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- Built under NADCAP, AS9100C and ISO9001 specs
- 40mph wind survivable, up to 100mph sprint speeds
- 5-year, 2000 hour warranty

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- 0-10,000 ft operation in -20F to +120F
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- Built under NADCAP, AS9100C and ISO9001 specs
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- 5-year, 2000 hour warranty

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An Update to a Story from the Winter 2016 Issue

The story below, “Retrofitting Crash-Resistant Fuel Systems,” originally ran on page 79 of the Winter 2016 issue of ROTOR. Unfortunately, there were two problems.

First, the issue went to press before some updates from the National Transportation Safety Board (NTSB) could be inserted into the article.

Second, when assembling the magazine, we inadvertently switched the order of the author’s first and last name in the byline. For those of you who don’t know, the first rule of journalism is to get the names right, so this mistake is a big one. The editor responsible for this has been reassigned to the stock room.

We are rerunning the article below, which has the most updated information from the NTSB. This version has the added benefit of spelling the author’s name right. The ROTOR editorial staff apologizes for the error.

Retrofitting Crash-Resistant Fuel Systems
By Chihoon Shin

The FAA established new standards for fuel-system crash resistance for newly certified rotorcraft in October 1994, but the standards did not apply to newly manufactured rotorcraft with type certificates approved prior to that date. Now, more than 20 years after the standards were put in place, most civilian helicopters do not meet the improved standards, and there are too many post-accident fires.

Of the more than 5,600 helicopters manufactured since October 1994, only about 15 percent meet the 1994 standards. The other 85 percent were exempted because their type certificates predated the establishment of the standards.

In July 2015, the National Transportation Safety Board (NTSB) called on the FAA to require all new rotorcraft to meet the 1994 standards, a recommendation the FAA agreed with. This is a step in the right direction, but there will still be too many helicopters operating without crash-resistant fuel systems (CRFS).

Retrofits, where available, can be the key to improving the crash resistance of these helicopters’ fuel systems. For example, in January 2014, the NTSB issued to the FAA a safety recommendation to require Robinson R44 owners and operators to comply with a Robinson Helicopter Company service bulletin to retrofit R44 helicopters with all-aluminum main and auxiliary fuel tanks.

The aircraft would be retrofitted with bladder-type tanks to improve the fuel system’s resistance to fuel leaks after an accident. The FAA declined the recommendation because it was not clear the R44 was more prone to post-accident fires than similar aircraft without a CRFS, although it would continue to monitor the data.

The FAA is now looking at ways to improve overall occupant protection on older rotorcraft. Meanwhile, I encourage those who have not explored improving their helicopters’ fuel system crash resistance to do so. It could save your life one day.

Chihoon “Chich” Shin is an aerospace engineer specializing in rotorcraft investigations with the NTSB.

When Safety’s at Stake

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Participants of the 2016 HFI Scholarship Fundraising Golf Tournament kicked off HAI HELI-EXPO 2016 with a day to remember — all while supporting a worthwhile cause. All monies raised went directly to the HFI Scholarship Fund.

A special thank-you goes to our sponsors and the companies that donated prizes for the after-play drawings. Without you and your willingness to support our industry, this tournament would not have been possible.

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About the cover: Bell Helicopter brought flying versions of its two newest helicopters, the 505 JetRanger X (pictured on cover) and the 525 Relentless, to HAI HELI-EXPO 2016, where they joined more than 50 other helicopters on display at Louisville’s Kentucky Exposition Center.

Features

Oil Prices Create Buyer’s Market for Used Aircraft ............................................................... 25
Medications: When Should They Keep You on the Ground? ........................................... 32
HEMS Operators Gain Critical Weather Tool ................................................................. 36
HAI HELI-EXPO 2016: Champions in Louisville ................................................................. 38
UAS at HAI HELI-EXPO ............................................................................................................. 42
HAI HELI-EXPO 2016 Photo Gallery ..................................................................................... 48
Industry Recommits to IHST Goal: Zero Accidents .............................................................. 56
HAI Salutes Excellence in Vertical Lift ..................................................................................... 58
Simply Safe: Why We Assess (and Mitigate) Flight Risks ................................................... 64
HFI Trailblazers: Roy Morgan, Helicopter Air Ambulance Pioneer ..................................... 71

Departments

Chairman’s Corner .................................................................................................................. 6
President’s Message .................................................................................................................. 8
Safety Outreach ....................................................................................................................... 10
Flight Operations and Technical Services ............................................................................. 12
Membership ............................................................................................................................ 15
Legislative Affairs ................................................................................................................... 18
Your Aviation Lawyer ............................................................................................................. 22
Market Trends .......................................................................................................................... 68
Calendar of Events .................................................................................................................. 74
Last Hover ................................................................................................................................ 75
HFI Update .................................................................................................................................. 76
Index of Advertisers .................................................................................................................. 79
The Last Word ............................................................................................................................ 80

ROTOR® magazine invites its readers to submit articles about the international helicopter community for publication. The publisher reserves the right of final approval based on subject matter and space availability. Letters to the editor are also welcome. For information about submissions, please contact Chris Dancy, director of communications and public relations, at 703-683-4646 or rotor@rotor.org.
In Praise of Persistence

I would like to share a story with you …

Twenty-seven years ago, I was ferrying a new helicopter from Texas to Oregon. My companion was its owner. During the flight, I asked him what the secret to his success was. He paused for a moment and then said just one word: “Persistence.”

My associate that day was Edward H. Cooley, CEO and chairman of Precision Castparts Corp. (PCC), based in Portland, Oregon. Then as now, PCC is the world’s leading manufacturer of jet engine castings, blades, and fans. Earlier this year, Warren Buffet’s Berkshire Hathaway purchased the company for $37 billion.

Ed was a quiet, humble man, much more of a listener than a talker. Managers who worked for him at PCC described his management style as “gentle persuasion.” Prior to his death, I got to know him as a customer, close friend, boss, and mentor.

Ed didn’t start out to manufacture aircraft components. Instead, he had a passion for helicopters.

After serving in World War II, Ed graduated from Harvard with an MBA, writing his final thesis on the future of the helicopter industry. In fact, he was present at the first meeting of the Helicopter Council in 1948, which later became HAI. As an engineer and new MBA, Ed looked for a job in the equally new helicopter industry, interviewing with Bell, Piasecki, and Kaman but to no avail.

Unable to land a job with a helicopter manufacturer, Ed accepted a position with Oregon Saw and Chain, which manufactured a revolutionary saw chain for the lumber industry — a far cry from helicopters. Ed later took over the casting division for the company and morphed it into what became Precision Castparts.

In the late 1980s, at 65 years old, Ed showed up at Hillsboro Helicopters to finally resume his lifelong interest in helicopters by getting his helicopter rating. I became his flight instructor and until months later when someone told me who he was, I had no clue that he was one of Oregon’s most prominent businessmen and philanthropists.

In 1991, Ed suggested that he and I should buy Hillsboro Helicopters. I thanked him but turned him down. My dream was to be a pilot, not a businessman.

Ed was persistent, though, and in September of 1992, he and I took over the company. In the late 1990s, my wife, Carol, and I purchased the company, now called Hillsboro Aviation, from the Cooleys.

Ed continued as one of the Hillsboro board members and never lost his interest in improving his flying skills and knowledge. He was still in the process of working toward his commercial and instrument helicopter ratings when he passed away on December 20, 2000, at 78 years old.

As I look back on my life and career and Ed’s influence on it, there are many key lessons that stand out. Among those is the importance of passing on your knowledge by mentoring and coaching the next generation. There is also the art of gentle persuasion — which I haven’t quite yet mastered — and of course being patient and persistent.

When we first met, like most pilots, my mind was set on building my flight time and moving on as quickly as possible. When Ed presented me with the offer to stay, work with him, and run the company, there were many reasons not to. The pay wasn’t great, and at the time, there were many more glamorous positions in the industry, flying bigger, sexier machines in exotic parts of the world.

In the end, I chose to settle down and to be patient, to focus on beginning a family and working every day to build a company, one employee and one brick at a time.

As I approach my fourth decade with Hillsboro, I reflect on all of the challenges that at times made me doubt my ability to navigate through them. I can’t tell you how many times I have heard Ed’s voice reminding me to persist, to pursue my goals even when it was difficult to do so.

My suggestion to the next generation is to be patient. Making another dollar an hour or flying a bigger, sexier aircraft is all very alluring. But don’t be too quick to jump from job to job.

Find a location that you love and an organization and people that you respect and hopefully love to be around. Work hard, be honest, and be persistent. The money will come later.

I was extraordinarily lucky to have known Ed. He was a great influence in my life, more so because of the way he lived and treated others than for any formal teaching — although he had a profound impact on me in that way as well.

During Ed’s final days, my last conversation with him began, “I want to share a story with you. The story is about a young guy who met this older man who became his mentor and friend and how that chance moment changed the younger man’s life.”

I hope each of you is lucky enough to meet your own Ed Cooley and if you do, to recognize that moment for what it is. In the meantime, be persistent …

Max Lyons is the current chairman of HAI’s Board of Directors and CEO of Hillsboro Aviation in Hillsboro, Oregon.
Thanks to All Participants in the 2016 HFI Online Silent Auction

Congratulations to all the bidders who did their part to help the rotorcraft industry and won some great prizes along the way.

A special thank-you goes to the people and organizations who donated items to HFI’s Online Silent Auction. Your generosity and support for our industry helped make this event a great success!

2016 Online Silent Auction Donors

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Visit helicopterfoundation.org for updates about the 2017 HFI Online Silent Auction
I n my travels, I hear one comment a lot: “I had no idea HAI did all that!” So I want to tell you about some — but certainly not all — of the ways HAI works for our members.

HAI advocates for:
- The safe integration of unmanned aircraft systems (UAS) into the airspace and developing UAS operations as a viable business opportunity for our members
- Simplifying the certification process for single-engine instrument flight rules (IFR) operations
- The continued renewal of FAA Exemption No. 60021, which allows pilots working for HAI member operators to remove and reinstall oxygen bottles in their aircraft
- Simplifying the Federal Aviation Regulations (FAR) Part 27 and Part 29 relating to aircraft certification
- Military-to-civilian transition workshops and career fairs for pilots and maintenance personnel
- Promotion of our industry as a viable, rewarding career choice
- The HAI Accreditation Program of Safety, which promotes flying to a higher standard
- The HAI Safety Outreach program, providing free national and international safety workshops
- The HAI and FAA cooperative research agreement for enhanced understanding of air traffic control (ATC) of helicopter operations
- Advocating for new heliports and protection of existing heliports
- The HAI Land & Live Program, which promotes greater use of precautionary landings
- The HAI Safety Awards for member operators, pilots, and maintenance personnel
- Development of a virtual helicopter museum by Helicopter Foundation International

HAI represents the interests of the helicopter industry on which HAI works for our members:
- FAA/Department of Transportation working groups for microlight UAS rules and UAS registration
- The FAA ADS-B Equip 2020 initiative to remove bureaucratic roadblocks to ADS-B equipage
- The newly formed FAA Airspace Management Advisory Committee, which will evaluate the impact of airspace revisions on airport operations and capacity, surrounding communities, and environment
- The Aviation Rulemaking Advisory Committee (ARAC) working groups for rotorcraft occupant protection, which seeks to enhance the postcrash safety of passengers by preventing fires and blunt-force trauma, and for rotorcraft bird strikes
- The FAA’s Rotorcraft Forum, which promotes regulatory reform to encourage the development and use of new safety products
- The International Civil Aviation Organization Task Force on Fatigue, Heliport Design Working Group, and Helicopter Sub-Group.

Time and again, our work on your behalf has paid off. Here are some issues that HAI actively opposes or has prevented from being implemented:
- Various initiatives to create new, or expand existing, restricted airspace
- Prohibition of single-engine helicopters over populated areas as well as for night and IFR operations
- Legislation to restrict flight-training benefits available to U.S. veterans
- Legislation to remove ATC from the FAA and place it under the control of a yet-to-be-formed private company that would be dominated by the airlines
- Establishment of restrictive routes and minimum altitudes for helicopters, and reduction or elimination of certain missions over populated areas, all predicated on unsubstantiated noise complaints
- A requirement that all U.S. helicopters comply with Stage 3 noise standards by December 31, 2024, or be retired from service
- Legislation that would have negated ongoing FAA rulemaking for crash-resistant fuel systems
- Legislation that would have exempted U.S. helicopter air ambulance operations from the Airline Deregulation Act, allowing individual states to set their own regulations and minimum requirements for that sector.

I hope this partial list helps you better understand what the dedicated HAI staff are doing to assist you, our members. By the way, don’t forget that HAI also produces HAI HELI-EXPO®, the world’s largest trade show dedicated to the international helicopter industry.

I would sincerely appreciate your thoughts regarding our current efforts. More importantly, if you have any additional issues or concerns that you would like HAI to address, please let me know at ttailrotor@aol.com.

That’s my story and I am sticking to it. Fly safe — fly neighborly.

Best Regards,

Matt Zucaro is president and CEO of HAI.
THANK YOU TO ALL SUPPORTERS OF THE HAI ROTOR SAFETY CHALLENGE

HAI would like to recognize our presenters and volunteers who helped make the 2016 HAI Rotor Safety Challenge a success. We particularly want to thank the more than 3,000 attendees who “took the Challenge” and made learning about safety a priority at HAI HELI-EXPO®.

We wish you all a safe year and look forward to providing new opportunities in safety education throughout the year and at HAI HELI-EXPO 2017 in Dallas!
Can you remember the most challenging heliport you ever operated from on a regular basis? Mine was a doozy — a flat spot jutting out over the intersection of two canyons.

There, the wind was always howling, creating an updraft and corresponding downdraft that were very difficult to predict. On two sides above the heliport were sheer stone faces that created a backdrop for the wind to swirl.

There were three windsocks within 50 feet of this heliport, and I never saw any two of them pointed in the same direction. Every approach was through a variety of updrafts, downdrafts, and vortices that tested my abilities as a pilot.

When pilots get together to talk about difficult landing zones, they assign them interesting, descriptive names, such as One-Way Canyon, the Escarpment, or the Rocks. The one I’m describing was carved out of the middle of a high-rise building in a downtown city center.

Conditions there may not be as difficult as in the “high, hot, and heavy” heliports in the mountains, but operating in the cityscape can be just as fatal for those who don’t respect the hazards.

Mountain flying is notoriously difficult, filled with tight spaces, rapidly changing wind patterns, and turbulence in unexpected places. Cities present the same difficulties and require some of the same skills as mountain flying. In fact, based on my years of experience flying in canyons of concrete, everyone who flies in the close proximity to tall buildings, bridges, and other large obstacles would benefit from taking a mountain flying course.

It is beyond the scope of this short column to go over everything in mountain flying that also applies to city flying, but I would like to focus on two important skills required for both environments: the ability to read the flow of air around and over obstacles, and the necessity of planning an escape route and knowing when to execute it.

