming the director of safety and strategic development for that country's Presidential Flight, supporting its head of state and senior government officials.

François's next venture was his own: an aviation management company called Vortex (his RAF call sign). "It was predominantly transformational work," he says. "We would go into a dysfunctional organization and turn it around in 18 months, implementing finance and budgeting systems, human resources and recruiting programs, and so on. This included elevating their safety program to pass a Stage 1 IS-BAO audit, meaning the organization had implemented a functional safety management system. And then my job was to recruit someone to take my place and lead the organization forward.

"I did this for many operations, including in Uruguay, the Dominican Republic, Saudi Arabia, and the United States," says François. "It was a fantastic experience. I was coming in as the subject-matter expert, but I also learned so much about how things really work all over the world."

François (right) and two other RAF members show off their Westland Puma HC Mk 1. François's squadron commander sent him to safety school, saying he was a very good pilot who flew close to the envelope—making him the perfect person to talk to others about safety.

A Vision of Safety

François's service with the RAF had also ignited a passion for safety. "During the 10 years I flew helicopters in the military, I lost seven friends to accidents—these were close friends, not just guys in my unit or acquaintances. And each of those accidents was avoidable," he says. "To have to go and explain to their wife and kids why that person's not coming back—I never wanted to be in that position again, and nobody else should be, either."

In 2015, when offered the opportunity to work in a new organization focused on helicopter safety, François couldn't pass it up. He joined HeliOffshore, a fledging group aimed at improving safety across the helicopter industry sector supporting offshore energy production. Initially serving as its director of operations and later its COO and eventually interim CEO, François was integral in making HeliOffshore into an effective organization, now with more than 140 members, including VAI.

One of his proudest accomplishments at HeliOffshore was building a "big data" program that enabled data sharing across the offshore support sector. "We were able to collect about 80% of the relevant data from the global offshore sector. We used that anonymized data to identify hazards across the offshore sector and then create and distribute recommended practices that would manage or eliminate that risk," says François. "But just as important, we asked those operators, 'What are your challenges? What questions do you want the answer to?' And then we looked at the data and gave them the answers they were looking for. For these efforts to succeed, there's got to be something in it for the operator."

Data can be transformational in other ways, says François. "The data we collect can be used to drive change, especially in advocacy. EASA, for example, didn't have the quality of data that HeliOffshore did, so they would come to us for it. People listen when you can cite the numbers that prove your point."

François, shown here in a Flight Safety International simulator in Lafayette, Louisiana, has more than 6,500 flight hours and is an ATP-rated fixed-wing pilot. His other ratings include type rating instructor, type rating examiner, and crew resource management instructor.

An Inflection Point

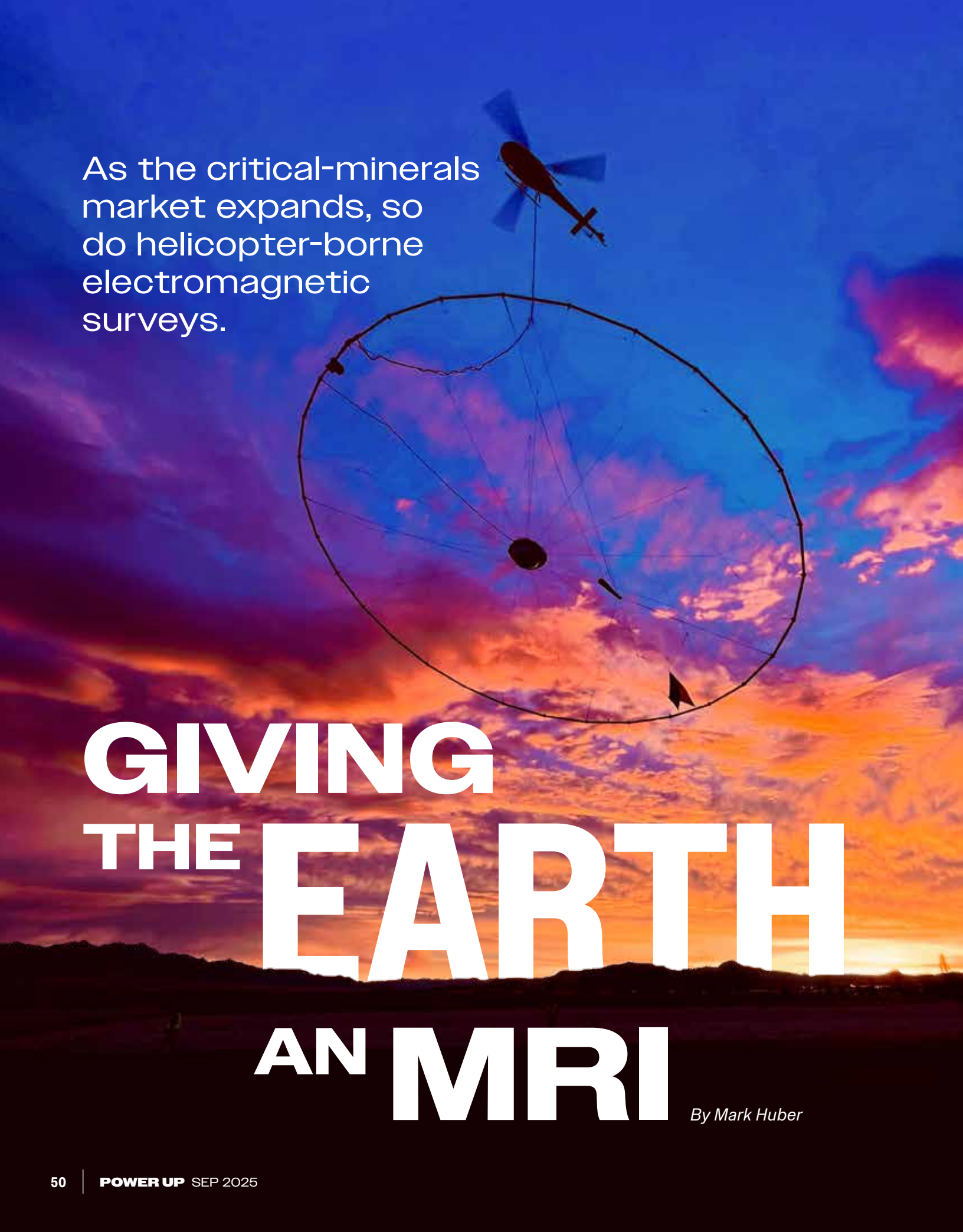
François will officially join the VAI staff later this fall, based at the association's Alexandria, Virginia, headquarters. He and Miranda look forward to being closer to their UK-based sons, but an even bigger draw is François's vision of a diverse, sustainable, resilient vertical aviation industry.

