Dan Schwarzbach
Reports for Duty
HAI Chairman
2017–18

Straight Talk on
Radio Altimeters
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About the cover: On July 1, Daniel B. Schwarzbach of the Houston Police Department (HPD) was named HAI’s new chairman for the 2017–18 term. HPD primarily operates MD 500s as their patrol aircraft, but Schwarzbach is pictured here with the department’s Bell 412. Read more about Schwarzbach and his plans for the coming year in his profile on p. 20 and column on p. 4.

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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 Gina Kvitkovich, director of publications and media, at 703-683-4646 or rotor@rotor.org.
I love helicopters … plain and simple. From the first time I can remember seeing one, I wanted to fly in it.

As I got older, I reviewed my options to make this desire a reality. I discovered that the local police department had an air support unit and an ab initio pilot training program for those who qualified, so I decided this was the route I would pursue.

I remember telling the officer assigned to perform the background check on me during my application process to the Houston Police Department that I was going to fly helicopters for the department one day. He cautioned me not to get my hopes up. The Helicopter Patrol Division was a very small part of a large police department. I had to first go to the academy and field training program and then spend at least four years in a patrol car, not to mention pass the background check and get hired!

I got selected for the police academy, was elected president of my academy class, graduated, and passed the field training program with flying colors. Upon completion of my probationary period (the first year on the department), I was given a one-year assignment in dispatch.

While I learned a lot there, the year dragged on. What I really wanted to do was patrol the streets, catch bad guys, and work on getting into the Helicopter Patrol Division. The good news was that year in dispatch counted against the time I had to spend in patrol in order to apply for assignment in a specialized division.

As soon as I could, I submitted my transfer request to join the Helicopter Patrol Division, and within just a few months, I received a call from the administrative sergeant to schedule an interview. My dream was one step closer to becoming reality.

However, on the morning of that big day, I called the sergeant advising him that I was canceling the interview and removing myself from consideration.

At the time, the helicopter patrol worked rotating shifts: five weeks of days, then five weeks of nights. As a matter of economic necessity, Houston police officers are allowed to work extra jobs in uniform to supplement their income, and I had worked my way into some primo extra jobs. As an officer with a young family who worked multiple extra jobs to make ends meet, I just couldn’t see how I was going to be able to maintain the extra employment and income while working rotating shifts — and I couldn’t make ends meet on my policeman’s salary alone.

I felt empty after that call.

It didn’t take long before I realized the magnitude of my despair. The very day I turned down the interview, I was on patrol and received a call regarding a possible homicide victim in a field. Arriving on the scene, it was easy to see that because of its size and overgrown condition, the field could be more easily searched from the air.

I called for a helicopter. As the Hughes 300C passed high and low over the field, I stood in both awe at the machine and disappointment in myself for turning down an opportunity to realize my dream of flying it. The aircraft seemed so graceful and powerful at the same time; it was a beautiful sight. As if to add a punctuation mark to my deepening despair:

(Chairman’s Corner continues on page 6)
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Submit your completed application and all necessary documentation before midnight EST Nov. 30, 2017.
regret, the helicopter came to a high hover about 50 yards from me for what seemed like an eternity. This was a defining point in my life.

At that moment, I realized the foolishness in turning down the interview. I decided that I would do whatever it took to realize my dream of flying helicopters. Now that I had turned down the interview, however, the odds of flying for the police department weren’t in my favor.

A couple of months passed and I was looking at my options when I received a call from the same Helicopter Patrol Division sergeant. The new chief was revamping the department’s transfer policy, and every division had to clear out their transfer requests on file. The sergeant was calling as a formality to confirm that I wanted my request to be officially closed.

I advised him that I had a change of heart and to leave my request open if I could still be considered for transfer. That was fine, he said, adding that I would be temporarily assigned to the division for a 30-day evaluation period. He also stated that, by the way, the new chief had also put the division on straight shifts.

A second chance and no more rotating shifts? The pieces were falling in place!

I remember walking into the helicopter patrol’s hangar for the first time. There sat the Hughes 300C that fueled my desire. And the department’s five Hughes 500Cs looked big, sleek, and beautiful.

My 30-day rotation went well, and within 90 days I had my permanent transfer papers to the division. That was in January 1985, and my life has never been the same. Flying helicopters, especially for a law enforcement agency, has been a thrilling experience, providing a lifetime of stories.

My passion for helicopters burns as strong today as it did 33 years ago, when I made the decision to pursue vertical lift as my future. My involvement in the helicopter industry has allowed me to travel to places I never thought possible and meet some of the finest people in the world. Now, as HAI chairman, I have the opportunity and privilege to serve and promote this industry that has given so much to me.

My point, especially for the next generation of pilots and maintenance technicians who have a notion of making helicopters their life, is this: dreams do come true when you apply drive, hard work, and passion. HAI is here for you; let us know how we can help.

Dan Schwarzbach is the current chairman of HAI’s Board of Directors, a senior police officer for the Houston Police Department, and executive director for the Airborne Law Enforcement Association.
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E   ach day, the HAI staff share a common focus: how do we help our members keep the rotors turning around the world? Our mission is to help you to maintain an operating environment that is safe, free of burdensome regulations and laws, operationally efficient, economically viable, and sustainable.

A critical way HAI does this is to identify threats that could restrict or eliminate our members’ ability to conduct, grow, and sustain their operations. I’m sorry to report, there are now two issues that pose serious threats to general aviation and, in particular, the helicopter industry.

**ATC Privatization**

The airlines and their allies in the U.S. Congress are pushing legislation that would remove the air traffic control (ATC) organization from the FAA and hand it over to a private corporation dominated by airline-related representatives. If they succeed, the new ATC organization could restrict our industry’s access to certain airspace and facilities, and reduce or eliminate helicopter-oriented initiatives.

Supporters of this effort say a privatized ATC is necessary to advance technological programs such as NextGen. I have an even better idea: why don’t we remove the governmental restrictions that hobble the FAA and let it get on with doing its job. We do not need to give taxpayer-funded programs — including millions in infrastructure — to private corporations for free.

Everyone acknowledgesthat the U.S. ATC system is the safest and most efficient in the world. This being the case, just what is the problem that ATC proponents are trying to solve?

**Erosion of FAA Authority**

As far back as I can remember, the FAA has controlled the airspace from the ground up, as well as all related aviation activities. Legislation such as the Airline Deregulation Act of 1978 (ADA) was intended to protect us from the negative effects of multiple, confusing, and conflicting local and state aviation regulations. The FAA, as sole aviation authority, oversaw a unified, safe, and efficient National Airspace System.

In the future, this may no longer be true. The FAA’s authority and oversight over aviation is being challenged on different fronts. Missions such as helicopter air ambulance are facing potential requirements from several state governments that want to operationally and economically control aviation activities within their borders.

When it comes to the new technology of unmanned aircraft systems or drones, numerous local and state governments have already established laws for drone operations in their jurisdiction, in direct conflict with the ADA and the authority of the FAA.

Where does the FAA stand on this erosion of its authority? The agency has stated that local and state governments have a place at the table when discussing aviation regulatory initiatives.

Certainly, local and state governments have the right to make judgments on land use within their boundaries, such as the landing or takeoff of aircraft. However, when the aircraft is off the ground and in the airspace, it belongs to the FAA.

I certainly support these same governments conducting a dialogue with aviation stakeholders such as HAI and helicopter operators to express their concerns and desires. And we are obligated to make a best effort to address those concerns. However, the regulation and oversight of aviation should be left to the subject-matter experts of the FAA.

Fundamental principles of aviation, such as the definition of navigable airspace, are now under discussion. For example, where does the FAA’s authority begin? At the ground? If not, at what altitude? The answers could mean a reshaping of U.S. aviation.

These issues are at the heart of recent legislative efforts to give regulatory control of unmanned aircraft to local municipalities. Instead of defending its authority, it seems that the FAA is looking to accommodate.

If you think this only affects unmanned aircraft and does not concern you, think again. Drones are legally a category of aircraft, just like helicopters and airplanes, and the importance of precedent in law cannot be overstated.

Given this ominous activity, it is not hard to see that the FAA’s authority over aviation is eroding, coupled with a rise of local authority over manned and unmanned aviation and airspace. As in the past, we will request your help in turning back these negative trends. Get engaged, become active, and maintain your passion.

Thank you for your past and future support as HAI fights on your behalf to “keep the rotors turning.”

That’s my story and I am sticking to it. Let me know what you think at tailrotor@aol.com.

As always, fly safe — fly neighborly.

Best Regards,

Matt Zuccaro is president and CEO of HAI.
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Developing a Pilot’s Safety Mind-Set

The journey to becoming a knowledgeable and safe helicopter pilot is a long and methodical one. It starts during initial training and slowly develops as one’s experience accumulates. The opportunity to learn and improve on various skill sets is a fun and rewarding, yet endless, process.

Some key attributes of a good helicopter pilot include paying attention to details and doing the right thing regarding safety. It’s running a checklist, obtaining adequate rest, conducting a meaningful preflight, seeking input from others, and making sure that nothing is left to chance. “Trust but verify” serves as a good mind-set for the pilot who takes his responsibilities seriously in the cockpit.

An Ounce of Prevention
It’s nearly impossible to quantify the positive influence thorough flight preparation has on overall safety. How can you calculate the impact of an accident that didn’t happen?

If we were to assign a dollar value to the effort spent by a pilot to conduct a comprehensive preflight inspection, obtain detailed weather briefings, and take other precautionary steps to ensure safety — all before the flight even departs — that amount would be dwarfed by the cost of a catastrophic accident, let alone the price paid in human lives.

Unfortunately, many pilots fall prey to complacency and disregard the importance of these simple, yet important safety steps. A true professional manages risk by investing extra time triple-checking everything, while never assuming flight conditions will be perfect. A helicopter pilot who integrates risk management strategies into a robust safety management system will gain positive results, even when they are difficult to quantify on paper.

Safety Management
A detailed safety management mind-set requires commitment and dedication at all levels of an organization. Can we expect pilots to embrace conservative safety decision-making without the backing of management? We now recognize that safety attitudes are part of an organization’s culture, and culture starts at the top.

Pilots should be encouraged to use conservative decision-making that might involve a precautionary landing, a reversal of course, or a more prudent route and altitude when faced with dynamic flight conditions. An understanding that “no” is an acceptable answer to the question “should I continue?” must be stressed and supported by all levels within an organization, especially when the safety of a flight comes into question.

Checklists and Prep Time
Too often, pilots don’t think enough about preparing for the unexpected. Whether it’s the first takeoff of the day or the last, a lot can go wrong if crews are not fully prepared. Many accidents and incidents have occurred because flight crews responded inappropriately to an unexpected event. It’s always better to over-prepare for a flight than to be caught off guard.