First, let’s talk about airflow. When operating a helicopter to rooftop heliports and between large obstacles, the ability to predict the flow of air in the environment is critical to the safe operation of the aircraft. In light winds, that flow of air will be more predictable. However, you need to be able to visualize where the flow becomes disturbed and creates turbulence, vortices, and backdrafts. This is even more important in stronger winds.

In their booklet, Mountain Flying,¹ the Civil Aviation Authority of New Zealand states:

“It is useful to visualize the airflow as water. (Take an opportunity to study the behaviour of water in a fast-flowing shallow stream.) Think about how water would flow over the terrain; where it would accelerate through passes, divert along valley floors before being forced over a ridge, how it would pour over ridges, and how rapid of turbulent flow would occur where flows mix or tumble over obstructions. A fluid will flow around obstacles where possible and only spills over the top when excessive volume prevents all of it from going around.”

Spring has arrived in my part of the world, and that means that it is time for an important part of my annual pilot safety education: fly fishing! Try it, and you’ll learn a lot about turbulence, the flow of air around and over obstructions, and how the canyons between buildings create unexpected airflows.

Another valuable skill that city pilots can learn from their mountain brethren is the need to plan your escape in case things go wrong. As you get low and slow around your landing area, you may find yourself in a downdraft that exceeds the climbing ability of your helicopter or an unexpected tailwind that pushes you past the intended landing spot. Don’t go in there without an escape plan!

Again, there is some good advice to be found in Mountain Flying: Remember Murphy’s Law of mountain flying: when you need to turn back, it will be through sink, turbulence, and a tailwind — so make sure you have the space and height available to do it safely. Don’t rely on aircraft performance to get you out of trouble — good anticipation and good decisions are required.

If you routinely fly in the city, consider taking a mountain flying course to learn some important safety skills. R

Stan Rose is HAI’s director of safety outreach.

¹Mountain Flying. Visit http://bit.ly/NZ-GAP to read more of this and other booklets in the Good Aviation Practice series, published by the Civil Aviation Authority of New Zealand.
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A Different Kind of Recycling

Anyone who performs maintenance — from the do-it-yourselfer trying to fix a leaky sink to a certificated airframe and powerplant (A&P) mechanic with inspection authority trying to troubleshoot a fuel flow problem on the No. 2 engine of a multiengine aircraft — knows that the right tools and the right training make all the difference.

As a relatively small sector of the overall aviation industry, the helicopter industry faces a particular challenge when it comes to training and retaining up-and-coming aviation maintenance technicians (AMTs).

Unlike its structure for pilot certificates, the FAA does not differentiate between fixed-wing maintenance technicians and rotorcraft technicians: an A&P certificate holder can work on either type of aircraft. Our industry’s challenge is that most AMT schools are geared to the larger fixed-wing portion of the industry. Very few have rotorcraft equipment for their students to work on.

But here’s the thing: as far as the FAA is concerned, a turbine engine is a turbine engine, sheet metal and composite work is sheet metal and composite work, and avionics are avionics, regardless of the means of lift. So if we want to produce more helicopter-centric maintenance technicians, why not raise awareness of the helicopter industry by providing the schools with helicopters and helicopter components and parts to train on?

Bell Helicopter recently took a step in that direction. They have partnered with a local community college near their Ft. Worth, Texas, headquarters — and more recently, with the aviation program at a Ft. Worth high school — to help train a new generation of technicians. They have even donated a nonflying OH-58 helicopter to the high school. And Bell’s Canadian operation in Mirabel, Québec, recently donated 30,000 parts and other items from its production facility to Canada’s national aerotechnical school, L’École nationale d’aéronautique.

HAI and our sister organization, Helicopter Foundation International (HFI), are working to spread the idea among other helicopter businesses throughout the industry. Together, we are working with operators, OEMs, and maintenance technical schools to get helicopter-specific training aids into the hands of AMT students.

Already, our efforts are beginning to pay off. As I’m writing this, two engine manufacturers are wrapping up plans to donate training engines to a new aviation maintenance school being set up in Louisiana. In another case, a helicopter operator with a maintenance, repair, and overhaul facility is working with a school to provide an airframe along with two non-flight-worthy, ground-runnable engines to install in a maintenance training helicopter.

HFI Vice President Allison McKay and the HAI Operations Department are working together to develop a clearinghouse that will keep track of available helicopter equipment and make sure it gets to AMT schools. In some cases, that might involve connecting the equipment owner directly with the school. In others, it may involve a direct donation of equipment to HFI, a 501(c)(3) nonprofit foundation, which would then arrange for the equipment to be sent to a school. In each case, there may be tax benefits for the donor that would be worth exploring with your financial advisors.

If we want to expand the number of rotorcraft maintenance technicians, we first have to make A&P students aware of the helicopter industry as an option. Recycling timed-out life-limited parts and other training aids by sending them to schools is an excellent way to start.

If you would like to participate in this program — either as a donor or as an A&P school that is interested in expanding students’ exposure to helicopter aviation — contact Allison McKay at allison.mckay@rotor.org. 

Harold L. Summers is HAI’s director of flight operations and technical services.
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Be a Vertical Aviation Leader

Join Helicopter Association International Today at rotor.org/newmember
The 2016–17 HAI membership year will begin July 1, 2016. HAI began sending membership renewal notices in early May, so please watch your email inbox and send in your membership renewals early — and prior to June 30.

Now more than ever, your support is critical as HAI advocates on behalf of its 4,200 members on legislative and regulatory issues affecting your businesses and the entire vertical flight community. Hot topics in our industry include the threat of air traffic control privatization, user fees, operational issues, and airworthiness certification procedures that affect our members who provide maintenance, manufacture airframes, and produce or supply products and services to the industry. HAI’s voice is made stronger by the collective community of its members.

### Three-Year Membership Locks in Rate

On your renewal invoice this year, HAI provides a new option that will save you time and money: you can now renew your membership for three years at a time. By taking advantage of this option, you will lock in your membership rate through June 30, 2019, and avoid any rate increases during that time.

### HAI Offers UAS Membership

At this year’s HAI Membership Meeting & Breakfast, held in conjunction with HAI HELI-EXPO 2016 in Louisville, HAI members approved the creation of a new membership category for unmanned aircraft systems (UAS) operators, individuals, manufacturers, and others actively involved in support of the UAS industry. Drones are a fast-growing area of aviation, and their integration into manned airspace will affect all our members. More information about the HAI UAS membership is available at rotor.org/UASmember.

### Benefits of HAI Membership

Throughout the year, I use this column as an opportunity to remind readers of the many HAI member benefits. With the current membership year coming to an end, I’d like to take this opportunity to remind both current and prospective members about the benefits and services that are available through membership in HAI.

### Safety Resources

HAI offers programs, tools, resources, and education to advance hazard and risk assessment, improve operational decision making, and raise professional standards, including:

- The HAI Accreditation Program of Safety, which helps helicopter operators improve their safety cultures and fly to a higher standard. Plans are under way to expand the program to include mission-specific standards for UAS operations.
- The HAI Safety Awards, which recognize operators, pilots, and maintenance technicians who go the extra mile for safety, day in and day out.
- The Land & LIVE Program, which promotes the wider use of precautionary landings and educates pilots, operators, and first responders about the role of these landings in preventing accidents.
- Safety management system resources, which help everyone in aviation — from the C suite to the flight line to the dispatch office — treat safety as a process essential to a profitable and efficient aviation business.
- A free online flight risk assessment tool to help pilots and operators to make better go/no-go decisions.

### Engagement

As the producer of HAI HELI-EXPO®, the world’s largest helicopter trade show and exposition, HAI provides a place where the industry gathers to network and address common issues. Attendees take advantage of their annual trip to Expo to attend industry forums, FAA town hall meetings, technical working groups, as well as meetings of 15 HAI committees. This year, HAI established...
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- Military to Civilian Transition
- Professional Development Opportunities
- Access to Civilian Companies that Need You!

Join HAI Today as a Military Member for Only $45 at rotor.org/military

Regulatory and Technical Support
HAI staff — particularly the members of the government affairs and flight operations departments — have decades of experience in helping helicopter operations overcome regulatory and technical challenges, and HAI members can contact them directly for support. HAI also provides technical resources in noise abatement through our Fly Neighborly Program.

Another venue for technical information is the Manufacturer Technical Briefings at HAI HELI-EXPO. These briefings, along with several HAI Professional Education courses and a free course sponsored each year by the HAI Technical Committee, offer Expo attendees multiple opportunities to earn credit toward inspection authorization renewal.

Member Discounts
HAI members receive significant discounts on HAI HELI-EXPO registration, professional education courses, advertising in HAI media, aviation-related products and services through the HAI Partner Services Program, the helicopter flight instructor refresher course from the King Schools, Hertz rental cars, and more.

Delivering on Our Mission
HAI has a mission that is as critical today as it was at our founding in 1948: advocating for our members, providing them with services that directly benefit their operations, and advancing the international vertical flight community.

If you have questions or if we can be of assistance, please do not hesitate to contact me or any member of the HAI staff at 703-683-4646 or member@rotor.org.

Louise Martin is HAI’s director of membership.
FlightSafety, the global leader in training, offers Level D qualified simulators for twin- and single-engine helicopters. Designed to enhance the safety and proficiency of helicopter flight crews, our training recognizes that different missions require different skills. Our simulator-based training provides in-depth instruction, from basic operation to highly specialized maneuvers and recovery techniques that would be difficult to perform in a helicopter. FlightSafety’s extensive and growing range of helicopter training programs includes advanced-technology simulators that replicate an aircraft’s exact flight and performance characteristics.

Our VITAL 1100 visual system offers resolutions of more than 12 million pixels that, combined with our exclusive CrewView glass mirror displays, delivers unprecedented fidelity. And our knowledgeable, experienced instructors are simply the best in the business, dedicated to providing the highest quality professional aviation training. That’s why the majority of today’s aircraft manufacturers – including AgustaWestland, Airbus Helicopters, Bell Helicopter and Sikorsky – trust us to provide world-class training. Train with us and we’ll earn your trust, too.
General Aviation Dodges a Land Mine — or Did We?

Congress has roughly two months, until the current FAA extension expires on July 15, to work on a final FAA reauthorization bill, but the fight over air traffic control (ATC) privatization, backed by House Transportation and Infrastructure Committee Chairman Bill Shuster (R-Pa.), may not be over.

With roughly nine legislative weeks before summer recess begins on July 15, a good deal of work remains to be done. Sadly, the Senate is currently on track to work the fewest number of days in 60 years and in a typical week, they still come in on Monday evening and leave early Thursday afternoon. There has not been a single Friday vote this year.

FAA Reauthorization Passes Senate

Of note, the Senate did pass an FAA reauthorization bill containing a number of provisions that will be helpful to general aviation.

The bill does not strip the FAA of its air traffic control function and turn ATC over to an airline-dominated private organization, but instead retains the current funding mechanism of fuel and ticket excise taxes instead of the House bill’s user fee for commercial operators.

Contained in the Senate-passed bill is an amendment sponsored by Arizona Republican Sens. Jeff Flake and John McCain that would lead to the creation of an airspace management advisory committee. HAI President and CEO Matt Zuccaro worked closely with Flake’s office to ensure that the helicopter industry would be represented on the new advisory committee.

ATC Still in Play

A single senator can stop a bill in that chamber. However, it takes 218 members to stop legislation in the House, where Shuster has not thrown in the towel on moving ATC operations from the FAA to a nonprofit board. This was to be his signature legacy, and his lack of traction on this issue could be just a minor temporary delay for him.

It seems few, if any, senators support privatizing air traffic control. The upper chamber made clear its position in late April when Senate appropriators used the fiscal 2017 transportation funding bill to double down on their opposition to removing ATC from the FAA’s umbrella, warning of a “prolonged and contentious fight” if the idea moves forward.

Key lawmakers in the House don’t appear inclined to back Shuster on ATC privatization either. House Ways and Means Committee Chairman Kevin Brady (R-Tex.), whose committee is in charge of the FAA bill’s tax title, says he still hasn’t decided whether to back Shuster’s ATC plan. House appropriators remain cool to the idea as well.

While House Republicans are becoming increasingly nervous about the lack of consensus on ATC privatization killing the chances of an FAA bill this year, Shuster has increased his chances of success by securing a set-aside — a reserve fund — in the GOP leadership budget proposal that would finance the ATC transition to a private corporation.

Shuster has even boasted in recent weeks that a number of senators are coming around to his way of thinking, although he has not named them.

After narrowly winning his primary by 1,000 votes, Shuster’s bill appears to have even less momentum than when it passed his committee two months ago. Key lawmakers have said they are no closer to being convinced that his controversial plan is the way to go, while Shuster argues that numerous problems he’s outlined have not been addressed or fixed in any other piece of legislation.

Word to the Wise: Maintain vigilance. Shuster’s quest for ATC
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privatization could be regrouping to create a new, better marketing plan.

**Best-Case Scenario:** The House could bring up a bill minus the ATC language and pass a clean FAA extension as a vehicle to go to conference with the Senate with its own FAA reauthorization bill.

**Back to the Budget**

Lest you think the drama is over, let’s get back to the budget, the 2017 appropriations cycle, and the ATC placeholder Shuster put in the GOP budget proposal.

House Republicans continue to struggle to pass a budget, despite House Budget Committee approval of a fiscal 2017 budget resolution providing $1.07 trillion in discretionary spending for fiscal 2017 and proposing deep cuts to nondefense discretionary and entitlement programs.

The House GOP leadership is trying to entice conservative hardliners with promises to move a separate deficit reduction package that would slash at least $30 billion in mandatory spending — the same amount that was added to the budget under the deal inked last year by President Barack Obama and former House Speaker John Boehner.

The problem is the current election year cycle, and opposition by many House conservatives to the budget — even some who supported it in committee. Many of them have said they will oppose it on the House floor.

The Freedom Caucus, a group of roughly three dozen conservative House Republicans formed last year to hold a conservative line against House leadership, has thus far stymied a budget resolution in the House this year. The fiscally conservative group argues that the budget spends too much and that Congress cannot actually consider appropriations bills until there is a basic agreement about how much the government should spend. The group wants to delay action on the budget to force those hard decisions on the new Congress and the new president.

If lawmakers cannot get spending legislation out of both chambers and signed by the president, Congress could be forced to pass a continuing resolution to keep government agencies running at current levels past September 30, when government funding runs out.

**Back to the FAA Bill**

Fiscal year 2017 begins October 1, and Congress is just now starting to move on the annual appropriation bill process.

It will be a tall order for Congress to pass all 12 individual appropriations bills before the November election — but failure to do so will leave a huge mess for the next administration and Congress to clean up halfway into the new fiscal year.

The clock is running out. Under the 1974 Congressional Budget Act, the House was to have adopted a budget by April 15. Having missed that statutory deadline, under the 1974 law, Republicans cannot move appropriations bills on the floor until May 15.