"What attracted me to this role—the biggest advocacy platform in the world for vertical flight—is to help change our industry for the better. To reach our goals for safety, prosperity, and influence, we have to work together," he says.

"In so many areas, we're at an inflection point, where significant changes are happening. That makes it a challenging time, but it also means it's a time of great opportunity to shape and build the future we want," says François. "Because if we don't, someone else will fill that gap with their vision."

Gina Kvitkovich *is VAI's senior director of communications.*

As the critical-minerals market expands, so do helicopter-borne electromagnetic surveys.



GIVING THE EARTH AN MRI

By Mark Huber

SLOW AND LOW, the 1998 Airbus AS350 B2 AStar longlined the giant, 70 ft.-by-100 ft. hexagonal frame a few feet above the treetops and over the lakes in remote Vilas County, Wisconsin. Local residents were both curious and bemused by the sight. The local Facebook page became a torrent of humorous speculation:

"It's a net to capture Bigfoot."

"Paul Bunyan ordered a Hula-Hoop."

"A new musky lure for catching the Big One."

"It's a big magnet to pick up the nails our roofer left behind."

Of course, it was none of these things.

The hexagonal frame, called "the bird," is a 1,300-lb. structure designed for airborne electromagnetic (AEM) surveys to provide imaging of subsurface electrical resistivity. According to the US Geological Survey (USGS), the technology is used to map groundwater resources worldwide.

This past summer, LiveWire Aviation, a helicopter company specializing in external-load operations, flew the AStar with the bird in tow to survey the geology underpinning parts of the Midcontinent Rift System in Michigan's Upper Peninsula and Northern Wisconsin.

The effort is part of a two-year airborne data collection project funded by the USGS's $320 million Earth Mapping Resources Initiative (Earth MRI), which will spend $51 million on contract helicopter services. The program is designed to update surface and subsurface mapping to identify critical minerals, including rare earth minerals, groundwater, and groundwater quality. "We're basically giving the earth an MRI," says Seth Amgott, USGS senior public affairs specialist.

First used in the 1950s, AEM measures variations in the ground's electrical conductivity due to geologic composition and water content. In AEM surveys, a helicopter flies the hexagonal frame approximately 100 ft. above ground level (agl) to perform the mapping. The bird, fitted with a forward boom and aft rudders (see photo, p. 52) for aerodynamic stability, as well as sensors and an electrical package, transmits benign low-frequency radio waves into the earth up to 1,500 ft. below ground level and then measures the response. Flights are conducted along a grid pattern, and the vast amount of data collected is used to create a subsurface model.

Helicopters flying geologic surveys employ two different, but complementary, technologies. A large frame (opposite) is used to conduct airborne electromagnetic (AEM) surveys, which measure subsurface electrical conductivity and the magnetic properties of the rocks below. The helicopter with the magnetic, red-and-white "stinger" (below) measures solely the naturally occurring variations in the earth's magnetic field. *(Opposite: Devon Watson/Xcalibur Smart Mapping Photo; below: Precision GeoSurveys Photo)*

The 1,300-lb. hexagonal frame used for AEM surveys is equipped with its own generator, electronics package, and sensors. *(Maxime Paquet/SkyTEM Photo)*

Not Your Everyday Longlining

Flying the bird presents a myriad of challenges, says LiveWire pilot Luke Baldwin, who began his career in Chicago, Illinois, as an A&P mechanic. The majority of Baldwin's longline experience entails hauling Bambi Buckets from AS350s on firefighting missions. He's relatively new to AEM surveying.

"It requires more focus" than firefighting, says Baldwin. "It's like constantly flying an ILS [instrument landing system] approach. But you're maintaining your own obstacle clearance, you're looking outside for the [ground] contour you have to match to keep the bird at the specific height required. If you have a stiff tailwind, you must be aware of settling with power and making sure you're carrying enough energy to get up where you need to be to maintain the specs. It takes some getting used to.

"It's pretty challenging," Baldwin continues. "You don't have time to get distracted; you're constantly on the beat. If you stop your scan or change your scan, you're already 30 m [98 ft.] off your [grid] line. To maintain that line, you're creating a sight picture looking outside the helicopter and merging it with the digital lines."

A proprietary display system installed in the helicopter assists the pilot with staying on those digital grid lines. Altitudes are typically around 200 ft. agl, and forward speed is a pokey 40 kt. That slow speed is great for data fidelity, bad for dodging the Upper Midwest's notorious pop-up summer thunderstorms.

"If you're in a normal machine, you can just rip around them," Baldwin says. But the slow speed carrying the bird limits mobility. If thunderstorms are forecast, "we don't even try" to fly, he adds. Aside from the safety factor, the bird's electronics "don't like lightning." And the sheer size of the frame restricts the helicopter's agility. "It definitely drags you around."

Baldwin typically flies two or three survey flights daily of 2 hours and 15 minutes to 2 hours and 45 minutes each. Every time he takes off and lands, a ground handler must assist in properly positioning the bird so it can be unhooked from the helicopter. The bird comes down tail first. Once it's on the ground, a sidestep maneuver is performed so that the independent generator and the data box are lowered next to the bird, not on top of it or inside it.

The hexagonal frame pieces are made of carbon fiber and fiberglass-composite materials and are fragile. Picking up the assembly is an involved process.

"It's not like normal longlining, where you get centered and pick up the load," says Baldwin. "It's a four-step pickup—four different sight pictures, four different lengths and angles as you pick it up. You don't want to be right in the middle of it. You have to learn how the ropes lay [there are 15 of them], because they're angled."

The hexagonal design is mainly for ease of assembly and disassembly, as the bird must be taken apart for long-range ground transport. It takes about two days to put it together and another day to calibrate the onboard instruments.

At day's end, the bird is left at a site near the grid area—sometimes that's an airport, sometimes not. But due to the frame's fragility, grass is the preferred parking surface. The helicopter is returned to a rented hangar in the area (but often farther away) that serves as a temporary operations base for several weeks at a time. In June of this year, that was the community hangar at Wisconsin's Eagle River Union Airport (KEGV).

Maintenance Challenges

Each LiveWire helicopter is dispatched with a pilot, a mechanic with a maintenance truck, and a ground handler who also drives the fuel truck. LiveWire is based in Homosassa, Florida, but its crew members fly in for their three-week shifts from far and wide.

Mechanic Macs Cantos lives on Maui, Hawaii. He's worked on helicopters since 1997 and has been with LiveWire for the past three and a half years. He says maintaining a helicopter flying AEM presents a variety of special challenges. "You're doing maintenance on the road in unfamiliar hangars and in unfamiliar towns. You need to look way ahead to make sure you have everything. You can do certain maintenance tasks in the field, but [LiveWire chief pilot and cofounder] Alan [Stack] is very pro-hangar. We want to do the job the best we can, and being in a hangar just makes sense, avoiding winter weather and summer winds and rains."