Title 14 CFR §91.103 states that pilots must be aware of all available information related to any given flight. This level of situational awareness increases safety and vastly improves the overall enjoyment level for any flight.

The use of approved checklists and standard operating procedures can greatly influence a pilot’s ability to handle both normal and abnormal circumstances. Unfortunately, many pilots allow the habit of using checklists to fade over time. Remember, appropriate checklist usage is a free resource for improving performance and efficiency, while reducing risk. Even if you fly the same aircraft all the time, use the checklist — complacency kills.

Personal Minimums
When pilots least expect it, they find their careful preparations for a flight fall short in being complete. If we are honest, these are the times that we struggle with good aeronautical decision-making. When is it appropriate to turn around, to shut down an ailing system, to abandon the approach, to go around, or to cancel the flight completely?

At these moments, the most simple decisions can have the greatest impact on safety. When all elements are considered, including input from other crew members, the safest option is the best option, even when it’s hard to make. Whether you are carrying passengers or crew members, or are simply on a solo flight, keep well-defined personal minimums in mind. They are your touchstone for continuing a safe flight.

The secret to maintaining your personal minimums may be to examine the alternatives to continuing in unsafe conditions. Running into a cloud bank or low visibility for a pilot who is only rated for visual flight rules carries a high risk for loss of control. Keep in mind how you can mitigate risks by sticking to your minimums, no matter what.

All pilots must understand that safer and more conservative choices may cause criticism and uncertainty in the moment, but they will rarely be criticized later, after a positive outcome is achieved.

Steve Sparks is HAI’s director of safety and serves as coordinator for the U.S. Helicopter Safety Team.
License to Learn

Whether you are a student pilot with five hours of flight time, a private pilot with 500 hours, or an airline transport pilot with 5,000 hours, continuing education is an important tool for a successful career. Everyone from new airframe and powerplant technicians to inspection authorization technicians with 25 years of experience needs to keep up with all the changes in technology, procedures, regulations, and techniques.

Changes occur rapidly in aviation. This is even more true in the rotorcraft industry, so it is important that pilots, technicians, and support personnel know the changes being proposed or implemented.

Consider your FAA certificate as a license to learn, not just a license to operate, fly, or maintain.

How to Stay Educated

Review Manuals
When was the last time you actually read through the helicopter pilot information manual? When did you last review the Federal Aviation Regulations pertaining to your area of operation? What about the maintenance manual on that aircraft, engine, or gearbox? The pace of change in our industry is so rapid that we must continue to learn to keep up.

For example, new pilots today learn mostly on aircraft that have legacy instrument gauges. As they transition to opportunities in the oil and gas or aeromedical industries, these pilots will be introduced to aircraft with glass gauges and many options for automation.

Some pilots fail to successfully transition because they cannot become accustomed to and effectively fly in the new glass cockpit environment. The new instrumentation requires a different scan technique, as well as a different way of troubleshooting an instrument problem. Understanding the system requires extensive knowledge, and reviewing the manuals is one way to obtain that information.

Engage in Group Learning
Learning can also take place in small groups on the shop floor or in the hangar to discuss a new procedure or interpret a new regulation released by the FAA. It is important to use every opportunity to learn, as well as to mentor younger technicians and pilots. Never pass up an opportunity to mentor younger technicians and pilots — they are the ones who will train and mentor future generations.

Check Out HAI and USHST Resources
HAI offers many resources to help members learn what is happening in the industry and how to remain safe and viable. One of HAI’s newest offerings is “30 Seconds for Safety,” which are short videos that discuss ways to improve flight safety. They can be viewed on rotor.org or on HAI’s YouTube channel at youtube.com/user/HelicopterAssoc.

The U.S. Helicopter Safety Team also has tools, presentations, and videos available that will help you stay on top of all the safety issues affecting our industry. Visit ushst.org to learn more.

Online Learning
With the rise of the digital era, it is now easier than ever to expand and keep up your knowledge base. Many reference books and manuals are available to download and view on a tablet or smartphone, which can be viewed anytime. Soon, HAI will also offer online learning opportunities.

Moving forward, HAI will strive to increase and improve our online content to provide members with information to not only continue their education, but help them to “keep the rotors turning.”

Greg Brown is HAI’s manager of education.
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Your HAI Membership Is Critical to Fight ATC Privatization

On June 27, the House Committee on Transportation and Infrastructure passed HR 2997, the 21st Century AIRR Act, which would shift the air traffic control (ATC) function of the FAA to a private corporation.

HAI stands united with the general aviation industry to strongly oppose this bill. We need your help to defeat efforts to privatize ATC and to act on other issues facing the helicopter industry.

U.S. airspace is a national asset we all have a right to use. General aviation currently has — and deserves — a strong voice in the management of this asset through our elected leadership. A privatized ATC will effectively silence our voice.

Now more than ever, your voice is needed as part of our industry’s efforts to preserve general aviation access to the National Airspace System. Here’s how you can help.

Make Sure Your Membership Is Current
A single voice alone won’t make a difference. But as part of HAI and its 4,200-plus members of the helicopter community, your voice will.

Since 1948, HAI has been fighting on the behalf of helicopter operators, owners, users, manufacturers and suppliers, service organizations, and individuals with an interest in our industry. To check your membership status or to join HAI, visit www.rotor.org, or contact the HAI Membership Department at 703-683-4646 or member@rotor.org.

Update Your Membership information
It’s critical we share important information about ATC privatization and other HAI advocacy initiatives with everyone in your organization. If you haven’t already done so, please log into your membership profile on rotor.org to verify that your leadership and staff are listed correctly and to make any updates online.

Your voice is needed as part of our industry’s efforts to preserve general aviation access to the National Airspace System.

Take Action
Text ROTOR to 40649, or visit rotor.org/action, and you will be sent to HAI’s online advocacy tool where you can contact your elected officials. You’ll find editable draft emails, tweets, and Facebook posts ready for you to send to your representatives.

You can also call your officials by dialing 855-265-9002 and providing your name and your opposition to ATC privatization.

After you have completed your outreach, get your colleagues and friends to do the same. We need the industry’s collective voice telling Congress that we are opposed to ATC privatization.

For more information on our battle against ATC privatization, see “ATC Privatization: The Battle We Must Win” on p. 18.
INCREASING WHAT’S POSSIBLE.

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Hypertension: A Common Malady

The most common condition I encounter in my aeromedical practice is high blood pressure, also known as hypertension. That makes sense — high blood pressure is a very common condition in the United States.

In most cases, hypertension is fairly easy to manage, and pilots being treated for high blood pressure are regularly cleared to fly. Let’s review some of the causes of hypertension, how it is treated, and how you can sail through your next medical if you have this condition.

What’s at Stake
Why should you care if your blood pressure is elevated? Hypertension is a major cause of serious conditions such as heart attack and stroke. For a helicopter pilot, it will be much easier to control your blood pressure than to deal with the consequences of untreated hypertension.

Hypertension is typically defined as a resting blood pressure that is greater than or equal to 140/90. To be diagnosed, your blood pressure has to be elevated during two or more office visits with your doctor. In other words, if your blood pressure is high during one office visit but then returns to normal during subsequent visits, this doesn’t meet the definition of hypertension.

Many physicians have adopted home blood pressure monitoring as a way of more accurately determining what your blood pressure is during your normal daily activities. This is because many individuals experience an increase in blood pressure when they visit a doctor’s office (it’s called white-coat hypertension). Some guidelines say a higher blood pressure (up to 150/90) is acceptable in individuals over the age of 60; however, other guidelines advocate for better control. This is an area of controversy in medicine.

Causes
No one really knows why some people get high blood pressure. Hypertension is sometimes referred to as essential hypertension. This is a fancy term doctors use to say, “We don’t know the cause.”

It is important to know that there are other causes of hypertension, called secondary conditions. For example, a blockage in arteries that lead to the kidneys can cause your blood pressure to increase. Another example of a secondary condition is pheochromocytoma, where a tumor secretes high amounts of hormones, such as adrenaline, resulting in increased blood pressure.

Doctors may suspect secondary causes when your blood pressure is difficult to treat. Secondary causes are potentially treatable, so it is important to work with your doctor if your blood pressure is not under good control.

Treatment
Risk factors for hypertension include obesity, physical inactivity, and a high-sodium diet. If your blood pressure is only mildly elevated, it is reasonable to first try to make changes in your lifestyle.

By losing weight, starting an exercise program, and lowing your sodium consumption, you can sometimes cure hypertension without resorting to medication. Talk with your doctor if you are ready to take these steps. A diet plan I recommend to my patients with hypertension is the DASH diet (http://bit.ly/hyperDASH).

However, some risk factors are out of your control, such as family history or race (African-Americans have a higher risk for hypertension). You may end up requiring medication even if you have good control over your weight, level of physical activity, or diet.

Your doctor may recommend that you take medication. Most antihypertensive medications are approved by the FAA, so I recommend following your doctor’s advice. The only medications not approved for flight duties are centrally acting ones such as Clonidine.

FAA Medical Exam
As far as certification goes, hypertension is a CACI condition. CACI stands for Conditions an AME Can Issue, meaning that your AME can assess this condition and make a determination without having to send any documentation to the FAA.

However, your exam can still be deferred to the FAA if your blood pressure exceeds certification standards, which is greater than 155/95, so be prepared before you go in for your FAA exam.

Before your FAA exam, print a copy of the CACI Hypertension Worksheet.
Take it to your primary care physician, and ask her to write a letter addressing all the items on the list. This information will make it much easier for your AME to fill out the worksheet.

What if your blood pressure exceeds the maximum allowable for certification (155/95)?

One thing you can do is to ensure your doctor is getting a blood pressure reading that is as accurate as possible. Many doctors use automated blood pressure cuffs for convenience. Ask for a manual blood pressure reading; these are typically more accurate and you may get a lower reading.

Ask for another reading at the end of your visit. Your blood pressure is typically higher at the start of your visit, since you will have just walked in from the parking lot or up flights of stairs.

When a blood pressure reading remains elevated, I ask my pilots to send me the results of three separate blood pressure readings over three separate days. Because your blood pressure is typically lower away from a doctor's office, these off-site readings may be lower. Your local fire station or pharmacy are locations where you can get these measurements taken.

The bottom line is: get treated if you have high blood pressure. The consequences of untreated hypertension — heart attack and stroke — are too serious to chance. To lower your risk of developing this condition, be aware of how diet, exercise, and salt intake can affect you. The medical certification aspect is pretty straightforward, so do what is best for your long-term health.