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**It’s GA Survey Time!**

**COMPLETE YOUR 2015 SURVEY**

The FAA’s 38th annual General Aviation and Part 135 Activity Survey (GA Survey) is the only source of information on the size and makeup of the U.S. general aviation and Part 135 fleets, the number of hours flown, and the reasons people fly.

Survey data will be used to **determine funding for infrastructure** and service needs, **assess the impact of regulatory changes**, and **measure aviation safety** — so it’s important that you participate, even if you completed a survey last year, did not fly in 2015, or sold or damaged your aircraft.

To request a paper copy of the survey or if you have questions, email infoaviationsurvey@tetratech.com or call 1-800-826-1797.

The GA Survey is conducted by Tetra Tech, an independent research firm; all responses are confidential.
Last year at this time, Republicans adopted a budget that promised to balance the government’s books by cutting federal spending by more than $5 trillion. To no one’s surprise, they then ignored it, adding more than $700 billion to the debt and bringing an abrupt end to what had been a six-year string of declining deficits.

The biggest budget buster was a year-end tax agreement that made dozens of temporary tax cuts permanent. So is it any wonder that some are asking why bother to write a budget calling for even bigger spending cuts as GOP members’ unwillingness to follow their own budget last year has come back to haunt them?

**Kill the Lame-Duck Session?**

With the heated presidential campaign under way, the House Freedom Caucus’s latest target is the lame-duck legislative session after the November elections. Doing away with the postelection session would mean the House would be in session just 17 days for the rest of the year after July 15 and zero days after September 30.

Conservatives’ goal is to stop Congress from doing anything after the November elections because, they contend, Congress does some of its worst lawmaking once the public has voted. According to caucus board member Mick Mulvaney (R-S.C.), a lame-duck session is “a bunch of people who have already either quit, retired, or been fired by their constituents deciding they still want to vote on major stuff, and it’s the least accountable time for Congress.”

The Freedom Caucus doesn’t want to take the chance that the Senate would confirm a Supreme Court nominee or that Congress would ram through the expansive Trans-Pacific partnership trade deal or a big budget agreement that raises spending. It’s not clear yet how they would prevent the GOP leadership — particularly in the Senate — from holding a lame-duck session.

Ann Carroll is HAI’s vice president of government affairs.
Am I Insured? Part II: Who Is Covered

Insurance is a safety net. It keeps a single event from financially destroying an individual or business and provides compensation for people who are injured.

But most pilots, technicians, and operators do not inspect their insurance safety net until they already are lying in it, hoping it will hold. At that point, it is too late to fix any holes or make the net bigger or stronger.

This is the second of a multipart series aimed at helping you understand aviation insurance, so that you can make sure your safety net will protect you. In this installment of “Am I Insured?” we look at who is insured.

Are You on the Policy?
The heart of any insurance policy is the insurance agreement, which is a general statement of what the insurance company agrees to do.

For example, a typical commercial operator’s policy will include a statement that “ABC Insurance Company, in consideration of payment of the premium and in reliance upon statements in the Declarations and subject to the Limits of Liability, Exclusions, Conditions, and all other terms of the Policy, agrees to pay on behalf of the Insured …” This statement is then followed by separate sections for each type of coverage: liability, medical expenses, and physical damage.

Individual aircraft policies state the same idea in simpler terms: “We [the insurance company] will pay for bodily injury and property damage for which you are legally liable.” It is important to make sure you are part of that special group of people who are insured — that you meet the insurance policy’s definition of Insured or You.

Capitalized or bolded terms in insurance policies have specific definitions. The definition of Insured or You usually begins with the Named Insured listed on the Declaration page. For example, if the policy covers a single aircraft or a small number of aircraft, the Named Insured is usually the aircraft owner, either an individual or a company. If the policy covers a commercial operator, that operator will be the Named Insured.

Policies usually cover employees of the Named Insured if the employees are acting in the “course and scope of their employment” — that is, doing their job. Policies also usually cover people operating an aircraft with the permission of the Named Insured, but

If you are asked to operate someone else’s aircraft in any way, ask the owner to get you a Certificate of Insurance with a Waiver of Subrogation before you take the controls.

Certificate of Insurance with Waiver of Subrogation
By now, if you are wondering how you can ever make sure you are covered, your concern is valid. But there is a solution, at least to the first step of being a Named Insured. Make sure you are listed by name on the policy or get a Certificate of Insurance with a Waiver of Subrogation.

The Certificate makes the pilot an Additional Insured, with generally the same insurance coverage as the Named Insured on the policy. And the Waiver of Subrogation prevents the insurance company from suing the pilot for any kind of loss.

It is routine for the same insurance broker who sold the insurance policy to provide the Certificate and Waiver, which is a one-page certificate that the broker should be able to provide at no charge.

Protection for Non-Employee Pilots
There are several situations that make coverage even more confusing, such as when you fly someone else’s aircraft for training, a maintenance check flight, a ferry flight, a demo flight, or as part of a contract flying job. Two frequent and valid questions come up:

■ Is a pilot flying someone else’s aircraft insured if something happens? In other words, if you are flying someone else’s helicopter and it becomes damaged, does their insurance cover it?
■ If you are flying someone else’s helicopter and it sustains damage, can the owner of that aircraft or the company insuring that aircraft come after you?
Again, a Certificate of Insurance with a Waiver of Subrogation is the answer. It both provides insurance coverage for pilots and prevents them from being sued for losses. If you are asked to deliver someone else’s aircraft, test-fly an aircraft, or operate someone else’s aircraft in any way, ask the owner to get you a Certificate of Insurance with a Waiver of Subrogation before you take the controls.

**Being Insured Is Step 1**

Being on the policy — meeting the definition of *Named Insured* or *You* or having a Certificate of Insurance — is only the first step in constructing your safety net. Next, you need to make sure there is coverage. Studying the entire policy is essential to knowing what type of operations are actually covered.

*In the next issue of “Your Aviation Lawyer” in Rotor: Am I Insured? Part III. In a typical policy, there are at least five pages of Conditions and Exclusions for every page describing coverage. We’ll discuss sorting through the layers of conditions, exclusions, and exceptions to make sure you have coverage you think you have.*

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Jon Kettles, “Your Aviation Lawyer,” is an aerospace engineer and ex-military helicopter and fixed-wing pilot with fixed- and rotary-wing airline transport pilot and certificated flight instructor — instrument ratings who has been practicing aviation law for more than 20 years. Jon can be reached at jon@kettleslaw.com.
2016 HFI Scholarship Winners

In 2016, HFI awarded 19 scholarships to pilots, maintenance technicians, and safety students with outstanding records. Congratulations to these 2016 HFI Scholarship winners!

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**Commercial Helicopter Pilot Rating Scholarship**
- Arun Kumar Asokan
- Matthew Tyler Bettmeng
- Richard Schmick
- Even Heisum Valbjørn

**Maintenance Technician Certificate Scholarship**
- Robert Eugene McCaleb III
- Marcus Gregory Neil
- Emmett Morland Schmidt
- Kyle S. Swanson
- Levi Wentz
- Leonard Yarita

**Michelle North Scholarship for Safety**
- Autumn Marie Cabaniss

**Bill Sanderson Aviation Maintenance Technician Scholarship**
- Mark Edward Bittingerm
- Joshua Levi Knowlton
- Colin Edward Hibbert
- Jeffrey Thomas Bassler
- Michael David Higgs
- Craig Leland Palmer
- Michelle Helene Hovey
- Michael Eugene Roberts

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Helicopter Foundation International (HFI) offers scholarships to support those embarking on education programs to become helicopter pilots, maintenance technicians, and safety practitioners. HFI offers four different types of scholarships — up to 19 in all:

- The **Commercial Helicopter Pilot Rating Scholarship** is awarded to up to four pilots who have their private license and are in the process of attaining their commercial rating.
- The **Maintenance Technician Certificate Scholarship** is awarded to up to six students who are studying to become maintenance technicians.
- The **Michelle North Scholarship for Safety** is awarded to a pilot who has already attained his or her commercial rating and demonstrates an outstanding aptitude for safe flying and aviation best practices.
- The **Bill Sanderson Aviation Maintenance Technician Scholarship** is awarded to up to eight students in the maintenance technician field. Each winner will attend a course from a selection made available by helicopter airframe and engine manufacturers.

Beginning June 1, 2016, HFI will accept applications for next year’s Bill Sanderson Aviation Maintenance Technician Scholarship and Michelle North Scholarship for Safety. Beginning September 1, 2016, HFI will accept applications for next year’s Commercial Helicopter Rating Scholarship and Maintenance Technician Certificate Scholarships. Please encourage any deserving students to submit their applications at the website below. A scholarship review committee will select the winners, who will be notified prior to HAI HELI-EXPO 2017.

Apply for HFI scholarships at www.helicopterfoundation.org
Oil Prices Create Buyer’s Market for Used Aircraft

By Douglas Nelms

The state of the helicopter industry sector serving the oil and gas production (OGP) market can now be expressed in the simplest of terms — it’s terrible. The health of this sector is heavily influenced by one factor: the price of a barrel of crude oil, which at press time was $44.90.

But there is good news — it may not be terrible for long. At the recent HAI HELI-EXPO® in Louisville, Kentucky, several top OEM executives pointed out that the energy industry is, and always has been, cyclical.

“There could be sharp downturns, followed by sharp upturns,” says Sikorsky President Dan Schultz. The extreme example of that would be the report in January that Bond Helicopters Australia had grounded its fleet of four S-92s. A month later, just prior to HAI HELI-EXPO 2016, a Bond spokesperson said those S-92s were back in the air and “assigned to operations.”

Schultz also notes that the turnaround could be as early as this year or “as late as 2020.”

Unfortunately, there are also reports in the oil and gas industry that the downturn could go well into the next decade — with more and more drilling rigs being decommissioned.

The Root of the Problem
A March 10 forecast by the energy analyst firm Douglas-Westwood projected a 35 percent drop from previous forecasts in global deepwater capital expenditures between 2016 and 2020. A second Douglas-Westwood report, the North Sea Decommissioning
Market Forecast 2016–40, indicated that the United Kingdom alone could see the removal of 144 platforms over the 2019–26 time period.

The U.S. OGP sector is not exempt from the effects of this global slump in oil prices. Data from Baker Hughes, a company that tracks worldwide OGP rigs, shows that between February 2015 and February 2016, 50 percent of U.S. offshore drilling rigs were taken out of service (see figure 1). Across the U.S. OGP sector, drilling rigs declined by 61 percent. Global numbers for active drilling rigs also show a decline, although less severe.

While drilling rigs number in the hundreds worldwide, production platforms — the helicopter operators’ bread and butter — number in the thousands. However, those numbers are an ever-moving target as the price of oil bounces up and down and production requirements are raised or lowered. A better key indicator would be U.S. government data predicting oil and gas production to drop from 9.4 million barrels per day in 2015 to 8.7 million bpd this year and 8.2 million bpd in 2017.

Collateral Damage
This means, of course, that helicopter service to those rigs is being seriously affected — particularly for heavy twins such as the Sikorsky S-92 and Airbus Helicopters H225 (néé EC225). Occurring on a regular basis are reports of those aircraft being taken out of the oil and gas sector and either put into other sectors, returned to lessors, or simply parked.

Dana Fiatarone, Sikorsky VP, Commercial Systems and Services, notes that there is potential for sales of aircraft such as their S-92 and S-76D in the helicopter air ambulance and search-and-rescue markets, particularly in countries such as China and India, where there is a growing demand for more civil services.

Bell’s new President and CEO Mitch Snyder told press at HAI HELI-EXPO 2016 that the 525 Relentless, which had been aimed directly at the oil and gas market, should see “exceptional growth” in the corporate/VIP market, and that it will “also be great” for search and rescue. He made virtually no mention of the OGP market.

Hard Numbers
Despite potential in other sectors, things are not looking all that great for either initial deliveries or the resale market for civil rotorcraft. In the Teal Group’s recent Global Aircraft Market Outlook, the civil rotorcraft sector is the only one marked “red” for risk factors, according to Richard Aboulafia, VP, Analysis. The report showed a 9.4 percent drop in value of the fleet in 2015 compared to 2014, with another 6.3 percent drop forecast for 2016. The problem is a “slackening demand and industry overcapacity,” with too many new models aimed at the weak oil segment, Aboulafia says. On a good note for manufacturers, the report projects an 8 percent increase by value for military helicopters for 2016.

Charles Evans, Bell’s director of marketing and sales support, noted that the energy segment represented 8 percent of the entire installed fleet of worldwide turbine helicopters, or a little more than 2,000 aircraft. While the drop in oil prices, from more than $150 a barrel in 2008 to just less than $30 a barrel in early 2016, has had a “significant negative impact on the exploration plans of oil and gas companies,” he projects that over the next 10 years, the energy segment

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will account for 15 percent of future deliveries and 35 percent of revenues. Evans noted, however, that while several of the biggest helicopter operators in the OGP sector have canceled or postponed orders for helicopters, operators “are becoming leaner and demand more efficiency. … The impact of the drop in oil prices is less pronounced for the manufacturers and operators that are more diversified in their offerings and activities.”

Not surprisingly, he also notes that “the demand for advanced new-generation helicopters like the Bell 525 remains strong due to the unique mission capabilities offered by this class of aircraft.”

A Glutted Market
Perhaps the biggest impact of the OGP doldrums has been on the resale value of used helicopters being removed from that sector.

Aubrey Point, VP, Helicopter Market, for Monaco-based Avinco, a leading worldwide helicopter trading firm, notes that there has been a roughly 30 percent drop in the price of used helicopters coming out of the OGP sector.

Avinco primarily buys used helicopters, then resells them. And while it is buying out of the OGP sector, “we are not really selling back into it,” Point says. He also notes that while most medium to light helicopters are simply losing a percentage of their value, there is no value being placed on the larger, twin heavy-lift helicopters “because they are not selling at all.”

“There is just not enough demand to absorb all of the aircraft coming out of the market,” Point says. And while a lot will go elsewhere, such as to helicopter air ambulance, utility, or international aid, there is not enough demand for the heavy-lift aircraft.

“While the resale market as a whole is down, OGP helicopters have been hit the hardest,” says Sharon Desfor, publisher of The Official Helicopter Blue Book. This means there are “far more than demand can handle; too many to absorb,” she says. “So as the price of used OGP ships is lowered, every other helicopter on the market has to reduce its asking price — if not in its advertising, then in negotiations.”

The Official Helicopter Blue Book noted that year to year, 58 models had dropped in price. While Avinco’s Point cited an average 30 percent drop in value for helicopters coming out of the OGP sector, the oldest variants are being hit the hardest. According to the Blue Book, the Bell 230 has lost 80 percent of its value, followed by the Bell 222 losing 67 percent. The midrange would be the Airbus AS350 B3, with a 40 percent loss in value, to the Airbus AS365 N2 with a 30 percent loss.