Cantos knows how many hours the helicopter is going to fly under the contract, and he forecasts parts and supply needs, particularly when it comes to elastomerics—bearings, isolators, and dampers—and the aft end of the ship.

"You wear out things in the tail section because you're going a lot slower and the back end gets a lot of soot and carbon exhaust on it," Cantos says. "You've got to keep it clean and in good order."

It's no place for beginners.

Doing this type of maintenance is definitely for industry veterans. You must do a lot of problem-solving and figure out the resources around you, utilize the facility, utilize the town.

– Macs Cantos, LiveWire Aviation mechanic

"Doing this type of maintenance is definitely for industry veterans," Cantos adds. "You must do a lot of problem-solving and figure out the resources around you, utilize the facility, utilize the town. You could be in a town where there is nothing."

Which is why maintenance forecasting, as well as having a well-equipped maintenance truck, is essential. LiveWire keeps one truck parked next to the hangar in Eagle River during the crew's stay there and is in the process of building out a newer vehicle with "everything," Cantos says.

The AStar that Cantos is working on was LiveWire's first aircraft when Stack and CEO Alonda McCarty began company operations in 2022. The operator's fleet has since grown to six—three AStars and three MD 500 series, the latter used primarily for construction, utility work, and tree trimming.

Stack began flying in 2007, accumulating a wide variety of experience, including helicopter AEM surveying, tower construction, mining support, firefighting, and power-line maintenance and reconstruction. He and McCarty have grown

Survey helicopters typically travel with a pilot, a mechanic, a data specialist, and a ground handler/driver and are supported by fuel and maintenance trucks. *(Sander Geophysics Photo)*

the LiveWire team to 25 employees who are based from Alaska to Hawaii.

Stack looks for pilots and maintenance techs who have either high-time experience or other skills, such as pilots like Baldwin who are also A&P mechanics, and ground crew who are truck drivers with a commercial driver's license with hazmat endorsements—people who either have the proper experience and high times or are just coming up in the industry and are "already putting in their time."

All pilots must have at least 1,500 hours, and many of LiveWire's have 10,000 hours or more. Stack likes to hire mechanics with at least 20 years behind the wrench "on that specific airframe and who are detail oriented." But he's also interested in promoting new talent.

Stack encourages his ground workers to "move up" through an in-house A&P maintenance apprenticeship program in which the company's existing mechanics participate. In many ways, ground-crew members are the glue that keeps LiveWire's operations on track, Stack says. "These guys are fantastic. They have a lot of responsibility. They're responsible for the trucks and trailers, keeping everything clean and fueled. They're the first up in the morning and the last to leave at night."

Besides in-house advancement, LiveWire attempts to "compensate people well and give them a good work–life balance," Stack adds. All employees have commuting and lodging costs covered and receive a per diem.

A Special Kind of Work

Stack says the key to flying AEM well is "delivering good data to the customer" by hitting the correct altitudes, speeds, and grid headings and not damaging the fragile bird while "flying a computer system." Obstacles also need to be avoided—trees, cell phone towers, and power lines—as well as rising terrain. He thinks the AStar, with its smooth, three-bladed main-rotor system, is the platform of choice, as the bird doesn't like vibration.

While the Wisconsin/Michigan flights were taking place, Stack was personally flying another AEM survey in Kansas. He keeps track of his far-flung operations with a cell phone, maintenance tracking software, and Spidertracks flight tracking. The pilots will also text either Stack or another manager when they're taking off. The company's safety officer, a former US Army National Guard aviator, wrote the company's safety management system program.

Maxime "Max" Paquet has known Stack for years and is the field manager for the Wisconsin/Michigan survey's prime contractor, Hollywood, Florida–based NV5 Global and the company that owns the bird, Denmark-based SkyTEM. NV5's role is to process, interpolate, and transmit the data from the bird to the USGS. But first, the data goes to SkyTEM's geophysicists for a quality-control check, packaging, and a final report when flying is completed.

Although its market is global and scattered, the world of helicopter-borne transient electromagnetic (TEM) surveying is a comparatively small and specialized community wherein contractor team members for large projects such as Earth MRI know each other well through past associations.

"There's not a lot of players in airborne geophysics," Paquet notes. "This is a very specific type of flying, and we prefer to go with someone who has experience, who's done it right—pilots we know. It's a very special kind of longlining."

Paquet's job is to monitor the bird and the 20 to 40 daily gigabytes of data from it and, should the need arise, troubleshoot any problems associated with the bird and its navigation system aboard the aircraft. If required, he can reach the pilot in flight via cell phone or radio.

Paquet and LiveWire's ground handler typically dispatch by truck to where the bird is positioned an hour before the helicopter takes off. Via live monitoring of the data, Paquet can tell how the pilot is doing, especially late in the day. "After two flights, it's usually enough. If the pilot is doing a third flight and isn't used to it, sometimes the data is sloppier."

But there is data. The larger problem, and the impetus of Earth MRI, was the comparative lack of data versus the rest of the industrial world, according to USGS geophysicist Dylan Connell. Connell thinks the program is the largest of its type undertaken by the USGS in at least 50 years, maybe ever. "I don't think a campaign to collect data on this scale has ever been done before," he says. "It's really huge. It's a once-in-a-lifetime program. This sort of data is really important."

Connell says data from the survey will be released to the public "about a year or so" after the survey is completed. "These datasets are routinely used in industry exploration. They're the initial greenfields data companies start with to get their exploration programs going."

One of the things Earth MRI is expected to reveal: whether rare earth minerals can be economically reclaimed from mine waste left behind more than 100 years ago in places such as Michigan's Upper Peninsula and Colorado. The USGS also will use it to update the agency's mapping.

But Earth MRI and TEM in general are doing more than positioning the United States to compete in the rare earth–minerals market: they will assist in protecting the world's aquifers, as well. Paquet notes that his company has participated in projects that evaluate freshwater purity and contamination around islands, oil fields, nuclear power plants, and agricultural tracts. "Just about everything you do requires you to use water," he says.

For helicopter operators adept at "flying the bird," Earth MRI is a lucrative opportunity. Connell says several operators have purchased new aircraft to support it, including one, flying a survey in Colorado, who purchased a new Airbus H125.