Dr. Charles H. Mathers is an FAA senior aviation medical examiner and is board certified in Aerospace Medicine. He serves as medical director for the Aerospace Medicine Center at the University of Texas Medical Branch in Galveston, 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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Questions? Contact member@rotor.org.
Government Affairs

ATC Privatization: The Battle We Must Win

This issue of ROTOR should hit your mailbox in August. As I sit at my desk in July, looking into my crystal ball and trying to predict how Congress will vote on air traffic control (ATC) privatization, I realize there is a reason why I don’t play the lottery. These crystal balls are downright murky.

As of this writing, all indications point to a House vote during the third week in July. Regardless of that outcome, as you are reading this issue in August, there are some important actions the industry needs you to do.

The Senate and House version of the FAA reauthorization bill are different; the Senate bill does not contain an ATC privatization component, the House bill does. Assuming both bills are passed, there will need to be a conference between the two bodies to reconcile those differences.

It is highly unlikely the conference will occur before September 30, in which case Congress will need to pass a short-term extension of the FAA’s current reauthorization. This means the issue of ATC privatization is active, and proponents will have additional time to shore up support.

We need to be just as diligent in rounding up our supporters and doing all we can to stop the privatization of our nation’s ATC system. Congress needs to know that the helicopter industry — along with the rest of general aviation (GA) — is opposed to ATC privatization.

Why Is Privatization Bad for GA?

How will a privatized ATC negatively impact you? That is a great question. After all, privatization, which is often associated with efficiency and modernization, should be a good thing. However, in this case, privatization of the nation’s ATC is a bad idea. Here is why.

Removes Congressional Oversight

Currently, the interests of all users of the National Airspace System (NAS) have a voice through the regulatory process of the FAA as well as congressional oversight. Our current ATC system maintains the safety of the world’s busiest airspace, while allowing for the advancement of important safety improvements and efficiencies benefiting all segments of aviation.

If you have an issue with ATC now, you can reach out to your elected officials for help. Moving the system to a private board removes ATC from congressional oversight and takes away your direct connection to assistance.

Silences the Helicopter Industry’s Voice

The proposed board for the privatized ATC corporation is comprised of 13 seats dominated by airline-related interests. Of those 13 seats, one is reserved for GA and one other for business aviation. The mechanism to appoint those two seats does not address the helicopter industry.

Our industry has unique requirements that require representation directly from the helicopter industry. As currently written, HR 2997 does not address our needs.

Reduces Access to Resources

Although the corporation is structured as a not-for-profit, the board of directors’ fiduciary responsibility is to the corporation. The revenues of the corporation are generated through the fees placed on commercial airlines (and paid by passengers).

Moving control of ATC to a privatized system that could be dominated by biased users could result in the steering of resources and investments toward airline-dominated airport hubs and initiatives at the expense of hundreds of other airports serving GA and rural America. The board itself would operate as a monopoly with little congressional oversight or competition. Seeking a return on investment, and with its main revenue from one segment of the industry, do you venture to guess where the board will focus its resources?

Could Limit Access to Airspace

Proponents of privatization claim that small and rural community access to the NAS will be maintained and protected under the new ATC board. However, GA industry groups see this issue differently.

The bill provides for an administrative process that would allow the board to restrict GA access to airports and airspace as long as safety was not adversely affected. In such an instance, your only recourse would be to challenge these restrictions through the courts. How large is your legal budget?

Ignores Current Modernization Efforts

HAI supports ongoing efforts to
modernize and increase efficiency at the FAA, including continued deployment of NextGen. Supporters of ATC privatization argue that these efforts have failed, are delayed by decades, or are over budget. They say the FAA's failure to modernize creates delays throughout the system. Below are some facts to counter these claims.

First, let's look at the actual performance of the FAA's NextGen program:

- GA pilots use NextGen technologies to quickly and easily file flight plans as well as NextGen airspace procedures for safe and precise landings.
- Through 2016, the NAS saw $2.72 billion in savings in passenger time and occupant safety, as well as reduced fuel and aircraft operating costs.
- According to FAA Administrator Michael Huerta, over the past five years, NextGen has delivered benefits to the aviation industry and traveling public, improvements that were completed on time and on budget. Significant progress has occurred on modernization programs such as ADS-B. The FAA also created 4,000 GPS approaches offering precision guidance to the runway without the need for ground-based equipment.
- No other country has built an ADS-B network to capture GPS position information from aircraft that is as large as what has been deployed in the United States.
- ADS-B is integrated at all 24 FAA en-route ATC facilities and all major terminal radar approach control facilities (TRACONs). Currently, ADS-B traffic and weather broadcasts are available nationwide.

Now let's look at the airlines' performance in modernization:

- As of 2015, only 6 percent of commercial airliners were equipped with ADS-B–capable transponders, which are required to use the GPS-based ATC system. Meanwhile, the FAA has mandated ADS-B equipage for these aircraft by January 1, 2020.
- Commercial airlines petitioned the FAA to delay equipping their aircraft with ADS-B transponders for five years, until 2025.
- According to the U.S. Bureau of Transportation Statistics, air carrier delays and weather accounted for nearly 80 percent of flight delays in 2016.
- Airline technology disruptions also cause significant delays across the system — there have already been 17 major outages in 2017.

With this track record, should we put the airlines in charge of modernizing ATC?

What You Can Do

HAI believes the FAA should always strive toward improvement and seeking efficiencies. However, we do not believe there is a need to fundamentally change the structure of U.S. aviation. Privatization may be good in some areas of the government, but not in the delivery of ATC services.

We question why policymakers are looking to make such a wholesale change to a system that already works better and more safely than any other ATC program around the world. Put simply, the United States has the safest, most efficient ATC system; what are we trying to fix?

In the face of this fundamental change to U.S. aviation, GA has united as never before. A recent letter to Congress stating our opposition to privatization was signed by 117 GA associations. But what really matters to our elected representatives in Washington are the opinions of the people who sent them there. We need you to contact your congressional representatives to tell them to oppose ATC privatization. Tell them ATC privatization will have a chilling impact on GA and your business.

Since it's August, your representatives are back home, reaching out to constituents to better understand their perspectives. This is your time to host them at your place of business. Invite them in and show them the positive impact you have on your community. Explain how ATC privatization will negatively impact you, your business, and the local economy.

Finally, thank you to all who responded to our call to action. We still need your voice. Please continue to reach out to your elected officials and tell them you are opposed to ATC privatization. Have your colleagues reach out as well. Get your family involved.

Your voice will be silenced under ATC privatization. Act now to ensure you are heard by visiting HAI's advocacy page, rotor.org/action or by texting ROTOR to 40649.

Cade Clark is HAI's vice president of government affairs. Cade can be reached at cade.clark@rotor.org.
Dan Schwarzbach looks every inch a police officer. He stands straight and slim, with the steady gaze of someone who can’t help but survey a crowd for threats. That only makes sense — Dan has been a police officer for the city of Houston for 37 years. He also serves as the executive director of the Airborne Law Enforcement Association (ALEA).

Dan is now adding a new entry to his resume. He took over as chairman of HAI on July 1 and will serve until June 30 of 2018.

“I Wanted to Fly for a Living”

Except for a two-year stint in Huntington Beach, California, where his family moved when he was 12, Dan has been a lifelong resident of Texas. And for most of that time, he has lived in Houston. Like many in our industry, Dan had dreamed about becoming a pilot since he was a child. “I’ve always been enamored with flying, and more specifically helicopters. I wanted to fly for a living,” he says.

In 1980, at age 23, he was already married and supporting a family by working as a manager in grocery stores and restaurants. Many traditional routes into the cockpit didn’t provide enough income or, like the military, would take him too far from home. But Dan had a plan: become a pilot by first becoming a cop.

“The Houston Police Department [HPD] had a program where, once you went through the police academy and worked for a certain number of years, you were eligible to go into the specialized divisions, including what was back then the helicopter patrol,” says Dan.

“The chances were slim to get there, but if you got there, then you spent two or three years flying as what now is a tactical flight officer … and then they would send you to pilot training, and they would get you all the way through commercial rotorcraft license.”

Dan applied to enter the HPD police academy, hoping it would lead him to the cockpit. He then spent several years on dispatch and patrol duty until he could put in for a transfer to what was then the helicopter patrol for the HPD. Dan officially transferred to the HPD helicopter patrol in January 1985 — where he has worked ever since (if you want to read more about the hurdles Dan overcame to attain his dream, turn to p. 4 to read his Chairman’s Corner column).
The Aerial Advantage
Home to 2.3 million residents, Houston is the fourth-largest U.S. city in population and the largest city in the South in land area. The HPD helicopter patrol — now called the Air Support Division — is one of the largest U.S. aviation law enforcement units.

The division operates out of the William P. Hobby Airport (KHOU). All pilots and tactical flight officers are sworn police officers; all the maintainers are civilians. The Air Support Division was founded to provide aerial support to patrol officers. Although Dan says that is still the primary mission, “as we bought more capable aircraft, we added the ability to do other things.”

Currently, the HPD fields a fleet of Schweizer S-300s for training and MD 500s for patrol. In addition to a Cessna 182, the department also has a Bell 412, which Dan says has opened the door to some operations, such as hoists and tactical team insertions, that weren’t feasible in a single-engine aircraft.

Dan worked as an observer in the unit for three years and then received his pilot training; he holds a commercial rotorcraft license. Besides serving as a pilot and tactical flight officer, he oversaw the Air Support Division’s procurement, purchasing, and contracting of aircraft and aircraft parts and services. He also managed the fleet’s maintenance, parts inventory, and component maintenance. These responsibilities came to Dan in part because of his experience in business management before he joined the HPD.

A Boost from Technology
Being in airborne law enforcement since 1985, Dan has seen a lot of changes. Some of the old “technology” for airborne police work was fairly primitive. “We took patrol car radios and put them in the helicopter, and we were always changing them out. After a month, everything would be vibrated loose. The technology just wasn’t there.”

He describes changing a spotlight’s position by moving a pole slung through a hole drilled in the aircraft floor. “Now we have Nightsuns with electric motors.”

An incredibly convenient tool when tracking suspects through Houston’s 667 square miles is modern mapping technology. “It used to be you’d look through a printed street map, and then try to look at the ground and try to figure out what street it was — all while you’re in a high-speed pursuit,” says Dan.

“Now with the moving map technology, you’re looking at the actual car below you, and overlaid are the names of the streets and everything else that’s there. You don’t have to keep switching back and forth. It’s amazing how that level of technology has helped us.”

To keep up with the technology, the roles of the police officers in the aircraft have changed as well, particularly for the tactical flight officer. “When I first started, that
position in the aircraft was called the observer, because that’s about all you did. You looked out of the helicopter window and reported over the police radio to ground units what you observed. If you were really lucky, you might have a pair of binoculars.”

Now, says Dan, the roles of the airborne police officers have become more specialized. The pilot, responsible for the safe conduct of the flight, focuses on flying the aircraft.