Desfor added that the negative impact on used helicopter prices extends across all makes and models, although the value loss is most heavily concentrated in older variants, “or rather, those that have the largest number of subsequent variants in service.” For instance, if the current model is a C or D, such as the S-76,
the B is down in value and the A even more so. And with the S-92s and H225s reportedly only going back into the OGP market as sale-leasebacks or trade-ins, their value has dropped overall for the first time in history, down 4 to 5 percent in the last quarter (see figure 2).

Manufacturers’ Two-Edged Sword

One characteristic of helicopters — their longevity — is both a positive and a negative. Most older helicopters are still viable aircraft, often with lower direct operating costs than new helicopters entering the market.

But as more operators replace their older aircraft with the new next-generation helicopters, there’s no place for the older ones to go, dropping their price even further. The newer machines are now competing directly in price with a growing inventory of good used helicopters.

This in turn leads to a drop in deliveries by the leading OEMs. Sikorsky parent Lockheed reported that its 2015 deliveries were half of the previous year’s deliveries, with 2016 deliveries projected at 25 percent of 2015’s. Airbus announced a 17 percent drop in 2015 deliveries compared to 2014.

Many of those deliveries were based on contracts already signed, so they tended to replace older helicopters rather than augment existing fleets. The older helicopters are then being moved into the resale market, further bloating that market.

According to Desfor, while the inventory of used medium and light twin-turbine helicopters has remained steady, it is still overloaded. “Both classes suffer from a lack of interested buyer, mostly because there is limited or no secondary market for these aircraft. This is particularly true for the older, high-airframe-time aircraft.”

One category really being hit hard is the older heavy lifters. Marc Schechter, VP, Risk & Analysis, for Waypoint Leasing, says the S-61s “are already pretty much out of the industry,” as are the older AS332L1 and L2 Super Pumas.

Airbus Helicopters did actively promote its H215, the new glass-cockpit version of the Super Puma at HAI HELI-EXPO, calling it the new-technology version of the AS332, although it was promoted as a utility helicopter, without reference to the OGP sector.

The older Super Pumas “are washing out right now,” Schechter says. “For instance, Bristow had well over 20 Super Pumas of those types...
three years ago. Now they have a couple left. Otherwise, they are gone. “The oldest of those were near 30 years of age,” says Schechter. “But the youngest, the L2s, are only about 16 years old. But they’ve just gotten caught in this significant downturn. They are not the latest technology.”

He says that when a helicopter gets re-leased, the price is expected to drop. “And the rates have been in line or a little below where we thought they would be. And where they are below our expectations, we think that is a sign of the cyclical weakness that we are in. “This is primarily oil and gas,” says Schechter, “but also some in firefighting and general utilities.” However, for the firefighting market, those operators are getting lucky. There are a lot of AS350 B3s available now because of the weakness in extractive industries such as mining and oil, and the Blue Book shows a 10-year drop of 26 percent, or $200,000, for the AS350 B3/B3e.

Opportunity Still Exists
There is one bright spot in the Gulf of Mexico market. Although operators of medium- and heavy-twin helicopters are facing canceled contracts or contracts that won’t be renewed in the coming year, light single-engine aircraft continue to do well. “In the Gulf, the need for short-range offshore transportation and smaller aircraft to fly reduced [numbers of] personnel for rig maintenance has increased the demand for aircraft like the Bell 407 and Bell 206L-4s,” Desfor says.

As they say, one person's loss is another’s gain. Robert McCoy, president of Houston-based Westwind Helicopters, agrees that the current downturn in the Gulf has certainly had an economic impact on his business, “with the [platform] operators asking for reduced rates.”

However, McCoy went on to say, “There have been opportunities that have allowed us to pick up some operators who have come from the larger companies.” Westwind’s flight hours have remained fairly constant because of increased business from larger oil companies who now need the services of operators flying smaller ships.

Westwind initially operated 206B-3s, L-3s and L-4s, and 407s. A year and a half ago, McCoy added an S-76A, followed by another S-76A in early 2016. He preferred not to provide the price of the S-76A but the Blue Book notes that the average S-76A had dropped $300,000 in price — a 48 percent loss of value and not a bad deal for that aircraft.

Looking for Agile Options
Another outcome of the reduced helicopter activity in the OGP sector is an increased emphasis on leasing. “One of the key benefits of leasing is the ability to return the helicopter at the end of the lease,” says Waypoint CEO Ed Washecka.

“So in many ways, operators are seeing how that can be a positive risk reduction in this part of the cycle. Some operators are feeling pressure
because they own helicopters that are currently off contract,” he says. “Similarly, when the market cycle turns, leasing allows an operator to jump straight back into bidding for contracts without having to finance predelivery payments or having to wait for the OEM’s production lead times.”

Another advantage to leasing, notes Washecka, is that operators who sell their helicopter assets and lease them back can generate cash liquidity while still using the helicopter to support the underlying contract.

Desfor agrees, saying that there is a definite increase in leasing in the fleet. “The major fleet operators are running at between 20 percent and 35 percent leased ships in their fleets. It gives them a lot more maneuverability to compete on contracts without having to make huge capital expenditures in new helicopters.”

What Goes Around …

The OGP sector has been through this cycle before. From a high of $67 a barrel in 1985, oil prices spent most of the next 15 years trading well under $40 a barrel. During the subsequent boom ending in 2008, prices reached as high as $145 a barrel.

For offshore operators, the sector is clearly in a down cycle. Now it’s a matter of becoming productive enough and efficient enough to ride out the next few years until the cycle swings up again — as it most surely will.

Douglas Nelms is a former U.S. Army helicopter pilot and current freelance aviation writer based in Haymarket, Virginia. He recently retired from full-time aviation journalism after a career stretching back 40 years, including serving as senior editor of Air Transport World and managing editor of Rotor & Wing. A single/multi-engine instrument-rated pilot in both fixed- and rotary-wing aircraft, Nelms now restricts his active flying to writing pilot reports on new helicopters coming down the line.
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Medications: When Should They Keep You on the Ground?

Although the FAA warned pilots some years ago about the dangers of combining flying with potentially impairing medications, in 12 percent of the last decade’s general aviation accidents, the pilots involved had medication in their systems that disqualified them from sitting at the controls.

While the FAA has online resources for pilots who need more information on medications (http://bit.ly/FAA-Meds and http://bit.ly/FAA-AME), it does not publish a comprehensive list of approved medications — medications and their formulations change too quickly.

However, as outlined in 14 CFR 61.53, you, the pilot, are responsible for ensuring your fitness to fly. It is important for you to know which medications — both prescription and over the counter — may impair your ability to fly safely.

Watch Out for These Common Medications
Several common types of medications can significantly impact your ability to fly safely.

**Allergy Medications**
Pilots on duty or who will fly soon should only take non-sedating antihistamines such as loratadine (Claritin), desloratadine (Clarinex), and fexofenadine (Allegra). While these medications are approved, you should first try the medication while not flying to ensure that it has no ill effect. Continue taking the medication only if it adequately controls symptoms.

Other antihistamines, including cetirizine (Zyrtec), a common over-the-counter allergy medication, can cause sedation, which can impair the ability to fly safely. Consult with your aviation medical examiner (AME) about when it is safe to return to flying after taking Zyrtec.

Diphenhydramine, also known as Benadryl, is especially dangerous. It is common in many over-the-counter medications and is known to cause symptoms such as sedation, dizziness, confusion, and vertigo. The minimum wait time to return to flying after taking Benadryl is 60 hours.

Carefully check the labels of any over-the-counter medication: if diphenhydramine or Benadryl is one of the ingredients, either switch to another medication or wait the appropriate amount of time to fly.

**Sleep Aids**
Some sleep aids are approved by the FAA for occasional use to treat
conditions such as the disruption of circadian rhythm that can accompany jet lag or shift work, but daily use is not allowed for aeromedical certification.

Even if you only use sleep aids occasionally, you still have to delay flying until it clears from your system. Ambien, for example, requires a 24-hour waiting period after the last dose before resuming pilot duties. For other sleep aids, check with your AME about when you can safely return to flying.

My recommendation for patients needing sleep aids is to ask themselves why they are taking the medication in the first place. Disrupted sleep can be a symptom of a more serious underlying ailment. Pilots with conditions such as obstructive sleep apnea, depression, or anxiety can be granted an FAA special issuance if these conditions are properly treated; a knowledgeable AME can help you navigate the issue of sleep disruption.

**Blood Pressure Medication**

Hypertension, or high blood pressure, is pilots’ most common medical condition, and most blood pressure medications are approved. An important exception is centrally acting antihypertensive medications, such as Clonidine.

Pilots can take up to three of the approved high blood pressure medications at the same time, including ACE inhibitors, diuretics, calcium channel blockers, alpha and beta blockers, angiotensin receptor blockers, direct renin inhibitors, and direct vasodilators.

Any changes in your blood pressure medication regimen, however, requires a seven-day waiting period before resuming flight duties.

**Erectile Dysfunction Medications**

Erectile dysfunction medications, also used to treat benign prostatic hyperplasia (BPH), are generally allowed for medical certification, including sildenafil (Viagra), tadalafil (Cialis), vardenafil (Levitra or Staxyn), and avanafil (Stendra).

These medications all have a mandated minimum wait time after the last dose before resuming pilot duties because they can cause sudden drops in blood pressure. The minimum wait times for Viagra, Levitra, Staxyn, and Stendra is eight hours. The wait time for Cialis is 36 hours; daily Cialis use is not allowed for aeromedical certification.

AMEs may require pilots also taking alpha blockers for BPH to provide a physician’s letter stating that no low blood pressure episodes have occurred. These medications must not be taken with nitrates (such as nitroglycerin) for chest pain; the combination can dangerously lower blood pressure.

**Antidepressants**

Even though taking psychiatric medication is generally disqualifying, the FAA has approved four antidepressants that pilots may take, including citalopram (Celexa), escitalopram (Lexapro), fluoxetine...
Pilots taking these medications are monitored by specialized AMEs, who have received training through the HIMS substance abuse treatment program for commercial pilots. These AMEs monitor pilots with a history of depression or substance abuse or dependence. Pilots with depression or anxiety should not hide these conditions out of fear of losing their medical certificate.

**Diabetes Medications**

Pilots needing diabetes medication can now get a special issuance for all classes of medical certificate. Pilots requiring insulin were formerly only able to obtain a third-class medical certificate. The FAA now has a case-by-case process for certifying pilots with insulin-treated diabetes. Pilots diagnosed with diabetes should work with their AMEs to make sure they have the necessary information before their FAA physical.

**Acne Medications**

Most acne medications, such as antibiotics and topical agents containing Retin A, are approved, but an important exception to this is isotretinoin, which is also known as Accutane.

This medication can cause serious side effects that can impair a pilot’s ability to safely operate a helicopter, including night-vision impairment and psychiatric conditions such as aggressive behavioral or suicidal thoughts. For those who must take Accutane, a two-week waiting period is required after starting and stopping the medication, as are reports from a physician and an eye specialist.

Avoid taking Accutane if possible. There are several alternative acne treatments that do not require a grounding period or additional documentation.

**Sedatives**

Many physicians prescribe potentially sedating medication for temporary musculoskeletal pain, including muscle relaxants such as cyclobenzaprine (Flexeril) and narcotic pain medication such as hydrocodone-containing products.

As a rule of thumb, if the medication warns about drowsiness as a side effect or warns that users should not operate a motor vehicle or machinery while using the medication, you should definitely not fly while taking the medication. These medications can continue to cause impairment even if you feel normal, because they often stay in your system for prolonged periods of time.

Err on the side of caution and self-ground while taking any sedatives until cleared by an AME. Caution is also in order for over-the-counter medications and supplements; herbal supplements such as kava-kava and valerian root can cause drowsiness as well.

**Are You Safe to Fly?**

Many of us learned the mnemonic I’M SAFE during flight training. This memory aid — Illness, Medication, Stress, Alcohol, Fatigue, and Emotion — represents a personal checklist each of us should go through to certify that we are physically and mentally fit to fly. Complete this checklist each time before you fly, and always remember that your AME is just a phone call away.

Dr. Charles H. Mathers is an FAA senior aviation medical examiner and is board certified in Aerospace Medicine and Internal Medicine. He serves as medical director for the Aerospace Medicine Center at the University of Texas Medical Branch in Galveston, Texas, which specializes in the evaluation of pilots with complicated health conditions, fitness for duty evaluations, and monitoring of pilots in the HIMS program. He has been a private pilot since 2004.
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HEMS Operators Gain Critical Weather Tool

By Rebecca Waddington

Operating in a demanding environment, pilots working in the helicopter emergency medical services (HEMS) sector provide safe and efficient transportation of critically ill and injured patients to medical care facilities. Flights are typically of short duration and at a low level, often in weather that would keep less mission-critical flights grounded.

These pilots need real-time information about changing or adverse weather conditions presented quickly and effectively. An FAA-established task force reviewed commercial HEMS accidents from January 1998 through December 2004. The review showed that inadvertent flight into instrument meteorological conditions was one of the predominant factors contributing to HEMS accidents, particularly at night and during low-visibility conditions.

A new online tool designed specifically for use by HEMS pilots now aims to reduce weather-related accidents, allowing these pilots — including first responders flying under visual flight rules (VFR) — to plan for weather along their low-level routes or at their destination. The HEMS Tool, developed by the National Center for Atmospheric Research (NCAR) and maintained by the National Weather Service (NWS), provides a one-stop weather information shop for these pilots.

Pilots can display high-resolution grids of critical weather parameters, including ceiling, visibility, flight category, winds, icing severity, relative humidity, temperature, radar, satellite, G-AIRMETs, SIGMETS, METARs, TAFs, PIREPs, NWS warnings, and Center Weather Advisories (CWAs). All 3-D data are interpolated to above-ground-level altitudes and can be sliced horizontally at 1,000-ft. intervals up to 5,000 ft. In addition, all data can be viewed in time — both forward and back — up to six hours.

The radar animates over a 40-minute period up to the displayed time (but is not available for future time selections).

Although designed for the HEMS community, the tool is available for use by any pilot.

Originally developed by NCAR as a Java desktop application, the NWS Aviation Weather Center replicated the HEMS Tool in an OpenLayers environment, making it functional in an electronic flight bag in early 2014. Developers continue to modify the tool, utilizing the latest OpenLayers look and feel to make the tool more attractive and user friendly.

The HEMS Tool incorporates high-resolution base maps, including colored relief, satellite, and street views, which are useful for first responders not flying typical instrument flight rules (IFR) or VFR routes. Overlays include navigational aids, airports, and heliports for the entire United States.

Zooming in reveals more detailed information, and individual layers can be turned on or off independently.

Users can save up to four preferred views for quick recall later.

HEMS operators now have access to a tool furnishing them with critical weather awareness that will make their flights safer for both crews and patients. The new HEMS tool is maintained by the National Weather Service Aviation Weather Center and is available 24/7 at www.aviationweather.gov/hemst.