On this balmy Eagle River afternoon, the forecast is for rain. Inside the hangar, Baldwin and Cantos are finishing up a 150-hour inspection on the AStar. Baldwin thinks maybe he can squeeze in some horseback riding if they don't fly tomorrow. Dinner likely will be at one of the local supper clubs, where at least one of the patrons will be talking about "Paul Bunyan's Hula-Hoop." ■

Mark Huber *is an aviation journalist with more than two decades of experience in the vertical flight industry.*

Too Much Too Fast

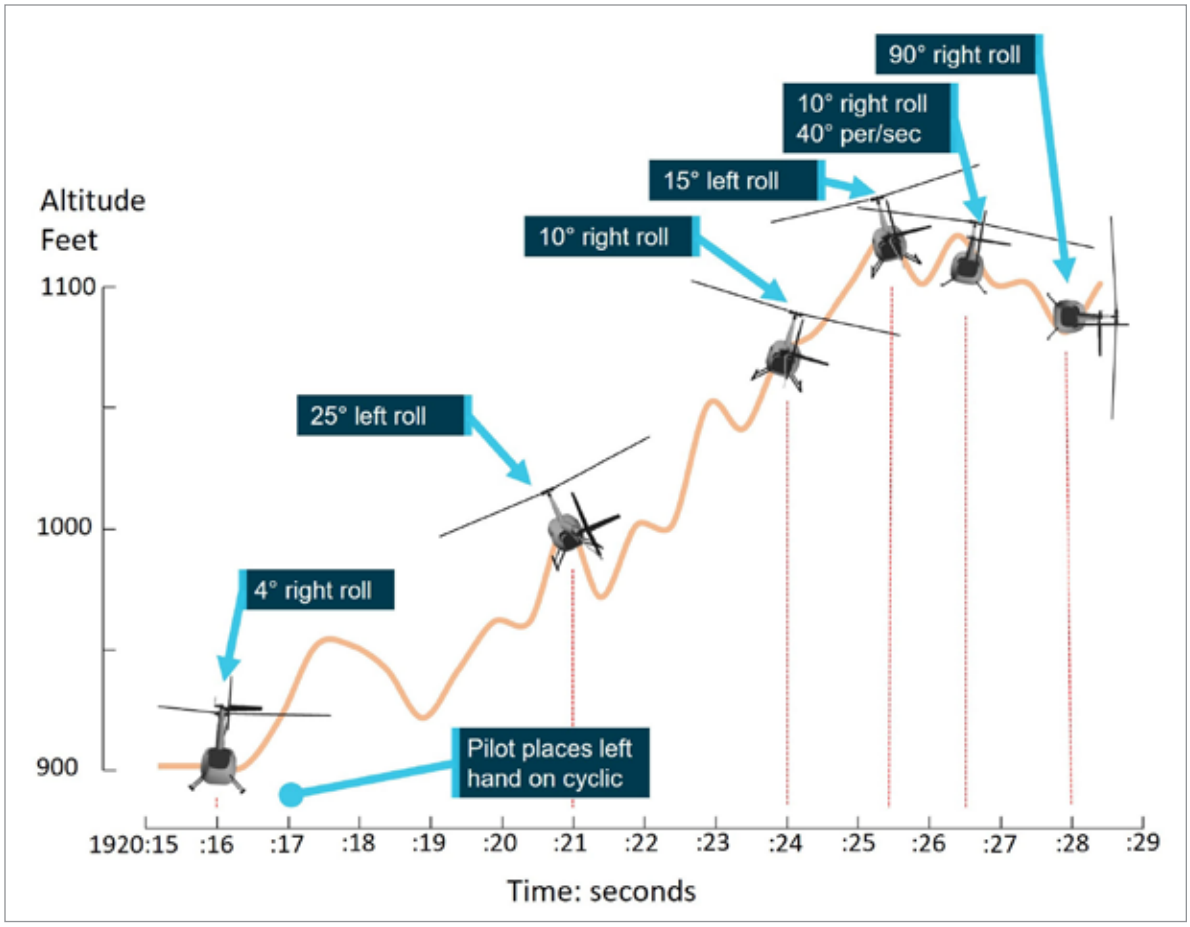
Excessive airspeed, pilot response induce a fatal mast bumping.

By David Jack Kenny

THE EXTREME DANGER MAST BUMPING poses to helicopters with semirigid main-rotor systems has been understood for decades, almost as long as the design has been in use. The US Army released a very thorough training film addressing this hazard—and the means of avoiding it—in 1980.

Briefly, a low-*g* condition that even partially unloads the main rotor produces an uncommanded rolling motion. If the pilot responds with opposite cyclic rather than using gentle aft cyclic to reload the rotor disc, the tilt of the unloaded rotor disc doesn't arrest the roll; instead, the rotor and fuselage move in opposite directions. When the tilt exceeds the system's design limits, the hub's teetering stops can strike the mast hard enough to fracture it, causing the rotor to detach in flight. Even if the mast holds together, the main-rotor blades can swing far enough out of track to strike the fuselage.

Abrupt "pushover" maneuvers using forward cyclic to lower the nose are the most typical pilot-induced cause of a low-*g* condition, but the aforementioned army film, the FAA's Rotorcraft Flying Handbook, and various manufacturer flight manuals all identify turbulence as another potential cause. Rapidly alternating up- and downdrafts can unload the rotor with little warning, and greater airspeed both increases the deflection of the main rotor and accelerates the rolling moment.



This graphic from the ATSB report shows the aircraft attitude and altitude during the last 14 seconds of the flight. The pilot's input of progressively increasing left cyclic increased the risk of an extreme teetering event.

A pilot caught by surprise may have precious little time to recover from the loss of rotor loading before losing control of the aircraft for good. A sobering example of the speed at which these conditions can escalate into catastrophe took place in the Australian state of New South Wales in October 2023.