In addition to communicating with officers on the ground, the tactical flight officer manages the entire tactical suite in the aircraft, which now includes a host of high-tech tools, such as cameras, thermal imagers, night-vision goggles, moving maps, and video downlinks. Looking out the window is now optional.

The Human Factor
When he talks about his career, Dan keeps coming back to the people of Houston that he has served for 30-plus years.

There was the woman he couldn’t save — a victim of domestic abuse whom Dan and his partner helped to leave her home, advising her, “Don’t ever go back there.” A week later, the two policemen responded to a report of shots fired at the same address. “Tragically, she went back and he shot her.”

When Dan helped another woman in the same situation, he made her promise that she would never go back. More than 20 years later, he received an email. The woman had remembered him all through the years and got in touch, just to let him know how her story had turned out. “I’ve had a great life, and it was all because of you that night,” she wrote.

In telling the story, Dan says, “You try to do good, but you wonder Have you made a difference? And at least for that one person, you did.”
There was also the young man whom Dan met one day, while he and his aircraft were part of a static display. Dan and the fellow started talking that night, and they stayed in touch afterward. That young man is now an officer for the HPD, hoping to follow Dan into the Air Support Division. “That is why a lot of people join the police department,” says Dan, “to try and make wherever they are, or someone’s situation, better.”

“We Can All Learn From Each Other”

Dan’s drive to make things better was one reason he began attending conferences and industry meetings, such as HAI HELI-EXPO and ALEA events. He has seen first-hand the benefit of moving beyond the confines of your organization to discuss issues with peers and learn from others.

When he first started at HPD, he says, “Everything we did was just the way we did it. And you get outside your organization and see how other people operate, and you think, Wait a minute, that’s a really good way to do it.

“There is a lot to be gained by interacting with other agencies or learning from other people, and talking about your good stuff and your bad stuff to help you — and other people — learn. The world is wider out there,” Dan says, “and HAI gives you exposure to that wider world.”

As HAI chairman, Dan mentions several priorities for the next year. “I think noise, and the resulting attempt to restrict our operations, is still a critical issue for us, especially in California. I’m also really concerned about where the next generation is going to come from, how they can afford the training, and how we are going to mentor them and get them interested in the industry.”

Dan also has one simple wish: “I’d like to see us go a week without somebody dying in a helicopter crash somewhere in the world. Every time I read about one, it still hurts.”

Airborne Law Enforcement Association

Dan’s day-to-day job with the HPD is winding down, as he works through the 5½ years of vacation that he had accumulated during his career. This arrangement is sanctioned by the HPD as part of its Phase Down Program, where Dan and other colleagues are free to work at HPD-approved extra jobs. They must continue to meet all HPD requirements, such as training or weapons qualifications.

In return, Dan says, “They can call and you’re ready to go. You’re mobilized.” The program is a way for the department to lower its financial liability to senior officers while still being able to tap their knowledge and skills.

In Dan’s extra job as the executive director of ALEA, he oversees five staff members, as well as contractors and volunteers, who provide training, networking, advocacy, and educational programs for police aviation units like his. He had been a member of the board of directors since 1998 and, as a volunteer, had steadily increased his
work for ALEA, serving as secretary, president, immediate past president, and chief financial officer. Finally, in 2014, the ALEA board asked him to become executive director.

The organization recently announced that beginning January 1, 2018, it will rename itself as the Airborne Public Safety Association (APSA) as it broadens its membership to include any public-safety flight program, including firefighting and search and rescue. It will also absorb the Public Safety Aviation Accreditation Commission, which seeks to provide a common standard of safety to aviation units in that sector.

ALEA is also developing new programs. They will present some education courses as standalone events occurring throughout the year, rather than just holding them at the annual conference. A series of smaller, local safety stand-tos around the country is also planned. And in October, ALEA will hold its first Public Safety Drone Expo.

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**Drones in Law Enforcement**

In 2007, as the editor-in-chief of ALEA's *Air Beat* magazine, Dan ran a cover showing a drone in police livery flying over a city. The reaction was intense. “I got tons of hate mail saying I had no business being a policeman, no business being an aviator, that these things were ridiculous.”

Now, 10 years later, Dan’s early embrace of UAS is seen very differently. “I’ve been in two different seminars where that cover has shown up in somebody’s PowerPoint as ‘Hey, look, somebody had the foresight about this back in 2007.’”

Dan’s support for drones stems from a simple principle: they provide aerial surveillance at a cost-effective price. “The tactical advantage, the edge we get from being airborne — it’s phenomenal, and it helps you do your job, and it give you a situational awareness in a very short amount of time. So I’ve always wanted to get air support to as many agencies as we could to help them.”

But in the past, says Dan, the cost of running an aviation program was simply too much for most law enforcement agencies. He points out that 75 to 80 percent of them have 25 people or fewer. “If you only have 25 officers in your department, you can’t afford an aircraft.”

Dan points out that even for larger departments with manned aircraft, drones can still be very helpful. He tells the story of a search-and-rescue mission in England that demonstrates how the two types of aircraft can complement each other.
“A guy was lost in a bog. This particular police department had a drone, so before they called out the National Police Air Service [the U.K. national public safety aviation unit], they figured, ‘Let’s put the drone up and see if we can guide him out.’ So they launch a drone and find the guy. He is injured and stuck. Turns out they do need a helicopter.”

But, says Dan, performing an early reconnaissance with the drone still delivered advantages. Rather than conducting a search with an unknown outcome, the manned aircraft and its crew could now launch to a specific set of GPS coordinates with a known mission of a hoist rescue. “To me, that’s the perfect marriage of these two technologies,” says Dan. “It is a responsible use of taxpayer assets, and I personally like that.”

Next Steps

Dan has two grown children from his first marriage and five grandchildren, all of whom live in the Houston area. He has been married to Amy, his second wife, for more than 20 years.

A chemical engineer, Amy has an ambitious travel schedule, just like her husband. She works for a Canadian company, has offices in Montreal and North Carolina, and according to Dan, is always on call to go somewhere. Between their busy schedules, Dan jokes, “If we’re in the same place for a couple of weeks, one of us is required to go on a trip somewhere.”

When asked about his hobbies, Dan mentions diving and sailing, but says that he doesn’t sit still very often. “Going on vacation with me can wear you out. I’m on the move.” He recounts a recent family trip, where the planned activity for one day was to sit on the beach. Dan went along, “trying to be good,” he says. “And about 30 minutes in, I said, ‘I can’t just sit here, I have to go do something.’”

Dan and Amy recently bought property in Belize, a country in Central America that borders the Caribbean Sea and is one of the premier diving spots in the Western Hemisphere: Dan is a sailor and master diver. The couple plan to spend more time there in a few years. However, full retirement doesn’t seem like it will ever happen for Dan. He’s already reached out to a Belizean helicopter operator about flying for him.

Eventually, Dan says, there will be a period of readjustment, as he and Amy wind down their work schedules. But for now, he says, his focus is on his work. “I literally work 12 to 16 hours a day at least six days a week, sometimes seven.” And he’s happy with that.

“I try to make everything better than when I found it, no matter what it is, even if just for going out to dinner and making the waiter feel better about his day, or if it’s an organization I’m involved in, trying to leave it better than it was.” Because for Dan, making a difference is what counts.

Gina Kvitkovich is HAI’s director of publications and media.
HAI Welcomes 2017–18 Board of Directors

More than 110 people helped HAI welcome its new Board of Directors on June 26 as the association held its annual reception to mark the end of the fiscal year and the installation of the new board. Old friends and new connections mingled over hors d’oeuvres as they congratulated the board on another year of serving HAI members.

During the reception, outgoing Chairman Torbjorn “TC” Corell of Southern California Edison passed the gavel to Daniel B. Schwarzbach of the Houston Police Department, who on July 1 took over as chairman of the Board of Directors (read more about Schwarzbach in his profile on p. 20 and his chairman’s column on p. 4).

To commemorate TC’s tenure as chairman and as a playful reference to his Swedish heritage, HAI President and CEO Matt Zuccaro gave Corell a gift — the CD Arrival by Swedish pop group ABBA. During a fun moment at the 2017 Salute to Excellence Awards dinner in Dallas, an alternate version of the CD cover — which shows the four band members sitting in a Bell 47 — was displayed, immortalizing Corell as the fifth member of ABBA.

Rowles Joins HAI Board of Directors

During Randy Rowles’s nearly 30 years in the helicopter industry, he has worked to improve safety, training, and regulatory oversight. An FAA-designated pilot examiner for more than 20 of those years, Rowles values comprehensive training programs.

Rowles started working with helicopters at an early age. As a middle-school student, he spent his afternoons and weekends washing aircraft, and was even able to take advantage of an empty seat occasionally to build up coveted flight time. Because of these opportunities, he believes strongly in the importance of mentorship to younger generations.

“These opportunities are few and far between these days,” Rowles says. “Our industry lacks the mentoring our young pilots and mechanics need to be successful. I truly believe in mentoring our industry by getting involved and participating.”

Rowles began his career with Aircoastal Helicopters in 1990 and was named that company’s Part 135 chief pilot/check airman in 1994. He worked for prominent companies such as Bell Helicopter and Era Helicopters before founding Helicopter Institute Inc. in 2009.

As both co-owner/founder of the company and lead flight instructor for its training programs, Rowles provides pilot training for the Bell 407, UH-1, and other aircraft, as well as night-vision goggle training with an emphasis on ground contact emergency procedures. Rowles has more than 13,850 helicopter hours under his belt and has provided more than 8,000 hours of instruction.

Rowles is an active member of HAI, serving as assistant chief instructor for HAI’s Flight Instructor Refresher Course. He is also a founding member and former chairman of the association’s Flight Training Committee and CFI Mentoring Program. In 2005, he was honored with HAI’s Igor Sikorsky Humanitarian Award for providing support services in the aftermath of Hurricane Katrina, and he was the 2013 recipient of the HAI W.A. “Dub” Blessing Flight Instructor of the Year Award.

“I’ve been fortunate to be in the helicopter industry during what will prove to be our industrial revolution,” Rowles says. “The changes to technology have affected all aspects of our industry. I’m hopeful that the diversity of my background within our industry, combined with my passion for it, will serve the HAI membership well.

“It is a great honor to be here, and I couldn’t be more appreciative to the HAI membership for your vote of confidence,” Rowles says. “It is a truly humbling experience.”
In recent years, there have been several highly publicized helicopter accidents where occupants survived the impact but were injured — or even killed — by resulting post-crash fires. In response, the National Transportation Safety Board (NTSB), FAA, and Congress have increased pressure on the helicopter industry to develop and install improved crash-resistant fuel systems that would decrease the potential for post-crash fires and thereby improve occupant survival.