Although designed to meet the needs of the HEMS community, the HEMS Tool is available for use by any pilot who wishes to take advantage of this easy-to-use weather tool. No account registration is required to use the website.

Lt. Cdr. Rebecca Waddington is an officer in the NOAA Corps who holds a BS in meteorology and an MS in aviation science. She began her commission aboard the NOAA research vessel, Ka’imimoana, and was assigned as an oceanographer at the National Hurricane Center. Waddington began flying for NOAA in 2009 and is a qualified aircraft commander on its King Air 350. She currently serves as executive officer at the NWS Aviation Weather Center.
Designed specifically for helicopter EMS pilots, the HEMS tool from the National Weather Service opens to show sky conditions at airports with weather reporting facilities, as well as graphical representations of AIRMETS, SIGMETS, and CWAs.

**Review Weather at Different Altitudes**
To select the optimal conditions for a flight, pilots and ops center personnel can check weather parameters such as wind, temperature, humidity, icing severity, and probability at different altitudes up to 5,000 feet.

**Choose Your Overlay**
The HEMS tool includes a wide selection of overlays, including different weather information and navigation aids such as roads and airports. Clicking on an airport will pull up the most recent weather report; clicking on a graphical AIRMET, SIGMET, or CWA will display the associated text.

**Show Previous, Current, and Forecasted Conditions**
Selecting the Wind Barb Overlay shows the wind speed and direction — and the display can also be animated to provide previous or forecasted conditions — up to six hours ahead or behind.
In late February, nearly 14,000 rotorcraft professionals traveled to Louisville, Kentucky, to attend HAI HELI-EXPO 2016. In the Kentucky Exposition Center, they found approximately 1 million square feet of exhibit and meeting space filled with 695 exhibitors, 55 helicopters on display, and 100+ industry workshops, forums, and meetings. The theme for this year’s show was “Champions of Vertical Aviation,” an apt title for the world’s largest trade show and exposition dedicated to every aspect of the international rotorcraft industry.

In addition to seeing the latest in vertical aviation aircraft, technology, and equipment, professional development and education was a priority for some attendees. About 750 attended the HAI Professional Education courses offered in the days before and after the trade show, and thousands more attended one of the 63 Rotor Safety Challenge sessions — all in a new city that extended a warm, gracious welcome.

HAI HELI-EXPO® is also acknowledged as one of the best networking events in the industry. Whether making new contacts, connecting with old ones, or catching up with friends from distant places, HAI HELI-EXPO 2016 offered many opportunities for mingling — from the Monday night welcome reception and Wednesday night’s Salute to Excellence dinner to the general sessions and annual general membership meeting.

**UAS Membership Added**
The technology that is changing aviation was, understandably, on everyone’s minds. Unmanned aircraft Systems (UAS), or drones, were on the exhibit floor (see “UAS at HAI HELI-EXPO” on p. 42), as well as the focus of several HAI Professional Education courses and Rotor Safety Challenge Sessions. UAS were also the subject of Wednesday’s general session.

Some aviation sectors see UAS only as a threat. However, for the helicopter industry, the use of UAS — which share both operational airspace and some mission profiles with helicopters — poses operational challenges and considerable business opportunity.
In recognition of this, during the annual HAI membership meeting on Tuesday, March 7, HAI members voted to approve adding an unmanned aircraft systems category. The association bylaws will be amended to add language that establishes a new class of members to include organizations or individuals “who operate one or more unmanned aircraft systems (UAS),” who do not operate helicopters, and “whose interests are consistent with the Corporate Code of Ethics and Purpose.”

This category of membership is aimed at the inclusion of those who operate UAS exclusively. Helicopter operators who have integrated UAS into their existing flight operations can retain their original membership.

The members also elected two new members to the HAI Board of Directors, and reelected another (see “Board of Directors Election Results,” at right).

**First Operators Accredited**

Another landmark event that occurred at the HAI general membership meeting was the announcement of the first operators to receive accreditation under the new HAI Accreditation Program of Safety (HAI-APS), which establishes mission-specific standards for helicopter operators and certifies that participating operators meet those standards.

The initial group of accredited operators are Firehawk Helicopters of Florida for external loads and heavy-lift operations, Life Flight Network of Oregon for helicopter air ambulance missions, and for air tour operations, Paradise Helicopters of Hawaii and Papillon Airways of Nevada. Five other operators are currently pursuing accreditation.

The program accredits operators in 14 mission-specific sectors, as well as general helicopter operations. HAI plans to add accreditation under more missions, including standards for UAS operators.

**General Sessions, Symposium Offer Operators Insight**

HAI HELI-EXPO begins each year on a Monday and, fittingly for an organization dedicated to improving the safety of our industry, the first event is always the HAI Safety Symposium. The topic this year was “Safety and the Bottom Line.” Members of the U.S. Helicopter Safety Team made the case that, rather than hurting financial performance, safety initiatives and a strong safety culture result in a more profitable helicopter operation.

Dennis Pierce, owner of Colorado Heli-Ops, an operation that provides flight training, tours, and utility services, presented his company’s compelling case for investing in safety initiatives and programs.
“We didn’t do any of these to make money, but instead to identify deficiencies in pilot training” said Pierce, who went on to say that “safety initiatives and programs can actually save money in the long run.”

He cited several examples of safety investments “that have made a huge difference in our bottom line,” such as an FAA-developed scenario-based training curriculum (FITS/SBT), a flight risk assessment/mitigation tool (FRAMT), and simulator-based training.

Pierce also mentioned the safety management system implemented at Colorado Heli-Ops and the associated audits. “They can be scary,” he said, “but insurance companies love them, and your company benefits greatly from them.”

“Unmanned: In the Mix,” the Wednesday general session, hosted experts from both the helicopter and UAS industries to update attendees on events in the fast-moving transition of UAS into manned airspace. Mark Gibson, who chairs the HAI UAS Committee and also is the general manager for Timberland Helicopters, spoke about his company's experiences in integrating UAS to supplement manned aircraft in their operations.

“FAA: Face to Face,” the general session on Thursday morning, offered the opportunity for attendees to hear from and speak directly to the FAA officials who regulate the helicopter industry. After presentations by the FAA representatives, audience members had the chance to ask questions, many on specific regulatory issues affecting their operations. Of particular interest was recent changes regarding the installation and use of inlet barrier filters.

Wealth of Qualified Customers

There was plenty of elbow room on the exhibit hall floor, thanks in part to the expansive Kentucky Exposition Center, but also as a result of lighter-than-normal attendance because of the sharp downturn in one of the industry’s largest sectors — oil and gas — as well as uncertainty among some potential participants regarding this year’s brand-new venue. But an on-site canvass of exhibitors on the show floor indicated a high percentage of qualified customers and the normal business activity that is typical at
HAI HELI-EXPO.

Representatives of the five UAS companies making their first forays into the manned helicopter arena all expressed their surprise and delight at the amount of interest their products generated. “For six years, it’s been our intent to market our aircraft to manned operators,” says Ted Lindsley, the CEO of exhibitor Olaeris. “But we were honestly and pleasantly surprised by the pent-up demand among helicopter operators, so we will definitely proceed with our plan and be back at HAI HELI-EXPO.”

The hospitality extended to HAI and participants by the city of Louisville and state of Kentucky was second to none. The city went so far as to build an FAA-certificated heliport at the KEC to accommodate the 40-plus helicopters that flew in for display in the exhibit hall, and which will serve the city’s needs for years to come.

As is HAI’s usual practice, the association will survey attendees and exhibitors about their experiences at HAI HELI-EXPO in Louisville. The answers will be taken into account as HAI considers future host sites.

2017: Direct to Dallas
Next year, HAI HELI-EXPO returns to Dallas at the Kay Bailey Hutchison Convention Center March 6–9, 2017 (exhibit hall open March 7–9). Other upcoming venues include Anaheim, Atlanta, Las Vegas, New Orleans, and Orlando.

Chris Dancy is HAI’s director of communications and public relations.

At Wednesday’s general session, HAI CEO and President Matt Zuccaro updated attendees on HAI comments on the FAA’s proposed rulemaking for small UAS.

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UAS at HAI HELI-EXPO

HAI HELI-EXPO 2016 marked the first appearance of unmanned aerial systems (UAS; also called drones or UAVs) on the show floor. The Louisville venue showcased several UAS vendors, along with dedicated consultants and equipment. The growing demand for UAS, both recreational and commercial, is changing the landscape of aviation. While integrating these new aircraft remains a challenge, many also see them as a possible solution to other problems looming for our industry. As one observer suggested, one way to solve the pilot shortage is to build more aircraft that can be flown by less-experienced pilots.

Exempt from the slow-moving process of certification, the landscape of UAS aircraft and equipment is changing rapidly. It’s also growing exponentially. As of February, the FAA announced that it has registered more UAS than manned aircraft — and no one thinks that the market is close to being saturated. At HAI HELI-EXPO, ROTOR took the opportunity to talk with a few of the first-time UAS exhibitors, who will certainly not be the last.

**Built to Certificated Standards**

Targeting the civilian market, UAS manufacturer Olaeris chose to unveil AEVA, a vertical takeoff and landing UAS, at HAI HELI-EXPO 2016. Two AEVAs were on display in Louisville, both featuring six 465-mm fans inside carbon-fiber ducts in a single monocoque fuselage. One was all-electric; the hybrid burns automotive gasoline in a tiny, range-extending Wankel rotary engine.

“AEVA is built to the same standards as any other civilian helicopter. We’re seeking type class certification similar to helicopters, to fly beyond line of sight in controlled airspace as any other aircraft,” says Ted Lindsley, CEO.

With estimated operating costs of $47 per hour, the 42-pound machine can sprint up to 100 mph and hover for 60 minutes with an 11-pound payload. Onboard avionics include radar, LiDar, GPS, ADS-B, and machine vision for obstacle avoidance, plus a sophisticated ground-control system comparable to a Garmin G1000H.

Lindsley chose to unveil AEVA at HAI HELI-EXPO specifically because it is not a drone show. “We have a valuable tool, on par with helicopters, capable of serving a much larger market segment that can’t justify...
helicopter expenses. Though AEVA avoids collision threats automatically, there’s still a certified pilot in command, on the ground instead of aloft. I think AVEA will open many new pilot opportunities.”

**Lower Risk, Lower Cost of Operation**

“The cost of ownership of a UAV, compared to a helicopter, is very low,” says Cameron Waite, director of North American sales for Aeryon Labs. “That allows customers to use more of them, longer, in more hazardous, more confined, more complicated situations.”

Aeryon UAS are in operation worldwide, surveying critical infrastructure like bridges and power lines; they scout roads for closures and delays; and they direct search-and-rescue teams and operations, helping in the high-profile 2014 Hannah Graham missing-person case in Virginia. “We sell safety,” Waite says.

He cites as an example how Aeryon UAS are used to clear traffic after an accident has clogged roads: scouting open lanes and shoulders, helping responders avoid unusable entrances and exits, and directing wrecker traffic to the critical bottlenecks.

“Helping to clear roads has obvious benefits, but did you know that a fifth of fatal accidents [in Waite’s native Canada] result in another fatal accident, just from people looking at

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the accident and not paying attention to their driving? On a stretch of our Highway 401, our UAVs have reduced road-closed time by some 84 percent,” Waite says. “Not only does that save everyone’s time, it saves someone’s life.”

In Waite’s experience, selling UAS to a company is easier when its flight department is included in presentations. While aviators can readily see the UAS’s advantages in risk management, their familiarity with aviation missions and practices also means they have a more nuanced view of the technology’s other advantages or disadvantages. People without hands-on flying or maintenance experience often see only the lower acquisition and operating costs and thus can have unrealistic expectations for these aircraft — while simultaneously overlooking possible benefits.

Complement to Manned Operations
Not an exhibitor, but a sponsor and Rotor Safety Challenge presenter at HAI HELI-EXPO 2016, Insitu provides fixed-wing UAS to commercial, civil, and military operators. The company, which is now owned by Boeing, dates its beginnings back to “a small Silicon Valley garage in 1994,” which is old indeed for the modern UAS industry.

Among typical missions for Insitu aircraft are pipeline and powerline surveillance and inspection. “We can cover broad areas without putting people at risk or boring human pilots,” says Charlton Evans, commercial and civil UAS program manager for Insitu.

Instead of competing with manned aircraft, Evans views UAS as complementary, citing, for example, firefighting. “We’re complementary to the helicopters that are making bucket drops, able to fly at night over the fires without risking personnel, providing advance data to the firefighters to pinpoint targets for their flights at first light.”

Once civil and commercial customers — and especially their flight departments — realize “that we’re not competing, they are much more receptive. They want to work us in as additional safety, not any kind of replacement [for existing machines or personnel]. We enhance their existing systems. They have so many methods already — we add to the data and collection methods they already employ.”

Insitu’s experience at HAI HELI-EXPO 2016 “opened our eyes — there was so little UAS representation, and a big appetite for it,” Evans says. “I’m happier than ever to be at the forefront of this industry.”

Helping Commercial Operators Fly Legal and Safe
There are a lot of misconceptions surrounding commercial UAS operations, and AeroUAVs makes a business out of dispelling them for commercial operators. President Timothy Ford gives an example of how his UAS consulting company helps UAS operators stay legal and safe.

“People know you can’t just ‘go
out and fly a drone,’ and common sense should keep people from doing irresponsible or dangerous things,” he says.

“But a lot of people don’t know that your [FAA-issued] 333 isn’t a permit; it’s a waiver and you need to comply with all the provisions of the blanket COA [certificate of authorization]. For public operators or operations outside the restrictions of the blanket COA, the operator needs to file for an additional COA. You must also file a NOTAM for every flight.”

Recreational UAS can be flown by anyone. In fact, Congress has specifically prohibited the FAA from regulating them. But commercial UAS flights are a different story. This is one of the reasons why the FAA currently requires a licensed aircraft pilot (any certificate, from sport pilot up to airline transport pilot, will do) to fly a UAS commercially. But even pilots may not know that something as innocent as a flyaway — when a UAS no longer responds to the pilot’s commands and continues to fly under no control — must be reported to the FAA within 24 hours.

AeroUAVs offers assistance for new and existing commercial UAS operators in everything from obtaining Section 333 waivers to operation and training manuals to incorporating safety management system principles into UAS operations. Their checklist for a compliant UAS flight (http://bit.ly/AeroUAVs) is an example of how the safe, legal operation of these aircraft is not that different from manned aviation: FAA rules still need to be followed, aircraft still need to be maintained, and risks still need to be mitigated.

### Clearing the Airspace

If you are concerned about the

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**UAS Add-Ons**

Like any other aircraft, buying the UAS airframe is only the first step. Customizing the aircraft for your specific mission and budget is where it really gets interesting.