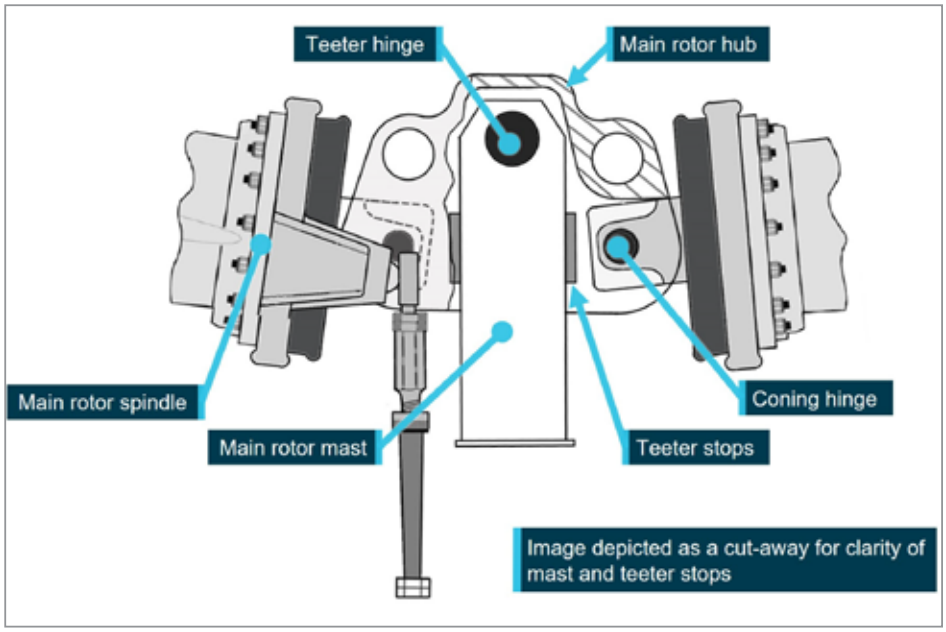
The Aircraft

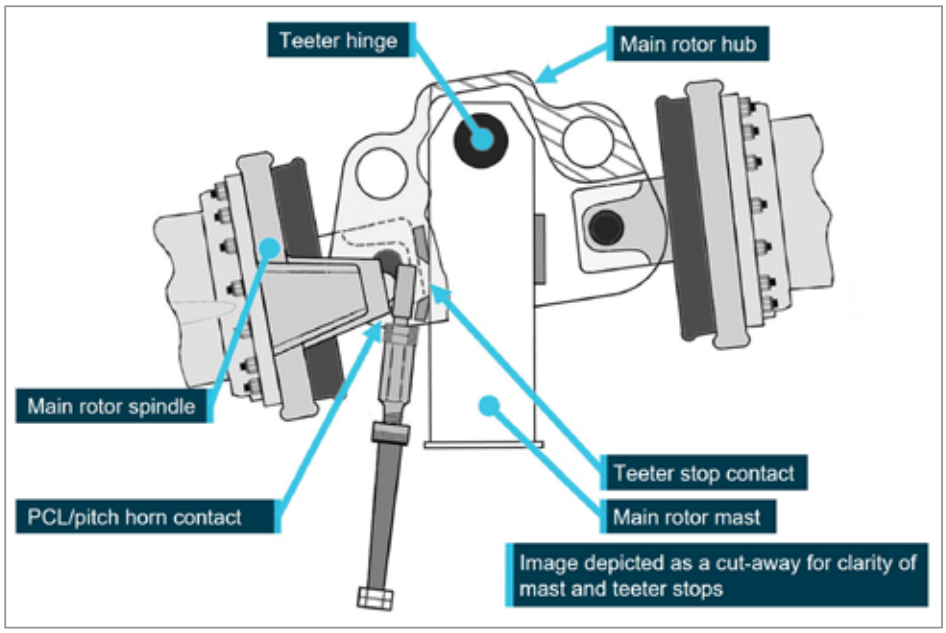
VH-KFT was a 2022 Robinson R66 registered in Australia in June of that year. A Rolls-Royce 250-C300/A1 turboshaft engine producing 300 shaft horsepower drove a two-blade semirigid main rotor and conventional tail rotor. The horizontal stabilizer was of Robinson's original asymmetric design, extending to the right of the tail boom as seen from behind.

The helicopter was equipped with a Genesys HeliSAS two-channel autopilot that used cyclic inputs to provide stability augmentation with up to five additional operational modes. Crucially for the eventual investigation, the aircraft was also equipped with a factory-installed forward-looking camera system mounted in the cockpit's ceiling that recorded visual images, intercom and radio tracks, GPS position, and three-axis accelerometer and gyroscopic data to both internal memory and a removable flash drive.

The helicopter received its first 100-hour inspection on Aug. 24, 2023, at a total time in service of 97.8 hours. When it took off on the morning of Oct. 26, it had flown about 117 hours since new.

The flight initially tracked east toward Newcastle at 500 to 1,000 ft. above ground level. The pilot transited Williamtown at 500 ft. on the coastal VFR route, maintaining an airspeed of 110 to 120 kt. approaching Yacaaba Headland. Shortly after, disaster struck. *(Google Earth, Geoscience Australia, ATSB Image)*





During normal flight, the R66's main rotor teeters freely via the teeter hinge, with teeter stops limiting the degree of tilt (top). When extreme teetering occurs, clearance between the main-rotor blade spindle and the main-rotor mast is lost, resulting in the blade spindle bumping into the mast (bottom). *(Robinson Helicopter Co., ATSB Images)*

The Pilot

The 54-year-old private pilot held a current Class 2 aviation medical certificate and "the required ratings and endorsements to operate the helicopter under the visual flight rules." His logbooks showed 1,097.6 hours of flight experience through Jun. 11, 2023. Additional aircraft running sheets and the total time on the Hobbs meter led investigators to estimate the pilot's total experience at 1,130.1 hours. This amount comprised 117.6 hours in the R66, a combined 1,007 hours in Robinson R22 and R44 models, and 5.5 hours in a Bell 206. He had flown VH-KFT for an estimated 14.6 hours during the preceding 30 days and was believed to have been the only person to have flown the aircraft since its arrival in Australia.

The pilot last logged into his National Aeronautical Information Processing System account on Oct. 24, two days before the accident, and while the investigation could not definitively rule out the possibility that he'd obtained updated weather data from other sources, they found no record of his having done so.

The Flight

Flying solo, the pilot took off from Cessnock Airport (YCNK) in New South Wales on Oct. 26 at 08:50 local time with a destination of Forster (Wallis Island) Airport (YFST), also in New South Wales.

The autopilot's stability augmentation, heading, and altitude hold modes were engaged throughout the flight.

The helicopter initially tracked east toward Newcastle, staying just below the cloud bases at altitudes between 500 and 1,000 ft. above ground level. As the pilot neared the coast, Williamtown air traffic control cleared him to transit its airspace at 500 ft. on the coastal VFR route. On reaching Anna Bay, he was cleared to continue on the coastal VFR route at or below 2,000 ft.

At Anna Bay, the pilot climbed to 900 ft., maintaining airspeed that fluctuated between 110 and 120 kt. as he approached Yacaaba Headland. "The pilot was occupied with nonflying-related tasks for much of this time," using his phone and eating breakfast, but did appear to monitor both the instrument

panel and his flight path. As it crossed the Yacaaba Headland, though, the helicopter began an initially gentle series of pitch-and-roll excursions that rapidly intensified. Within 20 seconds, it rolled past inverted, broke apart, and crashed into the waters of Providence Bay, killing the pilot and his dog. (According to the ATSB report, the dog was "located in the back seat of the aircraft, and was not observed interfering with the flight controls at any time.")

The Investigation

On Oct. 28, divers from the New South Wales Police Force located the helicopter's cabin and tail boom, which were recovered for examination. The cabin roof, windshield, and main-rotor hub and blades weren't initially located. (The main-rotor system did wash up on Apr. 30, 2025, but its components were too corroded by saltwater exposure to permit detailed examination.)

Fortuitously, the section of the cabin roof including the camera system washed up shortly after the accident and was found by a member of the public, who turned it over to Australian Transport Safety Bureau (ATSB) investigators. Usable data was recovered from both the system's 32 GB internal SD card and a 132 GB external SD card in an adapter connected to the system's USB port.