The good news is the industry has been making significant strides, and in some cases, is leading the charge to increase crash-resistant features in the aircraft fleet and to reduce instances of post-crash fires.

Majority of Fleet Not Subject to Rule

In 1994, the FAA updated the airworthiness standards for both normal category rotorcraft (Part 27) and transport category rotorcraft (Part 29). The changes, codified as 14 CFR §27.952 and §29.952, required all newly certificated helicopters to include crash-resistant fuel systems to prevent post-crash fires.

These regulations require rupture-resistant fuel tanks, fuel line self-sealing breakaway couplings, frangible or deformable structural attachments, and separation of fuel and ignition sources. The regulations also require fuel systems to survive prescribed static and dynamic deceleration loads without structural damage to components, fuel tanks, or their attachments that would lead fuel to an ignition source.

Basically, these new standards aim to prevent post-crash fires by mandating fuel tanks that resist rupturing or leaking even after an impact, fuel systems that prevent the release of additional fuel after an accident, and aircraft designs that separate fuel from ignition sources. Unfortunately, by 1994, some of today’s most popular helicopter models had already been certificated. Updates to those models were designed off the original certification standards and thus not subject to the 1994 standards.

In 2013, the Australian Transportation Safety Bureau called out this loophole when investigating a series of Robinson R44 crashes, in which the initial crash was survivable but resulting post-crash fires caused fatalities. Robinson had already taken steps to remedy this issue by installing fuel bladders in new and overhauled R44 helicopters since 2009 and issuing a service bulletin (R44 Service Bulletin SB0-78B) recommending owners retrofit their aircraft with the bladders through the manufacturer’s available field kit by April 30, 2013.

However, many R44s continued to fly without installing the recommended bladder. The Australian Civil Aviation Authority issued an airworthiness directive requiring all R44 helicopters operating under its authority to be retrofitted with bladder-type fuel tanks in accordance with the Robinson service bulletin.

Spurred by the findings in Australia, the FAA began an in-depth study of helicopter accidents involving post-crash fire and blunt force trauma. Published in 2015, the study revealed that only 16 percent of the U.S. helicopter fleet met 14 CFR §27/29.952 to the letter; only 10 percent met regulations related to crash-resistant seats.

The FAA concluded that 80 percent of fatalities in the accidents studied were caused by blunt force trauma. The other 20 percent were caused by post-crash fires. However, in otherwise survivable crashes, there had been no post-crash fires in helicopters that met the updated 1994 airworthiness standards for crash-resistant fuel systems.

High-Profile Accidents Raise Issue

Unfortunately, while the FAA conducted its study, accidents continued to occur. On October 4, 2014, the pilot of a Bell 206L-1 on approach to United Regional Hospital’s helipad in Wichita Falls, Texas, failed to maintain yaw control during an approach in night conditions. The aircraft spun, impacted power lines nearby, and crashed. The aircraft was engulfed in flames shortly after impact.

The pilot survived with serious injuries. The flight nurse and paramedic survived the crash but were severely burned in the post-crash fire. They later succumbed to their injuries, including thermal injuries. The patient on board also died but most likely...
from a preexisting medical condition, according to the NTSB. The aircraft was manufactured in 1981, prior to the updated airworthiness rules of 1994, as well as Bell Helicopter’s own post-crash fuel system upgrades.

This accident prompted the NTSB to begin conducting its own study of post-crash fires and crash-resistant fuel systems in helicopters.

While investigations of instances of post-crash fires and adherence to FAA regulations continued, two high-profile helicopter air ambulance accidents with post-crash fires took place. One occurred on March 6, 2015, in St. Louis, Missouri, when an Airbus Helicopters EC130 B4 struck the edge of a hospital building while on approach to an elevated rooftop helipad. The sole occupant, the pilot, died from thermal injuries.

The second and the most publicized accident took place on July 3, 2015, in Frisco, Colorado, when an Airbus Helicopters AS350 B3e impacted a parked recreation vehicle after takeoff from a ground-based helipad and burst into flames a few seconds after impact. Parking lot surveillance footage revealed that the pilot and two flight nurses survived the crash.

The pilot later succumbed to injuries; one of the flight nurses received severe thermal injuries. A medical staff member on the ground also received thermal injuries while attempting to rescue the pilot.

On July 23, 2015, 20 days after the Frisco accident, the NTSB issued a safety recommendation urging the FAA to require all new helicopters to meet the crashworthiness requirements outlined in 14 CFR §27/29.952. In the recommendation, the NTSB revealed that because the regulations only applied to newly certificated aircraft, only 15 percent of the current fleet of helicopters met the requirements (a percentage point below the FAA’s findings earlier that year).

Citing work by the U.S. Army, which requires crash-resistant fuel systems in its aircraft, the NTSB noted that crash-resistant fuel systems resulted in a 66 percent reduction in post-crash fires in survivable accidents and a 75 percent reduction in thermal injuries, with no thermal fatalities in survivable crashes.

Later that year, Congress continued to add pressure. In October 2015, two Democratic congressmen from Colorado, Ed Perlmutter and Jared Polis, wrote a joint letter to the FAA administrator asking for the FAA to move with expediency in implementing new rules for crash-resistant fuel systems on newly manufactured helicopters.

Working Group Is Formed
In response to the NTSB’s safety recommendation, the FAA’s findings, and public concern, the FAA took the first step to improve occupant protection in the helicopters certificated prior to 1994 — which is the majority of the U.S. fleet. The FAA’s Aviation Rulemaking Advisory Committee (ARAC) formed the Rotorcraft Occupant Protection Working Group (ROPWG) in...
November 2015 to provide advice and recommendations to the ARAC on occupant protection rulemaking for Part 27 and Part 29 legacy aircraft.

HAI worked closely with the FAA to help recruit an equitable range of industry professionals to serve on the working group.

“Our role is to be a neutral advocate, making sure we’re moving in a sensible direction and doing the right thing,” says HAI Director of Flight Operations and Technical Services Harold Summers, who also serves on the working group. “To do that, we worked to ensure the appropriate mix of participants had a voice on the committee, including equipment manufacturers, airframe manufacturers, operators, etc.”

The 22-member working group was given a mandate to investigate issues around 14 CFR §27/29.952, which specifically deal with safety measures affecting post-crash fires. They were also asked to examine the regulations on crash-resistant seats structure and restraint systems (14 CFR §27/29.561, .562, and .785), as well as to look at other technologies that could improve occupant safety in legacy aircraft.

The working group was initially given two tasks: develop a cost-benefit analysis for incorporating the existing protection standards (14 CFR §27/29.561, .562, and .785) into newly manufactured rotorcraft, and issue a report on those findings. The ROPWG divided into a cost group and a benefit group, and put together their analysis.

In February 2016, Reps. Perlmutter and Polis publicly expressed frustration at the lack of immediate action to reduce post-crash fires in helicopters. They drafted House Bill 4574 on February 12, 2016, requiring the FAA to apply 14 CFR §27/29.952 to all newly manufactured helicopters. While the bill didn’t become law, language was added to the FAA Extension, Safety, and Security Act of 2016 (signed into law in July 2016) that directed the FAA to “evaluate and update, as necessary, standards for crash-resistant fuel systems for civilian rotorcraft.”

Report Raises More Issues

The working group submitted its first report to the ARAC in the spring of 2016. The ARAC requested further work and resubmission. The ROPWG submitted a second report in November of 2016, which the ARAC accepted.

The ROPWG report concluded that the total estimated 10-year increased industry costs to implement adherence to 14 CFR §27/29.561, .562, .785, and .952 for all newly manufactured aircraft to be approximately $764 million. The stated benefit of implementing these regulations — that is, the liabilities or damages to crew and passengers that would not be incurred because of the improved protection to rotorcraft occupants — would be approximately $143.5 million.

The report also offered several concerns. Most notably, the working group stated that while adherence to 14 CFR §27/29.952 was extremely effective at preventing post-crash fires and thermal injuries, the calculated benefit is lower than what might otherwise be expected, in part because the analysis was limited to future production only, which is a small percentage of the overall future fleet. In addition, several manufacturers have already started voluntarily including crash-resistant fuel systems in their new aircraft, lessening the impact of any new rules.

The report also warned that the proposed regulatory changes could lead to the elimination of some rotorcraft models currently in production because of the negative impact on performance of full compliance. Finally, the report noted that estimated benefits for compliance to crash-resistant seats and structure have a high degree of uncertainty because of the lack of data about those types of features.

The report also included the working group’s opinion that partial implementation of the regulations may provide a significant portion of the benefits while avoiding much of the costs.

The report raised some questions and concerns. The FAA claimed that the report did not use the agency’s methodology to calculate economic costs of implementing current safety standards, meaning the cost could be much higher. “The cost-benefit analysis was unbelievably difficult,” says HAI’s Summers. “There was a large lack of data beyond the basics to make an accurate cost-benefit projection.”

In statements of nonconcurrence to the report by members of the working group, one issue mentioned was the lack of detailed information on survivors’ injuries, making it difficult, if not impossible, to put an accurate cost on injuries.

Manufacturers also spoke up. Robinson Helicopter reported}

Robinson Helicopter Company has encouraged owners to install its factory kit that decreases the odds of a post-crash fire. “The bladder tank significantly increases safety,” says company president Kurt Robinson.
its partial compliance with the 1994 regulations and subsequent effectiveness in reducing post-crash fires.

Bell Helicopter highlighted its implementation since 1984 of crash-resistant fuel systems originally designed for the military, saying that Bell had been installing some elements of a crash-resistant fuel system in all aircraft since before the 1994 regulation. In the company’s view, requiring further regulation on these systems for newly manufactured aircraft would not decrease post-crash fires in Bell aircraft but would cause cost increases and time delays.

“It is Bell Helicopter’s position that all in-production Bell models, whether certificated to 27/29.952 or not, currently have CRFS [crash-resistant fuel systems] as part of their basic aircraft offering,” wrote working group member John Wittmaak in the Nov. 10, 2016, report. “Bell Helicopter believes efforts to certify currently in-production CRFS systems provide no benefit and ultimately delay availability and increase costs associated to retrofit solutions for pre-CRFS aircraft.”

The Next Task
In a January 25, 2017, letter to the working group, the FAA assigned a third task, with a due date of January 28, 2018. The ROPWG was asked to recommend which sections of the existing occupant protection standards can be made effective for newly manufactured rotorcraft within three years after the effective date of a change.

In addition, the working group was asked to recommend what occupant protection standards all U.S. aircraft — regardless of manufacturer or certification date — should meet within 10 years after the effective date of a change.

In a follow-up letter two days later, the FAA said the working group was to provide an interim report on crash-resistant fuel systems by May 15, 2017. This report would meet the requirements of the FAA Extension, Safety, and Security Act of 2016.