Below is a brief look at what some HAI HELI-EXPO exhibitors were offering the UAS market. Because most UAS missions currently involve surveillance, reconnaissance, or inspection, camera systems are a big add-on. But look for that to change as UAS and their missions become more sophisticated and diversified.

Lee Dingman, Ascent Vision’s vice president of sales and business development, displayed the CM100 — a tiny, stabilized gimbaled camera that his company calls the Cadillac of lightweight gyro-stabilized imaging sensors designed for UAS. At 800 g (29 oz), this compact visual and infrared real-time-streaming camera can take high-res (1280p) snapshots and shoot motion from 9 to 50 frames per second. With an internal storage of four hours, its endurance usually exceeds its carrier’s.

“We dominate our SWPC [size, weight, power, cost] segment with this camera,” says Dingman, as he hands over the unit for inspection. “Our software can include geolocation tagging, object tracking, motion detection; and it’s geostabilized in pan and tilt, with electronic stabilization in roll. The customer gets a lifetime license on the software, with free updates.” And yes, Ascent has bigger, more-capable units in its lineup.

Elsewhere on the show floor at the Kentucky Exposition Center, Ken Clickenger, North America sales manager for Phase One Industrial, and Vladimir Kadatsky, Riegl USA’s airborne systems segment manager, were highlighting the pairing of Riegl’s VP-1 helipod and VUX-SYS sensor system and Phase One’s aerial camera systems.

The VP-1 held a Phase One iXU-R 1000 medium-format camera, a combination that is ideal for many airborne survey missions: precision agriculture; archaeology and cultural heritage documentation; terrain, flood zone, and canyon mapping; urban surveying; topography in open-cast mining; construction-site monitoring; power line, railway, and pipeline inspection; accident investigation; and emergency management planning.

Surveyors and photogrammetrists can use the laser imager (the camera is optional) in mapping and laser scanning, and the relatively lightweight (3.6–5.1kg) unit is popular on helicopters, fixed-wing aircraft, cars, and UAVs, a segment showing strong growth.

The VP-1 is self-contained and mounts for use in under a minute, allowing quick transfers from one vehicle to another. Running on 12–36 VDC, the Riegl unit can transmit what its camera sees in real time via the vehicle’s onboard transmitter. “We use real wires,” says Kadatsky, rather than, say, a Bluetooth connection with the mother ship. “We want top performance and reliability, reliability, reliability.”
risks posed to manned aircraft from “hobby drones,” you can now do more than complain. Alion Science and Technology has developed a counter-UAS system that can detect a drone that is too close to manned aircraft and break the data link to its ground controller.

“We can create a bubble around a specific location — a helipad, airport, even an aircraft in motion — and gently move offending drones out of the way,” says Bill Senich, Alion’s vice president of Global Cyber Solutions. “We’re doing some subtle, advanced things that won’t break the UAS but will clear the surrounding area and make it safer,” he says. “Most hobby drones will either land automatically or return home if they lose contact with the controller. That’s what we prefer them to do.

“Picture an accident at a shopping mall,” Senich says. “Medevac choppers can be interfered with by hobbyists, all trying to get footage for YouTube. But the medics have to get in and out safely and in a hurry.”

Alion’s technology can be mounted in a helicopter, clearing drones that get too close, or Senich says, “It can be embedded in other platforms or integrated into a larger component package, so it is adaptable to many situations.

“Safety for the pilots and crews of manned aircraft is paramount,” he says. “It’s not because we want to do nefarious things to somebody’s UAS. We just want to move it out of the way so first responders can operate safely.

Because Alion’s counter-UAS system targets the data link between the UAS and its controller, it doesn’t interfere with manned aircraft. “This technology operates outside the aviation spectrum,” says Peter Jacobs, corporate VP and director of marketing and communications.

“News organizations, police helicopters — they watch out for each other,” Senich says. “And while most drone operators respect the airspace, with personal drones, there is no training, so there’s more unpredictability.... We can help take drones out of the equation, so helicopter pilots can focus on the job at hand.”

Alion can protect airspace in other ways, too. Senich reports that “one airport asked how fast we could set up a system that would protect the airport perimeter and the flight paths. It’s doable; we’re developing it.”

Tim Kern, CAM, is an aviation writer whose work has appeared in more than 50 aviation publications. He is a private pilot and holds an MBA in finance and operations from Northwestern University. He has extensive experience in machining and both motorcycle and auto racing, and was CEO of an airplane engine company in the early 1990s. Kern is the only journalist to complete the ALEA Accident Investigation course or to earn NBAA’s CAM (Certified Aviation Manager) certification.
Integrated Cockpit Display Systems by Sagem

The Sagem Integrated Cockpit Display System (ICDS) delivers true “plug & play” flexibility for fixed-wing and rotor-wing aircraft avionics and cockpits. The ICDS Primary Flight Display (PFD), Multi-Function Display (MFD), & Engine Monitoring System (EMS) features are built on an open architecture allowing easy customization and full compatibility with the majority of existing data collection and monitoring systems. With over 2000 display units delivered, Sagem Avionics is committed to providing excellent customer support while continuing product development to answer the ever-changing requirements of the industry. www.sagem.com
Chuck Aaron, world-famous for his helicopter aerobatics, received an HAI Lifetime Membership in Louisville.

It's true. You really do see everyone at HAI HELI-EXPO.
Max Lyons, current HAI chairman, with Torbjorn “TC” Corell, who will assume the chairmanship July 1.
Dana Kerrick, winner of the Bell Helicopter Lifetime Achievement Award, shares the special moment with his wife, Paulene.
Dr. Bella Dinh-Zarr, vice chairman of the National Transportation Safety Board, thanks attendees at the HAI Safety Symposium for their interest and investment in safety.
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Industry Recommits to IHST Goal: Zero Accidents

In a move that HAI President and CEO Matt Zuccaro called “historic,” members of the International Helicopter Safety Team (IHST) renewed their commitment to the organization March 1 during HAI HELI-EXPO 2016 in Louisville. In addition, 16 member organizations, from manufacturers and operators to associations and government agencies, recommitted themselves to the goal of zero accidents.

The renewal came as new figures showed that worldwide safety efforts are having an impact, with helicopter accidents dropping significantly since the IHST was established in Montreal in 2005 to cut then-high helicopter accident rates.

“This is an acknowledgment of the cultural change that we have undergone as an industry and recognition of our willingness to commit to such goals as ‘safety first, above all else’ and ‘zero tolerance, zero accidents,’ said Zuccaro, who serves as IHST industry co-chair. “HAI is honored to be part of such initiatives, as am I personally.”

Lance Gant, manager of the FAA Rotorcraft Directorate and government co-chair of the IHST, also spoke about the importance of the organization. “Since its inception 10 years ago,” he said,
“the IHST’s worldwide partnership efforts with government and industry organizations have succeeded in reducing accidents, decreasing damages and injuries, and saving lives.

“It’s gratifying to see the helicopter community’s recommitment to IHST efforts,” he added. “It underscores what has been accomplished and it ensures continuing support for helicopter safety.”

Data from the IHST and the U.S. Helicopter Safety Team, part of the IHST, indicate the industry has made significant progress curbing helicopter accidents in the United States and elsewhere in recent years.

There were 123 U.S. helicopter accidents last year, down 33 percent from the 2001–05 baseline level of 184 accidents. Europe, Canada, and Brazil have all similarly seen continuing downward trends in their numbers of accidents (see figure 1).

The 2015 U.S. accident rate was 54 percent lower than it was during the baseline period, down to 3.67 per 100,000 flight hours from 7.97 per 100,000 flight hours (see figure 2). And the fatal accident rate was lower by nearly two-thirds, down from 1.43 to 0.51 fatal accidents per 100,000 flight hours (see figure 3).

Other participants in the recommitment announced in Louisville included the Air Medical Operators Association, Airborne Law Enforcement Association, Airbus Helicopters, the American Helicopter Society International, Bell Helicopter, Bristow Group, the European Aviation Safety Agency, the European Helicopter Association, Finmeccanica, FlightSafety International, the Helicopter Association of Canada, the National Transportation Safety Board, Robinson Helicopter Company, Sikorsky Aircraft, and the University Aviation Association.

Steve Hirsch, who is working with HAI’s communications staff, is a longtime journalist with broad experience in covering international business and developing countries.

![Steve Hirsch](image)
Every day and on every continent on the globe, members of the vertical lift community do amazing things with helicopters and other vertical lift aircraft. From dream tours over natural wonders to life-saving air ambulance flights to inspecting and repairing the electrical grid, the men and women who maintain, fly, and manage the worldwide helicopter fleet are an integral part of today’s fast-paced world. They get jobs done that can’t be done any other way.

But for some in our industry, simply getting the job done is not enough. Whether in a single instance or throughout a career, these pilots, technicians, mentors, and leaders from around the world excel — and set an example of excellence that inspires our industry.

For more than 50 years, HAI has encouraged and celebrated the highest standards of professionalism within the vertical lift community through its Salute to Excellence Awards. The nine award categories reflect outstanding achievements from across our industry, from maintenance professionals and safety officers, to pilots and flight instructors, to operators and industry leaders, to those who use helicopters to serve their communities and save lives.

At the 2016 Salute to Excellence Awards on March 2 during HAI HELI-EXPO 2016 in Louisville, Kentucky, the following honorees were recognized. HAI congratulates them and celebrates their contributions to our industry. Their passion for excellence is an inspiration to us all.

2017 Salute to Excellence Nominations
Start thinking now about who you believe should be recognized for their contributions to vertical lift aviation. Nominations for the 2017 Salute to Excellence Awards, to be celebrated at HAI HELI EXPO 2017 in Dallas, will be accepted beginning August 1. Visit rotor.org/salute for more information.
R. Randall Padfield
Editor-in-Chief (Retired), AIN Publications

R. Randall Padfield recently retired as the chief operating officer of Aviation International News (AIN), having also served as the publication’s editor-in-chief. He is a graduate of the U.S. Air Force Academy and a 9,000-hour pilot with airline transport pilot certificates for rotorcraft and multiengine fixed-wing aircraft. Most of his time is in helicopters.

Padfield flew Sikorsky “Jolly Green Giant” combat search-and-rescue helicopters while in the Air Force and is credited with seven saves. Once back in the civilian workforce, he flew Sikorsky S-61s, Bell 212s, and Aerospatiale Super Pumas in the North Sea oil fields, as well as corporate helicopters in the United States.

He also began writing for a number of aviation publications. Padfield joined AIN as a full-time editor in 1993. His field experience made him the ideal choice to fly and review helicopters for AIN. He was often called upon to cover rotorcraft issues for AIN’s various publications and served for many years as the editor of its HAI HELI-EXPO convention news.

Padfield has also written four books, including To Fly Like a Bird, a biography of helicopter industry pioneer Joe Mashman. He is the author of the highly regarded Learning to Fly Helicopters, which he recently updated to include significant technological advances since the first edition was published, as well as new FAA regulations and testing requirements.

In the foreword to Learning to Fly Helicopters, fellow aviation journalist William Garvey wrote of Padfield, “Over the years, I have come to admire Randy’s special ability to convey both the technical and practical aspects of rotary-wing flight. Anyone truly interested in mastering these extraordinary flying machines would be well served to spend some time taking in what an aviator who achieved that level years ago has to give.”

W.A. “DUB” Blessing Flight Instructor of the Year Award

Capt. João Bosco Ferreira
EFAI – Escola de Aviação Civil Ltda.

Capt. João Bosco Ferreira has been a helicopter instructor since his time in the Brazilian Air Force in the 1970s and 1980s.

After attending helicopter flight-test pilot school in France in 1981, Bosco returned to Brazil as chief of the Flight Test Division for the Brazilian Air Force’s Center of Aeronautical Technology. In that role, he was charged with creating the Brazilian flight-test course.

In 1990, Bosco joined the Brazilian subsidiary of what is now Airbus Helicopters as technical director. There, he established the company’s Flight Test Department and later developed emergency procedures testing for both experienced company pilots and for pilots training on newly purchased helicopters.

A few years later, he established his own flight school, which places heavy emphasis on emergency procedures — especially autorotations. Bosco has approximately 12,500 flight hours and has logged 32,500 “full-down” autorotations. He says that translates to approximately 400 flight hours in autorotation alone.

Bosco has trained hundreds of pilots, many of them for multiple certifications. He works with international students from neighboring South American nations and from Angola, a Portuguese-speaking West African nation. He also provides training for several law enforcement aviation units in Brazil.

Bosco is recognized as a role model for the Brazilian helicopter community.
ROLLS-ROYCE EXCELLENCE IN HELICOPTER MAINTENANCE AWARD

Troy Lewis
Area Training Manager, Turbomeca-USA

Troy Lewis is the area training manager for engine manufacturer Turbomeca-USA. During more than two decades there, he has trained thousands of aviation maintenance technicians each year.

Lewis began his aviation maintenance career in 1986 as a quality control inspector for the Inter-Turbine Company. He later joined Turbomeca’s Quality Department, where he was instrumental in creating a number of programs that have saved the company hundreds of thousands of dollars.

He became a customer training instructor in 2008 and in 2014 was named lead instructor. In that role, Lewis not only taught, but was responsible for instructor audits, recurrent training and qualifications, and for mentoring instructors in Turbomeca’s training network.

Lewis’s energy, drive to excel, and willingness to help students makes everyone around him strive for excellence as well.

He displays an ability to instruct, communicate, listen, and deliver information to students in a way that is professional, clear, and accurate, and that fits each student’s working level. By doing so, Lewis has made them safer, better technicians.

His commitment to excellence and safety is a reminder that safety in the air begins in the hangar. Maintenance technicians are key players in a safe operation, and it all starts with excellent instruction.

BELL HELICOPTER LIFETIME ACHIEVEMENT AWARD

Dana H. Kerrick
Vice President (Retired), IAC Ltd.

Dana H. Kerrick has served the aviation industry for more than 5½ decades as a military and civilian maintenance specialist, civilian pilot, flight instructor, air taxi operator, and pioneer in helicopter rotor-blade composites. He recently retired as vice president and co-founder of International Aviation Composites (IAC).

Kerrick is recognized throughout the industry as one of the foremost experts in rotor-blade inspection, maintenance, and repair. He has written extensively for numerous maintenance and aviation publications and his course on rotor-blade preventive maintenance has been part of the Rotor Safety Challenge since its inception at HAI HELI-EXPO 2013 in Las Vegas.

Kerrick began his aviation career in the U.S. Air Force working on B-52s. He reentered the civilian workforce in 1970 but didn’t discover helicopters until he turned 40. He is a pilot of both airplanes and rotorcraft and is an FAA-approved inspection authority renewal instructor.

Outside of work, Kerrick volunteered as part of the San Joaquin County, California, Sheriff’s Air Posse for 40 years, flying both helicopters and airplanes in support of department operations.

Early in Kerrick’s civilian aviation career, he was the flight instructor for the founder of Composite Technology, Inc. (CTI), who eventually convinced Kerrick to come work for the company. He stayed with CTI from 1981 until 1992, when he left to found IAC with two friends, Randy Stevens and Herman Bevelhimer.