Damage to the rotor mast included bending, cross-sectional distortion, and impact marks below the fracture surface that "were all consistent with tensile overstress failure due to extreme teetering and mast bumping." The main-rotor blades had severed the tail boom and also struck the right side of the cabin. Imagery and accelerometry data retrieved from the camera system taken in conjunction with weather observations and forecasts allowed investigators to reconstruct the final moments of the flight.

Williamtown's terminal aerodrome forecast (TAF) called for winds from 170 degrees at 16 kt., nearly perpendicular to the steep face of the Yacaaba Headland. Atmospheric soundings suggested that the wind's speed increased to 25 to 30 kt. above 500 ft. without any change of direction. Strong winds striking a steep upslope predictably generate mountain-induced turbulence that can be severe, especially on the downwind side. In the case of isolated peaks such as the Yacaaba Headland, these may include mountain waves and both horizontal and vertical vortices. Footage from the onboard camera showed whitecaps on the southern side of the headland, while on the lee (northern) side, calmer waters were disturbed by cat's-paws indicating turbulent gusts.

At 09:20:10, the helicopter crossed the southern shoreline of the headland at an altitude of 900 ft. and 115 kt. indicated airspeed. The turbulence encounter began two seconds later. With his left hand on the cyclic crossbar, the pilot attempted to counter for an initial 4-degree roll, nose-down pitch, and climb. Airspeed increased to 120 kt.

Between 09:20:17 and 09:20:21, the aircraft rolled 25 degrees left with a left yaw, pitched up 10 degrees, and climbed to 1,000 ft. Indicated airspeed fluctuated between 120 and 135 kt. VH-KFT crossed the north shore of the headland and continued over Providence Bay between 09:20:21 and 09:20:26, rolling first 10 degrees right and then 15 degrees left while continuing to climb to 1,100 ft. The nose remained pitched up 6 degrees, while airspeed slowed to 110 kt. indicated.

A pilot may have little time to recover from the loss of rotor loading before losing control of the aircraft for good.

Finally, between 09:20:26 and 09:20:29, the helicopter rolled right, into a completely inverted attitude, and continued to roll to 270 degrees before breaking up and crashing into the bay. Vertical accelerometer data recovered from the camera system showed that during the final 12 seconds, *g*-loading varied between +2.0 and -0.6 *g*, with a sharp decrease coinciding with the final roll. The pilot also made forward cyclic inputs, the last possibly unintentional, and put in full left cyclic as the right roll passed through 45 degrees.

The ATSB's report noted that the R66 Pilot's Operating Handbook specifies a maximum airspeed of 60 to 70 kt. in "significant turbulence" (not defined) and cautions against "flying on the downwind side of hills, ridges, or tall buildings

where turbulence will most likely be severe." It also warns that susceptibility to turbulence increases when the helicopter is lightly loaded. Safety notices in the manual include urgent warnings of the extreme danger posed by low-*g* pushovers and recommendations to avoid "flying in high winds or turbulence," though the high-wind warning didn't specifically mention the risk of a low-*g* encounter caused by turbulence. The ATSB report also notes that the area of most severe turbulence was most likely localized to the immediate vicinity of the Yacaaba Headland, which is almost an island, connected to the mainland by a low isthmus.

The Aftermath

Robinson Helicopter Co. advised investigators that of the two forces contributing to right roll during low-*g* encounters, the unopposed thrust of the tail rotor is minor compared with the downward force produced by the asymmetric horizontal stabilizer. On Sep. 5, 2023, after obtaining FAA certification, Robinson announced the development of a symmetric stabilizer that both reduces and slows that rolling moment, providing pilots with more time in which to react. It is now standard equipment for all current production, retrofitted to aircraft returned for factory overhaul, and available for field installation.

On Jun. 30, 2025, in conjunction with publication of its final report, the ATSB released a YouTube video that uses both simulations and actual cockpit footage to detail the accident sequence and its causes. The video provides a concise but thorough explanation of mast bumping, explains the risks turbulence poses to helicopters with a teetering main rotor, and offers avoidance strategies. The accompanying press release, available on the ATSB's website, provides additional context and detail.

The final report also includes a compendium of six other in-flight breakups in Robinson helicopters between 2014 and 2023 that could be "confidently attributed" to low-*g* conditions in turbulence: one in Australia, two in the United States, and three

Mast Bumping: Train to Recognize and Avoid

Flight simulators and flight training devices can't fully deliver the true dynamic sensations of an in-flight mast-bumping event, even in simulators that replicate the environment and flight controls of the teetering-head aircraft that are most prone to mast bumping, says Nick Mayhew, aviation training expert and former industry cochair of the US Helicopter Safety Team.

However, Mayhew says pilots should use these devices to develop critical skills so they can call on them during an actual flight. His recommended areas of training for mast-bumping recognition and avoidance are below.

TRAIN TO AVOID

- **Understand the conditions** that can cause mast bumping, including low-*g* maneuvers such as improper pushover techniques, abrupt cyclic inputs, and turbulence recovery errors
- **Train for mast-bumping scenarios** by simulating situations such as turbulence penetration, quick-stop recoveries, or steep-turn mishandling so you learn to avoid low-*g* conditions in the first place
- **Develop cue awareness** by using visual and motion cues to map the relationship between control inputs and aircraft attitude before entering the danger zone.

LEARN CORRECT RECOVERY TECHNIQUES

- **Practice low-*g* recovery** in a zero-risk environment: reduce collective, apply gentle aft cyclic, then reapply load
- **Develop muscle memory** for appropriate control sequences in emergencies.

ACQUIRE COGNITIVE AND DECISION-MAKING SKILLS

- **Rehearse decision-making** under stress so you respond instinctively to cues rather than experimenting with controls in the air
- **Build the habit** of "flying the attitude, not the feel" in turbulence or distraction-heavy environments.

in New Zealand. In a seventh accident, which occurred in New Zealand in 2013, an R22 rolled through 360 degrees without breaking up, as the pilot was careful to try to keep the rotor disc perpendicular to the mast throughout. The main gearbox, driveshaft, and "a majority of the main-rotor head" were replaced after post-flight inspection "showed clear evidence of mast bumping."

The Takeaway

The procedure for recovering from an unloaded main rotor is counterintuitive and can't be safely practiced in the aircraft. In its Safety Notice SN-11, Robinson notes that "even highly experienced test pilots have been killed investigating the low-*g* flight condition."

The restriction to "knowledge-based" training makes recognition of the condition more difficult and therefore usually slower. The higher the airspeed, the more rapid and startling the uncommanded roll, and the greater the impediment that surprise and fear pose to recognizing the problem and recalling the correct response. Prevention is vastly preferable and depends on thorough awareness of all facets of the threat environment. See "Mast Bumping: Train to Recognize and Avoid" on p. 60 for tips on how to use simulators and flight training devices to recognize and prevent mast-bumping events.