The working group reconvened and produced an interim report regarding crash-resistant fuel systems on May 11, 2017. Group members analyzed the crash performance of fully compliant aircraft and aircraft that were partially compliant with 14 CFR §27/29.952. This data was compared with that of helicopters with noncompliant fuel systems.

The group’s research revealed that in partially compliant helicopters, there were no significant fuel-fed post-crash fires in survivable accidents and no thermal injuries in those survivable crashes. In contrast, in helicopters with noncompliant fuel systems, fuel-fed post-crash fires in survivable crashes occurred 11 percent of the time.

The working group concluded that partially compliant helicopters demonstrate crash-resistant fuel system performance that is equivalent to fully compliant models in survivable crashes. Based on this finding, the ROPWG does not believe that
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it is necessary to require newly manufactured legacy helicopters to meet all the requirements of 14 CFR §27/29.952.

The effective systems in common among the partially compliant helicopters were:
- Crash-resistant fuel bladders
- Flexible and/or lengthened fuel lines at stress points
- Separation of fuel and ignition sources
- Rollover vent valves.

The ROPWG is studying and debating the detailed recommendations for crash-resistant fuel systems that it will recommend in its September report to the ARAC.

In response to the third task from the ARAC, the working group continues to research ways to bring legacy aircraft into compliance with 14 CFR §27/29.561, .562, and .785. It will issue a full report, including recommendations for seats and structure, in January 2018.

Industry Doing What’s Right
Despite the alarming analyses from the NTSB and FAA on the lack of fleet compliance with 14 CFR §27/29.952, the OEMs have done quite a bit to increase crash survivability in their legacy aircraft. Since the issue has received so much attention, manufacturers of aircraft and fuel systems have worked diligently to boost operator interest in retrofits and to do more to improve occupant safety.

In the 1970s, Bell Helicopter worked with the U.S. Army on certifications for the UH-1 Huey and AH-1 Cobra helicopters. This included the Army’s requirements for crash resistance, including fuel systems. The resulting systems and applications were then carried over to all civil helicopters in production at Bell, including those already certificated. However, the improved fuel systems did not bring those aircraft into compliance with 14 CFR §27/29.952.

“Every Bell manufactured after 1982 has some level of crash-resistant fuel system,” says Bell Director of Global Communications Brian Chase. “Bell had these systems more than 12 years before the FAA required them.”

Bell also created retrofit kits to increase post-crash fire resistance in its aircraft manufactured prior to 1982. Ranging in cost from a few thousand to tens of thousands of dollars, the kits have not been popular.

“We’ve not found operators willing to make the investment to retrofit as much as we’d hoped,” Chase says. “However, in recent years we have been increasing education and are proactively reaching out to operators of older aircraft to encourage investment in the kits.”

At Robinson, where engineers of the light R22, R44, and R66 helicopters struggle with weight in every design, new materials in the mid-2000s made it possible to increase crash resistance in those models.

“While we were working on developing and certifying the R66, we found a new lightweight and puncture-resistant material for the fuel tanks,” says Robinson Helicopter Company President Kurt Robinson. He went on to explain that the materials used in larger helicopters did not work for Robinsons and limited options for crash-resistant fuel cells, but discovering the new material changed all that.

“We immediately stopped work on the R66 and developed fuel bladders for the R44, then completed the R66. We finally had the technology and ability to make the aircraft even a little safer, so we did it,” says Robinson.

The company has been installing fuel bladders on new and overhauled R44s since 2009, making a field kit available in 2010. Even though post-crash fires are very rare in the R22, the bladders were approved for and have been installed on all new and overhauled R22s since 2013, with a field retrofit kit available since 2014. All R66s fully comply with 14 CFR §27.952.

“Our experience has been the bladder tank significantly increases safety,” Robinson says. “The full regulation [14 CFR §27.952] has many pieces, several that make it very difficult for light helicopters due to added weight for very little increased benefit. There is no question in our minds here that the fuel bladders add...
to the crashworthiness of the aircraft.”

Airbus Helicopters, manufacturer of the aircraft in the two highly publicized 2015 post-crash fires, has included crash-resistant fuel systems as standard equipment for EC130 T2 model helicopters delivered in the United States since the type certificate was approved on July 30, 2012. As of March 2015, Airbus Helicopters began doing the same for newly manufactured AS350 B3e model helicopters delivered in the United States.

Airbus is also developing a retrofit kit for existing AS350 B3e and EC130 B4 helicopters already in operation, with completion and availability to owners and operators planned soon. The initial price quote for the AS350 B3e retrofit is $127,000.

Airbus subsidiary Vector Aerospace is currently working with Robertson Fuel Systems to certify a retrofit kit for the remaining members of the AS350/EC130 family of helicopters. The kits are expected to reach the market later in 2017, according to a March Vector Aerospace news release.

“We Must Do What’s Right”
The question remains, is all this enough to eliminate post-crash fires in survivable crashes? And what about increasing crash survivability through crash-resistant seats and structure?

“We at Airbus are doing what we can to make our aircraft safer,” says Airbus Helicopters’ general counsel, Kevin H. DeWitt. “We’ve included crash-resistant fuel systems as standard equipment for EC130 T2 model helicopters delivered in the United States since the type certificate was approved on July 30, 2012. As of March 2015, Airbus Helicopters began doing the same for newly manufactured AS350 B3e model helicopters delivered in the United States.”

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Jen Boyer is a 20-year journalism and public relations professional in the aviation industry, having worked for flight schools, OEMs, and operators. She also holds a rotorcraft commercial instrument license with flight instructor and instrument instructor ratings. Boyer currently runs her own public relations and communications firm and freelances regularly for aviation companies and publications. She can be reached at jen@theflyingpenguinpr.com.

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The 2018 Salute to Excellence Awards will be presented on Wednesday, Feb. 28, in Las Vegas.
Straight Talk on Radio Altimeters

By Zac Noble

In 2014, the FAA adopted a final rule requiring commercial helicopter operators to install a radio altimeter in their aircraft. The time period for comments and revisions passed without much notice by some operators, and the requirement was codified as 14 CFR §135.160, Radio altimeters for rotorcraft operations. As of April 25, 2017, all Part 135 rotorcraft operators are required to have a radio altimeter installed in the aircraft.

Effective April 25, 2017, if you operate a helicopter on a Part 135 certificate, it must be equipped with a radio altimeter, unless you have an OpSpec A160 LODA issued by your servicing FSDO.

The rule allows for deviation authority for rotorcraft weighing 2,950 pounds or less. In those aircraft, the flight deck may not permit the installation of the radio altimeter without removing other instrumentation mandated by 14 CFR §91.205, which sets forth the instrument and equipment requirements for powered civil aircraft with standard category U.S. airworthiness certificates.

In 2015, Robinson Helicopter Company developed a radio altimeter retrofit kit at the request of R44 operators who anticipated the coming rule change. The kit allows the altimeter to be mounted in the instrument panel or on top of the glare shield.

The retrofit kit became available 13 months into the three-year compliance period of the rule, so those R44 operators only had 26 months to comply. The FAA then moved to offer those R44 operators the same three years to comply with the rule afforded operators of heavier aircraft.

On May 1, 2017, the FAA published a revision to its guidance (FAA Order 8900.1, Vol. 3, Ch. 18, Sec. 3). Under the revised guidance, Part 135 operators whose aircraft meet certain guidelines and where a radio altimeter solution for their aircraft became available during the compliance period could apply for an extension to the compliance date. The extension, issued in the form of OpSpec A160, Letter of Deviation Authority (LODA), moves the compliance deadline for radio altimeter equipage to October 24, 2018.

Unfortunately, there seems to be some confusion about the requirements for radio altimeters, both on the part of operators and on the part of FAA flight standards district offices (FSDOs). Below is HAI’s attempt to clear up the confusion and enable operators to comply with 14 CFR §135.160.

What Is the Rule?

14 CFR §135.160, Radio altimeters for rotorcraft operations, says:

(a) After April 24, 2017, no person may operate a rotorcraft unless that rotorcraft is equipped with an operable FAA-approved radio altimeter, or an FAA-approved device that incorporates a radio altimeter, unless otherwise authorized in the certificate holder’s approved minimum equipment list.

(b) Deviation authority. The Administrator may authorize deviations from paragraph (a) of this section for rotorcraft that are unable to incorporate a radio altimeter. This deviation will be issued as a Letter of Deviation Authority. The deviation may be terminated or amended at any time by the Administrator. The request for deviation authority is applicable to rotorcraft with a maximum gross takeoff weight no greater than 2,950 pounds. The request for deviation authority must contain a complete statement of the circumstances and justification, and must be submitted to the nearest Flight Standards District Office, not less than 60 days prior to the date of intended operations.

The Rule in Plain English

Effective April 25, 2017, if you operate a helicopter on a Part 135 certificate, it must be equipped with a radio altimeter, unless you have an OpSpec A160 LODA issued by your servicing FSDO.

Who Qualifies for an A160 LODA?

Based on several factors, you may qualify for an A160 LODA that exempts you from the radio altimeter requirement. In some cases, the LODA can be issued on an indefinite basis, meaning it has no expiration date.

In other cases, an A160 LODA is issued on a limited-time basis. Operators receiving this type of LODA must comply with the requirement by a certain date. Read below to see if you qualify for either type of LODA.

Indefinite-Basis LODA

If you meet all four conditions below, you qualify for an indefinite-basis A160 LODA. This type of LODA does not expire and is valid until terminated or amended by the FAA administrator.

■ You operate on a Part 135 certificate
■ Your rotorcraft weighs 2,950 pounds or less
■ There is no way to incorporate an acceptable radio altimeter into your rotorcraft
■ There was no radio altimeter installation solution for your rotorcraft prior to April 25, 2017.
Limited-Time LODA
If you meet all three conditions below, you qualify for a limited-time A160 LODA. In this case, your LODA is valid until you have installed a radio altimeter or October 24, 2018, whichever occurs first.

- You operate on a Part 135 certificate
- Your rotorcraft weighs 2,950 pounds or less
- A radio altimeter solution is available for your rotorcraft that was developed after April 24, 2014, and available prior to April 25, 2017.

As a Part 135 operator, it is your responsibility to equip your aircraft by the deadline listed in your A160 LODA in order for the aircraft to remain on your Part 135 certificate. Also, keep in mind that OpSpecs are nontransferable. If the aircraft moves from one Part 135 certificate to another, the A160 LODA does not move with the aircraft. The new operator will need to apply for a LODA to be issued under its Part 135 certificate.

What Is the Rule’s Purpose?
There are a couple of references to radio altimeters in historical accident reports related to commercially operated rotorcraft. In October 2002, the National Transportation Safety Board (NTSB) issued a safety recommendation, in which it recommended to the FAA that all commercial passenger-carrying helicopters that operate in areas where flat light or white-out conditions occur regularly install a radio altimeter. The NTSB repeated this recommendation in 2007.