During his time in the helicopter world, Kerrick has seen rotor blades evolve from carefully matched wooden blades, to metal-skinned blades, to today’s composite blades.

Reflecting on his success in the industry, Kerrick says, “I always tried to find the most talented people and learn from them everything they were willing to share.”
Eileen Frazer, RN, CMTE
Executive Director, Commission on Accreditation of Medical Transport Systems (CAMTS)

Eileen Frazer, RN, CMTE, is the executive director of the Commission on Accreditation of Medical Transport Systems (CAMTS), an organization dedicated to improving safety in air and ground medical transportation, which she founded and has led for 25 years.

In the mid-1980s, Frazer was an emergency room nurse and chair of the safety committee of what is now the Association of Air Medical Services. To address air ambulance accidents, the committee drafted criteria for peer-review safety audits. Frazer and the committee, however, believed the audits should be performed by an independent organization.

So in 1988 and 1989, Frazer conducted a feasibility study, modeling her proposed organization on the Joint Commission, the highly regarded group that accredits hospitals, laboratories, and health care providers and services. CAMTS was officially launched in 1990 as the Commission on Accreditation of Air Medical Services, and Frazer spent much of the next two years writing the accreditation standards and testing the audit process. The organization conducted its first official audit in February 1992.

In 1997, the commission expanded its focus to include ground medical transport and changed its name to the current Commission on Accreditation of Medical Transport Services. Today, there are some 175 CAMTS-accredited air ambulance programs in the United States and five other countries.

According to Richard Morley, program director for West Michigan Air Care, during his 29 years in the industry, “I have not encountered another individual more dedicated to, and focused on, the goals of improving both the care provided to our patients and the safety of the crews transporting and treating those patients.”

Boston Area Helicopter IFR Infrastructure Team

Downtown Boston poses a unique challenge for air ambulance operator Boston MedFlight, with five hospitals interspersed among skyscrapers and other vertical obstacles, and all located 3 miles or less from Boston’s Logan International Airport (KBOS).

Recognizing the benefits of point-in-space GPS approaches to the hospitals for their patients, Boston MedFlight joined with the FAA and private industry to form a working group, the Boston Area Helicopter IFR Infrastructure Team, to address the complex details involved in such a project.

Over the course of six full years, the infrastructure team designed the instrument approaches and got them certified by the FAA. Having these approaches means that critically ill or injured patients can be flown directly to the hospitals in all weather conditions, saving vital time during bad weather.

Designing and certifying the approaches proved to be the easier part of the task. After certification, the team had to work with air traffic controllers to train them on the new procedures and ensure that helicopters landing at or departing from the hospitals have minimal impact on arrivals and departures at Logan — one of the nation’s busiest airports.

The FAA gave final approval and authorization to begin using the new procedures on October 14, 2015. This project showcases the best efforts of government and private industry working cooperatively at the local level to enhance safety and improve the lives of people in their community.
AERONAUTICA MILITARE, MARINA MILITARE, & CORPO DELLE CAPITANERIE DI PORTO

APPAREO PILOT OF THE YEAR AWARD

New Zealand-born Jason Andrew Laing is a 6,400-hour freelance helicopter pilot with more than 5,000 hours of mountain flying.

Operating from his home base in New Zealand, Laing has flown commercial, tourism, and search-and-rescue missions in New Zealand, Australia, Antarctica, Kashmir, and Nepal. He is a highly respected high-altitude pilot who is often called upon for difficult mountain rescues.

In April 2014, a huge avalanche at 19,000 feet on Mount Everest, between Base Camp and Camp One, trapped between 20 and 30 climbers. Operating near the performance limits of his helicopter, Laing landed twice to carry out seriously injured survivors.

The mission is considered the largest high-altitude helicopter rescue operation ever performed in the Himalayas.

A year later, in April 2015, a powerful earthquake strong enough to move all of Mount Everest two inches struck, cutting off communication with hundreds of rural communities. The day after the quake, Laing was tasked to fly to one such village, where he found the village destroyed with some 500 lives lost. Laing returned to base and raised the alarm to begin a major rescue effort.

Next, he was sent to Mount Everest’s Camps One and Two, where some 140 climbers had been trapped by a collapsed icefall.

Laing has previously been honored with the Kumar Khadga Bickram Adventurous Award from the Nepal Mountaineering Association and the Fédération Aéronautique Internationale Diploma for outstanding airmanship.

SIKORSKY HUMANITARIAN SERVICE AWARD

Italian Air Force, Navy, and Coast Guard

On December 28, 2014, fire broke out aboard the seagoing ferry Norman Atlantic, en route from Greece to Italy with nearly 500 passengers plus crew on board. By morning, the fire was out of control and the ship was adrift in heavy seas and gale-force winds.

Over the course of the next three days, five helicopter units from the Italian Air Force, Navy, and Coast Guard mounted what is believed to be the largest marine helicopter-rescue mission ever attempted.

Because of the tight confines on the ferry’s upper decks, only one helicopter at a time could perform hoist operations.

Crews flew day and night for three days, ferrying the rescued to nearby ships. In the case of one squadron, 40 of the more than 86 hours its helicopters flew were at night.

When it was done, although a dozen people lost their lives, more than 420 passengers and crew were airlifted safely from the Norman Atlantic.

In recognizing the crews, Matteo Renzi, Italy’s prime minister, said, “The extraordinary dedication of these operational units and, above all, using the helicopters that allow for this rescue at sea made it possible for those victims to live.

“This operation — so full of dedication, of tenacity, and determination of our men and women — allowed us to avoid an even larger disaster.”
Pat Lawrence  
**Lieutenant, Michigan State Police**

Lt. Pat Lawrence is the chief pilot and commander of the Michigan State Police Aviation Unit. He has been instrumental in rebuilding that unit, which was hard hit by the economic downturn of the late 2000s.

Once a unit with five helicopters and three fixed-wing aircraft, it shrank after 2008 to just two helicopters and three pilots — at a time when crime in Detroit, Flint, and Saginaw, the state’s three biggest cities, was soaring. Working with what he had, Lawrence established a schedule to patrol the three cities on a nightly basis.

By the end of 2014, the three cities saw a 28 percent drop in violent crime. Lawrence himself flew more than a thousand hours patrolling the cities and flying other missions, including search and rescue, marijuana eradication, and disaster response.

Lawrence took a hands-on approach to restoring the unit. A flight instructor in both fixed- and rotary-wing aircraft, Lawrence trained two new pilots in 2014 and established a tactical flight-officer training program.

In addition to his law enforcement duties, Lawrence lobbied state lawmakers to expand the State Police Aviation Unit. He took the governor and several state legislators on flights to show them firsthand the need for aviation assets. His efforts were finally rewarded last year when the Michigan Legislature approved and purchased a third helicopter.

Lawrence also has an eye on the future and new technology. He was instrumental in obtaining the FAA’s first authorization allowing a law enforcement agency to use unmanned aircraft statewide.
Simply Safe: Why We Assess (and Mitigate) Flight Risks

By Keith Cianfrani

There is much talk in aviation today about how we can reduce risk, improve safety, fly more efficiently, instruct more effectively, and conserve resources. One way to accomplish all of these things is to use a flight risk assessment tool (FRAT) to assess and mitigate the risks of an upcoming flight.

One Tool Does It All
Every flight has some level of risk associated with it, just like you assumed some risk by driving to work today. But not all risks are the same. Your 30-minute drive to work during a winter ice storm is riskier than on a dry, sunny day. Same driver, same car, same route, same time of day — but very different risk.

Of course, it’s not only weather that can elevate the risk associated with a flight. Hazards can come from multiple directions — an off-site landing, the co-pilot’s new, colicky baby (and how it’s keeping him up at night), or the fact that the aircraft was last flown by a crew using night-vision goggles.

The list of possible hazards is too long for anyone to accurately run through it from memory. Add operational pressures — losing daylight, change of shift, a life-or-death situation — and our ability to recall hazards, let alone rank them or figure out ways to lessen their impact, becomes even more impaired.

A FRAT helps you to remember, rank, and mitigate hazards. An invaluable tool to help pilots, flight crews, and operators collect information that will help them make better go/no-go decisions, the use of FRATs should be part of every flight operation.

Advantages of Using a FRAT
Using a FRAT gives you three clear advantages over those flight operations that don’t use one.

Limits Compartmentalization
The first thing that a FRAT does for you is compile a complete list of the types of hazards that must be assessed before a flight. This is important because it fights compartmentalization — our natural tendency to focus on one thing at a time.

When we compartmentalize, we miss the compounding of risk that occurs when multiple hazards are present. We’ve all read the accident reports where one thing after another goes wrong and still that pilot and crew press on … often to a tragic end. “What were they thinking?” we ask.

Perhaps a better question is: “How were they thinking?” We tend to look at categories of things separately and don’t make the connections between them until it’s too late, a tendency that contributes to accident chains. With a FRAT, your awareness of the risks associated with a flight is more comprehensive — and therefore more accurate.

Increases Objectivity
Another human habit is our tendency to allow our personal desires to affect our judgment. This could be for selfish reasons — Making this flight through bad weather will really demonstrate my piloting skills — or altruistic — If we don’t fly, that kid in the back will never make it.

Unfortunately, both of these pilots are making a mistake. The reason for the flight, whether good or bad, is not going to enable you to see in the dark, change ice to rain, or make wires go away.

A go/no-go decision should be based on an objective review of risks. A FRAT increases the objectivity of your go/no-go decision by providing you with an already prepared checklist of risk factors, so your feelings about the flight do not affect which hazards you consider.

Another feature of the FRAT that helps you to think objectively about flight risk is that each risk factor is weighted numerically based on its probability and severity. Adding up the numbers for each risk factor generates a total risk score for the flight. Again, because the numerical rankings are developed ahead of time, the risk score derived for the flight is objective, and not based on your feelings in the moment.
Provides a Shared Language
The score generated by a FRAT creates a shared language in which to discuss flight risk, just as academic grades provide a way to communicate a student’s understanding of the material. Generally we agree that an A student has demonstrated a greater mastery of the subject than has a C student.

By using a FRAT and generating a number that represents the cumulative risk of a flight, you are basically giving the flight a grade. And just as a teacher’s assigned grade is a way to communicate the student’s progress to others, such as the student, parents, or administration, the FRAT is a way to communicate the level of risk associated with each flight to others, such as the flight crew and the flight operations department. Wouldn’t you want to know if you were getting on a flight that the pilot thought had only a C chance of a safe conclusion?

Working the Score
On the way to generating a FRAT score for a flight, you have completed a comprehensive assessment of the hazards involved with the flight and generated a number that represents the compounded risks that will be encountered on the flight. So what happens if your FRAT score is less than ideal? How can you get that C flight to be an A flight?

Because of the way a FRAT is structured, you can now go back and look at ways in which the highest scoring hazards might be mitigated. For example, if isolated thunderstorms in the area might force course deviations, consider increasing the fuel load. If daylight is fading, make sure the aircraft is equipped with night-vision goggles. If you are landing off site, complete a 360-degree high reconnaissance of the site to look for wires, debris, or other hazards.

Most people describe a FRAT as a way to help pilots, crews, and operators make better go/no-go decisions. And that’s true. But what makes the FRAT such a powerful tool for aviation safety is that it not only assesses the risks involved in a flight but also provides pilots, operators, and flight crews with a way to mitigate those risks.

Using Your FRAT Score to Stay Safe
FRATs generally have three possible score ranges. These are often grouped into Green, Yellow and Red sections.

**GREEN: Go Fly!**
If your FRAT score is in the green range, that’s great. However, the pilot and crew should still discuss the highest scoring risks and attempt to mitigate them. During the flight, be alert for changing conditions that would move the score into a different range. Be prepared to mitigate additional risks or alter or cancel the flight, based on the new score.

**YELLOW: Review and Mitigate Risks**
If your FRAT score is in this range, then you should try to mitigate some of the higher scoring risks. If your score is still in the yellow, bring in a designated contact person to discuss
ways to further mitigate some of the flight risks. This should be someone with an operational understanding of aviation safety, such as a flight instructor, chief pilot, or operations manager. Many operators set up their FRAT so that a certain score triggers an automatic review of the flight and its risks by a management-level employee.

**RED: No Go**

When your score is in the red, cancel the flight. Unless the risks involved can be mitigated and the score moved into the yellow or, preferably, green ranges, don’t go. Hazards that regularly score as high risk should be addressed in your safety management system — another way in which using a FRAT contributes to the overall safety of your operation.

The first thing that a FRAT does for you is compile a complete list of the different types of hazards that need to be assessed before a flight. This is important because it fights compartmentalization — our natural tendency to focus on one thing at a time.

Choosing a FRAT

Thanks to the proliferation of mobile devices and associated apps for flight planning, weather briefing, and flight monitoring/tracking, there is an abundance of FRAT options to choose from. When choosing a FRAT, you should balance ease of use with the FRAT’s ability to correctly assess the hazards faced by your flight operation. If the tool is too complicated for pilots and flight crews to use each day, before every flight, then it is not the right tool for you.

Because of the diversity of helicopter missions, operators must develop their own set of risk criteria that accurately reflects their actual operating environment. While it can be time-consuming to develop your set of hazards to consider, as well as the numerical rankings of risk, the investment of time will be worth it. This is an opportunity for you to create a tool that is customized to your operation.

You will then create numerical thresholds that trigger additional levels of scrutiny prior to a go/no-go decision for the flight. These thresholds will ensure that each flight meets the safety standards of your operation. However, it is important that you create realistic thresholds. If every flight is within the acceptable range under any condition, it is likely that the thresholds have not been set correctly.

One operator I spoke with uses a risk assessment tool called flight risk assessment management tool (FRAMT). This tool works very well for this operator and is practiced for every flight. It focuses on every aspect of the flight including who the pilot is, what aircraft will be flown, the environment to be flown in, and the flight profile or maneuvers to be conducted. It automatically displays the local weather and weather for any airport in the flight profile, as well as the local and destination NOTAMS.

HAI offers a web-based FRAT (rotor.org/frat) that allows users to customize their own risk assessment program. The program, once configured, uses a checklist format, with numerical weighting values, which trigger levels of concurrence with the pilot’s “go” decision. One of the advantages of this type of FRAT, which is known as a procedure-weighted program, is that using it requires minimal training on the principles of risk assessment and risk management.

More complex applications require the input of additional flight information and ask questions that more closely align with the safety limitations for 14 CFR 135 certificate holders. With these more robust apps, you have the option to email, print, or save the results of your risk assessment.

Although the more complex risk assessment apps take longer to use, they can present a more comprehensive assessment of risk. Though developed for commercial operators, there is no reason they can’t be beneficial for personal flying too.

The choice is yours, but please do choose and, more importantly, use a FRAT as a standard part of your flight planning. It’s the simply safe thing to do.