Those of us who fly sometimes lose sight of the fact that no flight is entirely routine. Knowledge of weather, how it interacts with terrain, how that affects the aircraft, and how to manage that aircraft in response are all crucial to avoiding needless risks—risks that are sometimes easily averted. In this case, flying a course even half a mile farther west at a much lower airspeed might have been enough to prevent the emergency from arising in the first place.

David Jack Kenny *is a fixed-wing ATP with commercial privileges for helicopter.*

The Illusion of Safety in Aviation

When systems become merely symbols, they cease to perform as intended.

By Kodey Bogart

IN THE HIGH-STAKES WORLD OF AVIATION, safety isn't just a priority—it's the bedrock upon which every flight, operation, and decision is built.

Over the past two decades, the vertical aviation industry has made significant strides in implementing proactive safety measures, most notably through the adoption of safety management systems (SMS). These systems are designed to identify hazards, manage operational risk, analyze data, and

create a culture in which continuous improvement and accountability are embedded into the organization's DNA.

Despite these advancements, however, a worrisome and somewhat paradoxical trend has emerged: a reliance on the illusion of safety.

Defining the Illusion of Safety

The illusion of safety is the condition in which safety structures, documentation, and processes exist primarily for the sake of appearances—checked boxes, passed audits, or regulatory compliance—rather than as functional, effective

True safety is lived, not laminated. Commit to closing the gap between what's written and what's real.

mechanisms that drive safer decision-making and behavior. It's the gap between the presence of safety tools and the actual use or integration of those tools in the real-world workflow.

This illusion occurs when:

- Policies and procedures are written but not followed or understood
- Safety training is conducted to meet minimum standards, but the lessons aren't internalized
- Hazard reports are submitted but never addressed or resolved
- Safety manuals, such as SMS documentation, exist as symbolic artifacts—sitting on a shelf—rather than as living, breathing components of the organization.

While these elements may satisfy external auditors or regulatory bodies, they don't necessarily translate into safer operations. In fact, they can foster a dangerous sense of complacency. When team members and leadership believe safety is being "handled" simply because systems are in place, they may overlook latent hazards, ignore cultural red flags, and assume a level of risk control that doesn't actually exist.

Why Illusion Is on the Rise

Several factors contribute to the growing prevalence of the illusion of safety in aviation.

Regulatory pressure and compliance culture. As regulatory bodies such as the FAA, the European Union Aviation Safety Agency, and others mandate the adoption of SMS, organizations often rush to develop the necessary documentation and procedures to achieve compliance. However, in the pressure to "check the box" and pass audits, some organizations focus more on documentation than on real implementation. In these cases, safety becomes performative—a demonstration of compliance rather than a true organizational value.

Organizational bureaucracy and complexity. Larger organizations, in particular, may develop intricate layers of safety documentation, risk matrices, checklists, and reporting tools. While these are intended to enhance oversight, they can inadvertently overburden personnel and obscure the core purpose of safety processes. In practice, employees may become disengaged or overwhelmed, leading to minimal compliance and lost effectiveness.

Lack of integration across departments. In many organizations, the safety department operates in a silo, separated from operations, maintenance, or executive leadership. When safety isn't integrated into day-to-day activities and strategic planning, it becomes an add-on rather than a cornerstone of organizational function. This disconnect reinforces the illusion that safety is being managed when, in fact, it's marginalized.

Superficial safety culture. Culture can't be mandated; it must be cultivated. A safety culture that rewards transparency, learning, and accountability is vital for SMS to thrive. But when the organizational culture is punitive, hierarchical,

or dismissive of concerns, safety systems falter. Employees may refrain from reporting hazards or errors for fear of reprisal, and managers may gloss over issues to maintain the appearance of operational success.

Misplaced faith in technology and data. With the rise of safety management software, data dashboards, and automated monitoring systems, there's a temptation to assume that technology will solve human problems. While digital tools can enhance visibility or tracking, they don't replace critical thinking, communication, or leadership. A perfectly calibrated SMS dashboard may look impressive, but if the underlying behaviors and attitudes don't support genuine risk management, the data is meaningless.

Erosion of institutional knowledge. In an industry experiencing rapid growth, high retirement rates, and workforce turnover, institutional knowledge is at risk. New managers or safety personnel may inherit robust-looking systems without fully understanding their origins, intentions, or limitations. This knowledge gap can result in the maintenance of safety practices in name only, while their practical utility fades.

The Dangers of Superficial Safety

Superficial safety measures can have dire consequences. The *Challenger* space shuttle disaster in 1986 serves as a poignant example. Despite known issues with the spacecraft's O-ring seals, the normalization of deviance led to repeated acceptance of flawed components, culminating in tragedy. This case illustrates how systemic complacency and the facade of safety can obscure critical risks.

In aviation, similar patterns can emerge when safety protocols are not actively engaged. For instance, if incident reports are filed but not analyzed, or if safety meetings occur without actionable outcomes, the organization may believe it's maintaining safety standards while vulnerabilities persist.

Bridging the Gap: From Illusion to Reality

To counteract the illusion of safety, organizations must:

- **Integrate SMS into daily operations:** Ensure that safety protocols aren't isolated documents but are actively applied and referenced in routine activities.
- **Foster a safety-first culture:** Encourage open communication about safety concerns, and empower all employees to take ownership of safety practices.
- **Regularly review and update safety measures:** Continuously assess the effectiveness of safety protocols and make necessary adjustments based on feedback and incident analysis.
- **Invest in training and education:** Provide ongoing training to keep safety knowledge current and relevant, ensuring that all staff understand and can implement safety procedures effectively.
- **Encourage transparent reporting:** Create an environment in which employees feel comfortable reporting safety issues without fear of reprisal, facilitating early detection and resolution of potential hazards.

Call to Action

It's time to move beyond the illusion. If you're in a position of influence—whether as a safety officer, maintenance supervisor, pilot, or executive—ask yourself: Is our SMS truly active or just administrative?

- Revisit your organization's SMS manual. Is it guiding daily decisions or collecting dust?
- Engage your teams in open conversations about safety. Are your frontline personnel empowered to speak up?
- Audit not just your documentation but your culture.

True safety is lived, not laminated. Let's commit to closing the gap between what's written and what's real. Because in aviation, the cost of illusion can be measured in lives.

Kodey Bogart *is CEO of Melbourne, Florida–based KB Aviation Solutions, where she provides consultation services in aviation safety management. She is a former US Army warrant officer and Black Hawk pilot.* Editor's note: This article originally appeared on the author's LinkedIn page and is reprinted here with permission. It has been lightly edited for space.

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In Instruments We Trust

Doubt them at your peril.