There are thoughts in the helicopter community that this rule was aimed at the helicopter air ambulance sector, and there is certainly evidence to support that. However, the recommendations to require radio altimeters in the overall Part 135 fleet have been around for some time.

Options for Part 135 Operators
There are limited options for a Part 135 helicopter operator regarding the radio altimeter requirement. You must comply and equip your aircraft if it weighs more than 2,950 pounds. That rule became effective on April 25, 2017.

If your aircraft weighs 2,950 pounds or less and a radio altimeter solution became available for your aircraft between April 24, 2014, and April 24, 2017, you must comply with the rule. However, you are allowed to apply for a LODA that grants you additional time to comply. You must be in compliance no later than October 24, 2018.

If your aircraft weighs 2,950 pounds or less and no radio altimeter solution was available prior to April 25, 2017, then you do not have to comply, unless there is a future rule change. Even if a radio altimeter solution for your aircraft becomes available today or in the future, you will not have to comply. However, you still need to have an A160 LODA issued by your FSDO.

Real-World Scenarios
Below are some of the ways in which 14 CFR §135.160 has been interpreted in the field. If you are a Part 135 operator and you want to ensure that you either are in full compliance or are being allowed the maximum time to come into compliance, please read on.

LODA Granted to Operators by Their FSDOs
If your aircraft is required to have a radio altimeter, ensure you comply with the radio altimeter rule by the expiration date of your A160 LODA or, at the latest, October 24, 2018.

LODA Not Granted to Operators Who Meet the Criteria
Ensure you meet the criteria for issuance of an A160 LODA. Consult with your FSDO and principal operations inspector (POI) for the issuance of the appropriate LODA.

LODA Granted to Operators but Then Revoked by Their FSDOs
In this case, review the criteria for issuance of the A160 LODA. If you meet the criteria, contact your FSDO and POI for guidance on getting the A160 LODA re-issued.

LODA Issued to Operators Prior to the May 1, 2017, Revision to FAA Order 8900.1, Vol. 3, Ch. 18, Sec. 3
If you were issued an A160 LODA prior to May 1, 2017, it may not grant you the benefit of a full three-year compliance period that extends your compliance date to October 24, 2018. You should consult with your FSDO and POI to ensure you are getting the benefit of the extension period.

Operators Misunderstanding the Rule
If you purchased a radio altimeter kit to install on your helicopter and were subsequently issued the A160 LODA, you may have thought you didn’t need to comply with 14 CFR §135.160. However, if a radio altimeter solution for your aircraft was available prior to April 25, 2017, the LODA only extends the time you have to come into compliance. It is not an exemption from the rule; you still must comply and install the radio altimeter for Part 135 operations.

LODA Issued with No Expiration Date for Aircraft with Radio Altimeter Solution
If you were issued an A160 LODA with no expiration date and your aircraft had a radio altimeter solution available after April 24, 2014, and prior to April 25, 2017, your LODA is not correct. You need to comply with the rule by installing a radio altimeter. Consult with your FSDO and POI about getting a new LODA extending your compliance period to October 24, 2018, in accordance with OpSpec A160.

Additional Resources
If you have any questions regarding 14 CFR §135.160 or its implementation, contact the HAI Flight Operations Department at 703-683-4646 or ops@rotor.org.

Zac Noble is HAI’s deputy director of flight operations and technical services.
Helicopter Finance and Leasing: What’s New and Notable

By Members of HAI’s Finance and Leasing Committee

The finance and leasing industry provides commercial solutions for helicopter operators to secure and operate their assets. HAI’s Finance and Leasing Committee educates members about the finance and leasing services that are critical to their operational success. The committee also provides financial institutions with information about the complexities of aviation finance and leasing. Below, committee members answer some questions about the current state of the helicopter finance and leasing market.

We have seen very few leasing deals during the last 12 months. Do you think this situation is improving?

Actually, the common opinion that lease deals are not happening is false, at least with Waypoint Leasing. To the contrary, we have been relatively successful over the past 12 months. Although lease rates have not yet returned to their pre-2015 levels, we have seen definite improvement and expect rates to continue to recover.

I think the key to the present leasing environment is flexibility. Lessors need to have flexibility not only in their relationships with the operators but in managing the asset through its life cycle. Lessors need to be flexible about rates, return conditions, early buy-outs, and lease terms. For example, the uncertainty in the oil and gas markets mandates that operators must have lease terms that match their contracts. The old days of “10 years or nothing” can no longer be the case.

Is the situation improving? Without question. We’ve all come through the CHC bankruptcy and learned some lessons along the way, so I think that we’ll be wiser for it in the long run. And while we still have some hurdles to get over, I think the long-term prognosis for the industry is good.

Robert Van de Vuurst, Waypoint Leasing

How has leasing helicopters been useful for operators, especially during difficult times?

Operating lessors have been key partners to helicopter operators, having brought to the industry both new sources of liquidity and a significant volume of funding. This has been valuable to operators during the boom years and constructive during difficult times. Leasing provides a greatly reduced fixed-capital commitment for the operator, thus facilitating growth efficiently.

Operators like Bristow Group experienced robust growth in 2011–15 by acquiring many new assets via operating lease transactions. CHC Group funded its growth during this period largely through expanding its lease portfolio in innovative structures with lessors and strategic lenders. The lessors provided the liquidity needed for other initiatives, which saved these operators from having to access funding from less flexible and more costly sources.

With the market deteriorating in recent years, lessors continue to provide liquidity to operators managing through the downturn in the cycle. Expiring leases provide capacity relief, as well as opportunities to negotiate creative solutions for other leased assets in the portfolio. Operators can also utilize assets from lessor order books, thus preserving the cash needed for OEM deposits and progress payments.

John Mannion, Kylemore Group LLC
What is the state of the current market, and what are the recent buying and selling trends?

For a current assessment of the state of the turbine helicopter resale marketplace, we look at the supply (percentage of active fleet for sale) and demand (percentage of fleet turnover as resale retail transactions). We compare the availability of aircraft today and resale retail transaction activity through May in 2017 to 2016 for a year-over-year comparison, and back to 2013 for a five-year comparison.

First, let’s look at demand. Both the single- and multi-engine helicopter segments started 2017 with a slower first quarter in resale transactions compared to the first quarter in 2016 (figure 1). The single-engine markets for Q1 2017 had 156 resale transactions (1.41% of the active fleet) versus 174 (1.54%) in Q1 2016. The multi-engine markets saw 59 transactions (0.72%) in Q1 2017 versus 64 (0.79%) in Q1 2016. If we step back four years to the same period in 2013, before low oil prices created challenging conditions in the offshore sector, there were 188 single-engine resale transactions (1.77% of fleet) and 90 multi-engine (1.29%).

Now we turn to the supply of aircraft. As of April 1, 2017, there were 653 aircraft for sale (5.90% of the fleet) in the single-engine segment. Looking back at the same dates in 2016 and 2013, we see those numbers as 705 (6.23%) and 592 (5.59%) respectively. So there is a drop in inventory from 2016 to 2017, but we are not yet at the lower level of 2013.

In the multi-engine segment, on April 1, 2017, there were 599 (7.29%) aircraft for sale, versus 559 (6.92%) in 2016 and 443 (6.36%) in 2013. Conversely to the single-engine segment, multi-engine aircraft saw an increase in inventory from 2016 to 2017.

Chris Skurat, AMSTAT, Inc.
Are you currently seeing more helicopters being bought or leased?

Helicopter financing has had a turbulent few years. The belief that oil and gas prices would stay high forever, indefinitely pushing up demand for offshore oil exploration, was a driver behind much of the excess and hype. Another factor was public and private equity’s new interest in helicopter operators and lessors.

The result: a period of new helicopter sales that outpaced underlying customer demand. When oil prices eventually did collapse, the fall was steeper than it should have been because of the leverage in the industry and the private equity money artificially propping it up. Consequently, the helicopter financing market today is full of unforeseen financing deals, with operating lessors scrambling to re-lease aircraft on their balance sheet, often doing so at lease rates that will not make them a profit.

We also see that most of the family-owned or privately owned helicopter operators — who didn’t pursue the outsized growth of the largest helicopter operators — haven’t had as far to fall when demand rationalized because of their more controlled growth over the prior period. While they are still hurting a bit, these types of companies are generally in solid financial positions.

As these privately owned operators continue to acquire a new or nearly new helicopter here or there, their financing options are abundant and at rock-bottom prices. Operating lessors are beating down their doors, offering never-before-seen lease rate factors for the nearly new aircraft that the lessors have sitting idle.

While the cost of debt financing has gone up slightly as the U.S. Federal Reserve has raised interest rates, many long-running family-owned helicopter operators are again viewing ownership of the helicopter as a way of building equity. Having said that, given the unusually low lease factors being offered, these operators have a difficult choice to make: either get a three- to five-year lease with a historically low lease factor, or purchase a reasonably priced helicopter that their company can keep long term and later, once the book value has depreciated below the market value, can deploy into other markets.

It is sometimes true that in periods of rapid change, it can be preferable to have an operating lease, where you can give back the helicopter at the end of your lease as the market declines. This can be a better option than owning the asset, which requires the operator to find an alternative use (and revenue source) for the helicopter. But if you take the view that asset prices and demand will gradually recover, then an operator should probably own the aircraft and build equity.

Q What are your views on the current market and future outlook?

The current market is a very mixed bag and will be viewed as slightly improving or not, depending on your perspective. Our industry leaders speak about increased flexibility of lessors and of both improving and deteriorating market segments.

Overall, the helicopter marketplace has been experiencing some character-building circumstances over the last 12 months or so. Flat or negative growth, decreasing helicopter values, and increasing inventories for sale are factors that provide for a perfect storm that is not desirable. It leads to seemingly impossible budgets and frustrating market conditions.

However, the helicopter industry has shown true resilience to overcome circumstances that are not within the control of the participants. We are seeing creative solutions to almost impossible problems, sales in very tough markets, collaborative synergies to overcome dire expectations, and growth where none is forecast.

I have tremendous optimism for the helicopter industry to continue to press on and gain ground in this tough market. The market is cyclical and will invariably turn. Where green shoots of growth are evident, the long-term believers will find ways to flourish and ride through this downturn cycle.

Kirsten Bartok Touw, AirFinance

David Crick, DavAir Group; and chair, HAI Finance and Leasing Committee
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## U.S. Turbine Sales, April–June 2017

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## U.S. Piston Sales, April–June 2017

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## Non-U.S. Piston and Turbine Sales, April–June 2017

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## Market Trends

Compiled by Curtis Bradley, HAI
Data provided by Aerodex Evolution
Mitigation Begins with Data

Drones: Where and When to Find Them

By Robert Joslin, Ph.D.