Keith Cianfrani is a member of the HAI Safety Committee and owner of Aviation Safety Consultants, LLC. He is a retired U.S. Army aviator, as well as a commercial pilot who has flown in the New York and Philadelphia areas. An auditor for IS-BAO and the HAI Accreditation Program of Safety and a member of the International Society of Air Safety Investigators, Cianfrani also works with the FAA and HAI on helicopter flight-data monitoring research for ASIAS.
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Market Trends

U.S. TURBINE SALES, JANUARY–MARCH 2016

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Roy Morgan recently spoke with Helicopter Foundation International about how he pulled himself up from an impoverished Depression-era childhood to found Air Methods, the world’s largest helicopter air ambulance operator.

As Morgan explains, his aviation career started with what most of us would consider a pretty painful dental experience.

**Early Years of Hardship**
Morgan was born in Colorado during the depths of the Great Depression, into a rough childhood. Abandoned by both parents by the time he finished the ninth grade, he worked his way through high school before graduating in 1955. Along the way, though, when he was about 10, he caught the flying bug, and it happened while a dentist was trying to pull a tooth.

“The dentist promised to let me ride in his plane if I’d sit still, and he kept his promise,” Morgan says, recounting that he then used to wash planes for free rides at the local airport.

He left Colorado after high school with $50, a beat-up car, and Dorothy, his new bride — they just celebrated their 60th anniversary — to look for work. Over the next eight years, he knocked around Colorado, Nebraska, Wyoming, and Kansas, working first in the oil fields and then for Boeing and General Dynamics.

Even when he was working in the oil fields, Morgan pursued his interest in aviation, buying “a very tired Piper J-3 Cub” for $750. He soloed on July 17, 1955, just 47 days out of high school. Although he didn’t fly as part of his jobs with Boeing and General Dynamics, he still pursued his passion for aviation, taking more flying lessons and buying several airplanes.

**In Aviation at Last**
After being laid off by General Dynamics in 1963, Morgan wanted “a flying job” and landed at Kelsey Ellis Air Service, later Key Aviation, in Salt Lake City, working as a flight instructor. He spent several years there, rising through the ranks to become the director of operations, as well as obtaining his commercial and instrument helicopter ratings and a host of others.

While working at Key Aviation, Morgan helped establish Salt Lake City’s first hospital helipad, flying the first patient outside of the aircraft on the skid cross tubes of a Bell 47 “MASH-style.”

Morgan left Key in 1979 to work for the Public Service Corporation of Colorado, an electric utility, where he flew powerline construction, patrol, and maintenance missions. He also earned a BS in aviation management through night and weekend classes.
Founding Air Methods
In 1980, Morgan founded Air Methods Corporation.

In his interview, Morgan talks at length about his experiences at Air Methods, including recounting the hair-raising night in 1967 when he decided his future was in medical air transportation. It’s an interesting story, full of ups and downs, including flying through a snowstorm while his copilot held a baby that had just been orphaned — and seriously injured — in an auto accident.

Morgan points to that incident as his motivation to build a company that would combine “a first-class medical team in an aircraft with the best medical equipment available.”

His company has now flown about 2 million patients.

Founded in 1980, Air Methods started out small. Morgan was not only the company’s only pilot, he was the only employee. To raise the money to buy a helicopter and start the business, he mortgaged his home, emptied his bank account, and “sold everything we could do without.”

Now, though, Air Methods has more than 4,000 employees and more than 400 medical helicopters, 50 tourism helicopters and 20 medical airplanes. The company’s 300 bases of operations stretch through 48 states, from Alaska to Key West, Florida, along with eight maintenance centers and a 12,000-square-foot national communications center in Omaha, Nebraska.

60 Years and Counting …
Morgan is retired now, although he still serves as a consultant to Air Methods. In 2013 he was inducted into the Vertical Lift Hall of Fame. The next year, he was inducted into the Colorado Aviation Hall of Fame and received the Living Legends of Aviation Award.

Morgan has more than 19,000 hours, including more than 12,000 hours in helicopters. His fixed-wing experience goes all the way from a J-3 Cub through the Gulfstream Commander 1000. Below are some of the helicopters Roy has flown:

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<td>Bell 407</td>
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Roy Morgan has come a long way since getting his tooth yanked out in that dentist’s chair, and he has simple advice to offer: “By the time I was nine years old, I found out if you are hungry, you had better get a job,” he says. “Those early days were valuable lessons in life.”

Martin J. Pociask is curator for Helicopter Foundation International.
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Calendar of Events

May 2–5
Xponential 2016
Association for Unmanned Vehicle Systems International
New Orleans, Louisiana, USA
xponential.org/auvsi2016/public/enter.aspx
Visit HAI at Booth #2032

May 14
Careers in Aviation Expo
Calgary, Alberta, Canada
careersinaviation.ca/expo/

May 17–19
72nd Annual Forum and Technology Display
AHS International
West Palm Beach, Florida, USA
vtol.org/annual-forum

May 19–20
Helicopter Technology Eastern Europe 2016
SMi Group
Budapest, Hungary
smi-online.co.uk/defence/europe/conference/Helicopter-Technology-Eastern-Europe

May 19–21
9th International Helicopter Industry Exhibition
HeliRussia 2016
Moscow, Russia
helirussia.ru/en

May 21
American Heroes Airshow
Seattle, Washington, USA
heroes-airshow.com

May 24–26
European Business Aviation Conference & Exhibition (EBACE2016)
European Business Aviation Association (EBAA), National Business Aviation Association (NBAA)
Geneva, Switzerland
ebace.aero

May 28
Helicopter Day
Strategic Air Command and Aerospace Museum
Ashland, Nebraska, USA
sacmuseum.org/event/helicopter-day/

June 13–14
SAE 2016 Aviation Technology Forum
SAE International
Shanghai, China
sae.org/events/atf/

June 13–15
Police Aviation Conference 2016
PAvCon
Oberschleißheim, Germany
pavcon.org/PAvCon_2016.htm

June 18
American Heroes Airshow
Los Angeles, California, U.S.A.
heroes-airshow.com

July 1–3
Heli UK Expo
Sywell Aerodrome, Sywell
Northampton, U.K.
heliukexpo.com

July 11–17
Farnborough International Airshow
Farnborough, U.K.
farnborough.com

July 15–16
5th Annual Rotors’n Ribs Fly-In
Indiana Helicopters, Helimotion, HAI
Goshen, Indiana, USA
indianahelicopters.com/rotors-ribs.php
Visit HAI at the HAI HELI-DAYS tent

July 18–23
ALEA Expo 2016
Airborne Law Enforcement Association (ALEA)
Savannah, Georgia, USA
alea.org/alea-expo-2016-savannah-ga
Visit HAI at Booth #630

July 25–31
2016 Airventure Oshkosh
Experimental Aircraft Association (EAA)
Oshkosh, Wisconsin, USA
eea.org/en/airventure

August 21
“Celebrating helicopters and the people that operate them”
World Helicopter Day
worldhelicopterday.com

August 30 – September 1
Western Region Safety Seminar
Airborne Law Enforcement Association (ALEA)
Palm Desert, California, USA
alea.org

September 5–8
42nd European Rotorcraft Forum
La Société Savante de l’Aéronautique et de l’Espace
Lille, France
erf2016.com

September 26–28
Air Medical Transport Conference
Association of Air Medical Services
Charlotte, North Carolina, USA
aams.org/events/amtc/
Visit HAI at Booth #304

October 11–13
Helitech International
Amsterdam, Netherlands
helitechevents.com
Visit HAI at Booth #12F88

October 12–14
Canadian Region Safety Seminar
Airborne Law Enforcement Association (ALEA)
Sault Ste. Marie, Ontario, Canada
alea.org

October 23
15th Annual Wings Wheels Rotors Expo
Los Alamitos Area Chamber of Commerce
Los Alamitos, California, USA
wwrexpo.org
Rodney Wysong

Rodney Wysong, vice president of Wysong Enterprises, Inc. and son of company founder Steve Wysong, lost a three-year battle with cancer in April. He was 35.

As vice president of the family company, Rodney helped expand from a small avionics operation specializing in electronic news-gathering helicopters to an internationally known maintenance, repair, and overhaul organization, and a well-known completion shop.

“Some fathers never have a chance to spend time with their children because of their career,” said Steve Wysong. “I spent my entire career working and building this business with Rodney. I shared more time with my son in 35 years than many parents spend in an entire lifetime with their children.

“From the time he was old enough to go to the office with me, he was tagging along and learning the business. We have been to countless cities, trade shows, and events. We were able to see the world together and share our passion for helicopters. I am extremely blessed to have shared this dream together with him.”

Rodney was preceded in death by his grandparents. He is survived by his wife Lauren Templeton Wysong, father and mother Stephen and Kimberly Hermesch Wysong, sister Holly Davis-Wysong and her husband, Jonathan Davis, and sister Kelly Wysong.

When Rodney was not traveling for work, he enjoyed hiking in the mountains, rock climbing, snowboarding, golf, visiting the Caribbean Islands, and snorkeling. He was also an avid University of Tennessee football fan.

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HFI is a 501(c)(3) nonprofit organization; your donations are tax deductible as far as federal law permits.

Questions? Contact Allison McKay, vice president, at allison.mckay@rotor.org or 703-302-8476.

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PHOTO COURTESY WYSONG FAMILY
“Work Hard ... and Don’t Quit”

Helicopter Foundation International (HFI) scholarship recipient Matthew Bettmeng can’t remember a time he wasn’t passionate about aviation. His parents joke that he was born with the gene!

Bettmeng grew up attending as many air shows and aviation demonstrations as he could. When he moved from South Dakota to Kansas in 2009, he had the opportunity to meet Johnny Rowlands, the helicopter pilot and traffic reporter for KMBC-TV in Kansas City and owner of KC Copters in Olathe, Kansas.

At only 16 years old, Bettmeng asked Rowlands to train him to be a helicopter pilot. To pay for the training he needed to receive his private rating, Bettmeng mowed 35 lawns a week. He is a recent high school graduate who will attend Embry-Riddle Aeronautical University in the fall, Matthew Bettmeng already holds private and commercial helicopter ratings.

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currently has more than 200 hours of flight training through KC Copters. In order to acquire his commercial rating, Bettmeng applied for and received a 2016 HFI Commercial Helicopter Rating Scholarship. He now holds his private and commercial helicopter pilot certificates and is working to complete his instrument rating, with a target completion date of August 2016.

Following his high school graduation this May, Bettmeng will attend Embry-Riddle Aeronautical University in Prescott, Arizona, to pursue a degree in aeronautical science. He plans to go on to get his master’s in business management with an emphasis in aviation.

During his time in college, Bettmeng will continue his flight training. His goal is to obtain his certificated flight instructor (CFI) rating by December 2016 and his CFI – Instrument certificate by May 2017. In addition, he plans to incorporate high-altitude flight training.

Ultimately, Bettmeng plans to become a heli-ski/utility pilot in the mountains. “It would be amazing to fly utility work in the summers and fly heli-ski in the winters,” he says. “Someday, I also hope to include a career flying high-altitude medevac in Colorado.”

Bettmeng had the opportunity to attend HAI HELI-EXPO 2016 in Louisville, Kentucky. “I never dreamed that I would have the chance to meet such an amazing group of mentors,” he says after attending the HFI mentoring panels held March 1.

Bettmeng also attended two HAI Professional Education courses and sat in on some of the Rotor Safety Challenge sessions offered and says he is “indebted to HAI for making him a better and safer pilot.”

Asked what advice he has for those considering a career in aviation, Bettmeng says, “Work hard … and don’t give up! I have worked harder than I ever thought possible to be able to accomplish what I have at my age.” He credits his family’s support and finding a mentor like Johnny Rowlands with keeping him focused on his goals.

HFI offers up to 19 scholarships each year to support students studying to become part of tomorrow’s vertical aviation industry. Applications for 2017 scholarships will open in June at helicopterfoundation.org/scholarships. If you know someone who wants a future in helicopter aviation, encourage them to apply.

(HFI Update continues on next page)

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HFI Hosts Student Tours at Expo

HFI is committed to exposing students of all ages to the career possibilities that exist in the helicopter industry. What better place to do that than the exhibit floor of HAI HELI-EXPO®? Two aviation schools — one in Louisville and one from nearby Cincinnati — were able to send groups of students to HAI HELI-EXPO 2016 to learn more about the exciting world of rotorcraft aviation.

The Academy @ Shawnee is a magnet high school in Louisville, Kentucky, with a focus in aerospace. Students choose from courses in aerospace flight, aerospace maintenance, aerospace travel and tourism, aerospace engineering, and the Navy Junior Reserve Officers Training Corps (NJROTC).

Approximately 50 Academy students came to the Kentucky Exposition Center on Thursday, March 3, to tour the show floor and talk to companies about their aircraft and equipment, the difference between flying a fixed-wing and rotary-wing aircraft, and the type of jobs that exist in the industry.

Cincinnati State Technical and Community College offers a two-year program in aviation maintenance technology. First-year students concentrate on the airframe rating, while second-year students prepare for the powerplant rating. Graduates earn an associate’s degree in applied science and have the training needed to pass the FAA licensing exam for airframe and powerplant (A&P) mechanics.

In addition to touring the exhibit hall, Cincinnati State students were able to attend the HFI mentoring sessions. According to Gary Goodpaster, a Cincinnati State instructor who accompanied them, these A&P students had “no clue about how exciting a career in helicopter maintenance could be.”

Goodpaster went on to express enthusiasm for the HFI program to match rotary-wing aircraft and equipment donations with A&P schools (see “A Different Kind of Recycling” on p. 12 to learn how you can become involved).

At Cincinnati State, Goodpaster says, “We have an old Bell 47 that we use in the program, so it was really exciting hearing that HAI is looking into working with A&P schools to help us prepare students with an improved knowledge of helicopter maintenance.”

Allison McKay is vice president of Helicopter Foundation International.
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<thead>
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<th>Advertiser</th>
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<th>Fax</th>
<th>Website/ Email</th>
<th>Page</th>
</tr>
</thead>
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<td>43</td>
</tr>
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<td></td>
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<td>77</td>
</tr>
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<td></td>
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<td>13</td>
</tr>
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<td></td>
<td>beckerusa.com</td>
<td>63</td>
</tr>
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<td>Bell Helicopter, a Textron Company</td>
<td>817 280 2011</td>
<td></td>
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<td>C2</td>
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<td>41</td>
</tr>
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<td>20</td>
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<td>56</td>
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<td>21</td>
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<td></td>
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<td>70</td>
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<td>54</td>
</tr>
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<td>14</td>
</tr>
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<td>44</td>
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<td>rotor.org/employment</td>
<td>34</td>
</tr>
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<td>16</td>
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<td>46</td>
</tr>
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<td>27</td>
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<td>35</td>
</tr>
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<td>76</td>
</tr>
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<td>75</td>
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