By Zac Noble

WHEN I WAS ATTENDING FLIGHT SCHOOL, one of the things our instructors stressed most was to trust our instruments. We were taught that essential lesson for pilots through classroom lecture and functional, seat-of-the-pants training in a chair designed to spin in a way that proved your body can deceive you.

Most pilots know our bodies can play tricks on us when we perceive we're spinning. The inner ear, which contains hair cells and fluid that detect head movement, feed information to the brain to help us maintain our balance and orientation. The brain doesn't immediately comprehend when we've slowed down or stopped spinning, however, leaving us convinced we're still moving.

It's at this point that trusting your instruments is crucial to keeping the greasy side pointed to the center of the earth. It's confidence in those instruments that will save the day—and perhaps your life.

Recalling lessons from my flight training days helped instill confidence that I could master driving the Charlotte Motor Speedway at 157 mph.

An Exercise in Confidence

The dictionary, in part, defines confidence as a belief in one's ability. I recently experienced a challenge to my confidence, and recalling my flight training from over 40 years ago helped me through it.

I had the privilege of taking a race car around the Charlotte Motor Speedway in North Carolina. As I drove, the spotter high above the track fed me information about track conditions and other cars. He gave me an rpm to maintain that had me turning laps at 157 mph, or approximately 34 seconds, on the 1.5-mile track. I was loving it and scared to death at the same time. Most

of us can only imagine the physics at play that keep these vehicles glued to the pavement.

I was struggling to keep the hammer down, but out of the clear blue sky I recalled my flight training, and I was confident my spotter wouldn't let me crash. He knew what the car and track could bear. At that point, I became one with the car and turned the fastest laps of the day, earning a spot in the 150-plus–mph club.

Be One with the Machine

Every year, numerous events lead to fatal aircraft accidents. But some of these events could be avoided if the pilot in command (PIC) would let go … and trust their instruments.

Every pilot certificated in the United States is trained in flying by instruments, even if it's the minimal amount required for obtaining a private pilot certificate: three hours of flight time solely referencing instruments. So we all have this foundational knowledge.

Once at the controls of the aircraft, the PIC should be one with the machine and understand what the aircraft is doing—and that requires properly interpreting the instruments. Falling for deceptive sensations from the inner ear often causes the pilot to mistrust their instruments and use incorrect control inputs or overcontrol the aircraft, sometimes causing an accident.

I wish I could count the times I've had to force myself to focus on the instruments, fighting the urge to believe what my body was telling me when I was buried deep in a cloud and being tossed around more than I'd like. When those instances occur, focus on what you know to be true and remember two things: the autopilot can never be the pilot in command, and you might be the only person onboard who can safely fly the machine and passengers to safety.

Finally, flying by instruments is a skill, which means it can be taught and you'll get better at it with practice. If you're rusty or have lost confidence in your ability to commit to your instruments, seek training with a professional and get your mojo back!

Fugae tutum!

Zac Noble *is VAI's director of flight operations and maintenance.*

Gian Franco Blower

Former HAI chairman played pivotal role in industry's global growth.

GIAN FRANCO BLOWER, A PROMINENT figure in the global rotorcraft community, died on Jun. 24, 2025. He was 82.

Blower, who in 1983–84 served as chairman of Helicopter Association International (HAI), now known as Vertical Aviation International (VAI), leaves a legacy spanning nearly six decades of leadership and service to the industry he loved and the association he helped shape.

Born in Italy, Blower possessed a passion for aviation and became a certificated pilot of both helicopters and fixed-wing aircraft in 1967. From the early days of his career flying Hughes 269As to pioneering the use of heavy-lift Erickson S-64 Air Cranes in Europe, his career was as expansive as it was impactful.

Soon after Blower began taking flying lessons for fixed-wing aircraft in the late 1960s, he joined a Cessna dealership, which was approached by Hughes Aircraft Co. to sell helicopters. In 1968, he cofounded the first commercial rotorcraft company in Italy, Elitos Helicopters Aérospatiale, and grew the organization into a successful business. The company started to do small jobs, recalls Blower's son Paolo. "My father never said no to anyone," he says. Elitos's first big contract was with Eni, an Italian oil company.

By the late 1970s, Blower had become active in Helicopter Association of America, where his legacy is perhaps most deeply felt. Elected to the Board of Directors in 1979, he rapidly rose to leadership roles, being elected senior VP in 1980 and president in 1981 (at the time, those titles were used for board officers). Under his leadership and vision, the association was renamed Helicopter Association International (HAI) in 1981, a change that reflected the organization's growing global footprint. Blower served as chairman of the renamed association in 1983.

Blower's business endeavors were no less influential. He served in senior

roles at United Technologies and Sikorsky Europe, interfacing with top officials across the aerospace, defense, and commercial sectors. In 1994, he founded Helitalia, which provided air ambulance, offshore, and cargo services. After selling the company to Bristow Helicopters in 1997, Blower launched G.C.I. Aviation Consulting, where he brokered one of the largest commercial helicopter lease agreements ever in Europe—bringing multiple firefighting S-64 Air Cranes to Italy through a groundbreaking contract with the Italian Civil Protection agency (Protezione Civile).

That endeavor laid the groundwork for Blower's most enduring operational legacy: European Air Crane, founded in 2005. Headquartered in Florence, Italy, the company remains Europe's only certificated operator of the S-64 Air Crane and serves as a critical asset for Italy's national firefighting service, Vigili del Fuoco.

Today, European Air Crane operates a six-aircraft fleet that tackles hundreds of wildfires annually across the continent's increasingly volatile climate zones. Blower's daughter, Anna Maria Blower, now leads the company.

A dedicated advocate for safety, innovation, and international cooperation in aviation, Blower also served on the boards of the European Helicopter Operators Committee and the Italian Helicopter Association.

"Everything with him was aviation related," remembers Anna. "No matter the conversation, it always reverted to talking about aviation."

Blower was a hands-on CEO, son Paolo recalls. "He loved to leave the office and spend time with pilots, mechanics, and logistics personnel and listen to their issues and contribute to solutions, often ending their talks over dinner or at the bar," Paolo says. "He just loved being around his people."

Blower's many accolades include the Lawrence D. Bell Memorial Award from HAI honoring a career marked by innovative leadership, operational excellence, and enduring contributions to helicopter aviation worldwide.

When Blower walked the floor at his last HAI HELI-EXPO show, he talked to everyone, Anna recalls. "My dad knew everybody. He knew their home. He knew their businesses," she says, recalling her father's remarkable memory. "Everybody was impressed and wanted to spend time with him because, no matter the business, he had ideas for them."

In an interview in the 2000s in which he reflected on his career, Blower conveyed no regrets about his professional journey. "I would choose the same path again—difficult, yes, but always rewarding," he said. "Aviation has been my life's joy and purpose."

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