An issue of escalating concern in rotorcraft aviation is conflict with unmanned aircraft systems (UAS, or drones). From November 2014 through September 2016 there were 2,617 notifications made to FAA air traffic control (ATC) reporting unauthorized UAS operations in the National Airspace System (NAS), primarily observed by pilots of manned aircraft.

For rotorcraft operators to be able to mitigate the hazard from drones and to identify and report unauthorized operations, it is essential to know where and when drones are supposed to be operating. Using reports submitted to the FAA, this article also looks at when and where drones are actually operating.

When and Where Are UAS Allowed to Fly?

Although a variety of terminology has been used to describe drones, the FAA, through Public Law 112-95, has formally defined three mutually exclusive categories of drones that are based on the type of operation and weight: model aircraft, small unmanned aircraft, and unmanned aircraft.

Model aircraft drones, flown only for hobby or recreation as governed by Public Law 112-95 Section 336, 14 CFR §101.41 and §101.43, and FAA Advisory Circular 91-57A, must weigh no more than 55 lbs and must not be flown within 5 miles of an airport or heliport without prior coordination with the airport operator or ATC tower, when an air traffic facility is located at the airport or heliport. The FAA’s recommended best practice is to limit model aircraft operations to 400 feet above ground level (AGL).

Furthermore, model aircraft are required to be operated in a manner that does not interfere with and gives way to any manned aircraft, does not endanger the safety of the NAS, and

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1 Public Law 112-95 https://www.gpo.gov/fdsys/pkg/PLAW-112publ95/content-detail.html
is in accordance with a community-based set of safety guidelines, such as those provided by the Academy of Model Aeronautics National Model Aircraft Safety Code (http://bit.ly/ModelAircraft).

If the drone is flown for compensation or hire and still weighs no more than 55 lbs, then it is considered a small unmanned aircraft system (sUAS) and is governed by 14 CFR §107. Part 107 mandates the following restrictions: the small UAS must yield right of way to all aircraft, ATC facility.

A drone weighing more than 55 lbs is considered a UAS and must have an airworthiness design certification under 14 CFR Part 21 and an operational authorization through a COA.

All sUAS are required to be registered (http://bit.ly/sUAS registration), and model aircraft operators are encouraged to do so as well. Small UAS operators also have some additional requirements, such as obtaining an FAA remote pilot certificate (14 CFR §107.63).

Public-use aircraft, such as law enforcement, firefighting, search and rescue, and aeronautical research, generally operate under a COA tailored to their specific mission. When UAS operators receive a COA to fly, they must file a Notice to Airmen for each flight to let other pilots know of any active UAS operating areas, which are posted on the FAA Flight Service website (http://bit.ly/FlightService).

Henceforth in this analysis, the term UAS will encompass model aircraft, sUAS, and UAS.

Reporting Unauthorized UAS
Notifications of drones operating in an unauthorized manner are recorded in the Comprehensive Electronic Data Analysis and Reporting system as Air Traffic Mandatory Occurrence Reports (MOR), which is the routine process used by FAA ATC for documenting a variety of occurrences or conditions. An MOR can be submitted when there is any expression of concern or inquiry by any external entity to a management official, controller-in-charge, or ATC on the radio concerning the proximity or operation of an aircraft, either airborne or on the surface, including near–midair collision notifications from a flight crew.

Local law enforcement are also contacted for any UAS activity that creates a hazard to air traffic. Law enforcement personnel can then inform the UAS operator of the hazard they are creating to air traffic and direct them to cease the operation. If local law enforcement can obtain the operator’s name and address, the information is included in the MOR to support possible enforcement action.

Although unauthorized UAS operations are subject to civil penalty and/or certificate action by the FAA, the desired use of FAA resources is to educate UAS users on the applicable regulations and guidance and, when appropriate, to use administrative and legal enforcement action to gain compliance.

Analyzing MOR Data
MOR data that are publicly available from the FAA (http://bit.ly/UASsightingsReport) were analyzed to identify the most problematic months of the year and geographical areas that may benefit from community outreach education to UAS operators.

![Figure 1. UAS Mandatory Occurrence Reports by state, November 2014 through September 2016.](https://www.faagov/investigation/accessible/2014-16-mor-by-state)
(for example, B4UFLY, http://bit.ly/B4UFLY), and increased vigilance by rotorcraft operators.

There was no distinction made in the reports among UAS, small UAS, or model aircraft, as defined in Public Law 112-95, nor was the type, make, or model of the UAS identified. Furthermore, the data only provided frequency or counts of reports and not a rate of occurrence based on air traffic density or the number of operations in a geographical area or time frame.

The UAS sightings occurred at all hours of the day and night at altitudes ranging from a few hundred feet to thousands of feet in all classes of controlled and uncontrolled airspace. However, the vast majority of sighting reports occurred between 400 ft AGL and 1,000 ft AGL, which is the prime operating area for helicopters.

There were no reported collisions between any manned and unmanned aircraft, either on the ground or in the air. However, as shown by these de-identified excerpts from some UAS sighting reports, UAS do sometimes pose a hazard to manned helicopters.

- County sheriff (using night-vision goggles) while on emergency operations required evasive action to avoid a UAS at 1,700 feet.
- UAS reported 9 nm [nautical miles] northeast of airport by sheriff helicopter. Aircraft was at 750 ft AGL and UAS was at approximately 800 ft AGL. Came within 50 ft of helicopter. Aircrew described a “near-miss” with the UAS. Airborne unit identified house where UAS landed and contacted police department, who then contacted the individual responsible.
- The [helicopter] pilot reported two drones in front of aircraft, at 2,500 ft msl [mean sea level], which required an immediate climb to avoid the UAS. The helicopter climbed and leveled at 3,500 ft MSL.
- The medical helicopter inbound at 800 ft for landing in the … medical center area encountered a drone at 600 ft flying above the buildings. The drone was red, with amber lights and four rotors. The pilot stated that he had to maneuver to miss the drone, it came within a tenth of a mile from the helicopter.
- The [helicopter] pilot reported he had to climb to 1,600 ft MSL from 1,500 ft MSL to avoid the UAS.
- The medical helicopter inbound at 800 ft for landing in the … medical center area encountered a drone at 600 ft flying above the buildings. The drone was red, with amber lights and four rotors. The pilot stated that he had to maneuver to miss the drone, it came within a tenth of a mile from the helicopter.
- The [helicopter] pilot reported he had to climb to 1,600 ft MSL from 1,500 ft MSL to avoid the UAS.

UAS Reports by State, Month

The analysis focused on providing an ordinal listing of unauthorized UAS operations by state (figure 1) and month (figure 2). The top four states were led by California with 661 reports, distantly followed by Florida with 288, New York with 242, and Texas with 175. Colorado and New Jersey were the only other states that exceeded 100 reports. All other states had less than 100 reports, with two (Wyoming and Vermont) having zero. Puerto Rico had nine reports, and the U.S. Virgin Islands and the Commonwealth of the Northern Mariana Islands each had one.

There were many other variables that may have influenced the number of reports from each state, such as weather, population, local regulations and enforcement, special events, and natural disasters). However, the data can provide some insight into those geographical areas and months of the year with the most frequent sightings.

Stay Aware

In a longitudinal study, data from multiple years are required to validate any trend. However, the results from this limited study indicate an escalating need for community outreach education of UAS operators. The results also promote year-round nationwide vigilance by pilots of manned rotorcraft and airplanes flying during day/night in all classes of airspace and at all altitudes, most notably during the summer months and when operating in California, Florida, New York, and Texas.

Dr. Robert Joslin is an adjunct assistant professor with Embry-Riddle Aeronautical University – Worldwide. He is also an FAA chief scientist for flightdeck technology conducting research flight test and developing regulations, guidance, and standards for manned and unmanned aircraft. He previously served as a colonel in the U.S. Marine Corps as a military test pilot and remains an active test pilot with the FAA.

Figure 2. UAS Mandatory Occurrence Reports by month, November 2014 through September 2016.
SOURCE: UAS SIGHTINGS REPORT (HTTPS://WWW.FAA.GOV/UAS/RESOURCES/UAS_SIGHTINGS_REPORT)
Common Personality Traits of Commercial Helicopter Pilots: A U.K. Study

By Paul Dickens

Like many people, I grew up with a fairly set view of the sort of people who become helicopter pilots. This was heavily shaped by a TV series that aired in the United Kingdom in the early 1960s called Whirlybirds.

The pilots on this show were male, rugged, handsome, always helpful risk-takers who were reliable and honest. I have to admit that this stereotyped view persisted even after I started working as an aviation psychologist consultant for a North Sea helicopter operator. I even titled one of my early talks on the subject “Looking for Chuck and PT,” the heroes of Whirlybirds.

I soon realized that the realities of North Sea line operations required a very different type of pilot. As there was not very much information on the psychological characteristics of such pilots, I set out to do my own research into the common personality types of helicopter pilots.

Like a lot of research in aviation psychology, the main findings about the personality of any sort of pilot come from the military, particularly that of the United States. However, one of the problems in the research is that most of the work on personality over the last few years has focused on what are called the “Big 5” personality factors: extraversion, agreeableness, conscientiousness, neuroticism, and openness.

Extraversion
People who are high in extraversion are sociable, talkative, excitable, outgoing, and tend to gain energy in social situations. People who are low in this trait tend to be more reserved and have to expend energy in social settings.

Agreeableness
This personality dimension includes attributes such as trust, altruism, kindness, and affection. People who are high in agreeableness tend to be more cooperative, while those low in this trait tend to be more competitive, cold, aloof, and often manipulative.

Conscientiousness
People who show this trait strongly have high levels of a sense of duty, with good impulse control and goal-directed behaviors, and tend to be organized and detail conscious. People low on this trait tend to be unreliable, disorganized, and careless.

Neuroticism
This trait is characterized by a tendency for anxiousness, moodiness, and emotional instability. People who are high in this trait tend to experience mood swings, anxiety, irritability, and sadness, while people low in this trait tend to be more stable and emotionally resilient.

Openness
People who are high in this trait have a broad range of interests and tend to be more adventurous and creative. People low in this trait are often much more traditional and may struggle with abstract thinking, besides being less open to change.

Research using these five factors has shown them to be highly related to success in employment situations, depending on the type of employment. They form the basis of many psychometric evaluations and assessment processes used to recruit and select people for jobs, as well as to understand employees’ capabilities once in post.

Big 5 Personality Factors
To understand these differences and to determine what personality traits commercial helicopter pilots commonly hold, we need to look at the psychology of personality in general. Most of the work on human personality over the last few years has focused on what are called the “Big 5” personality factors: extraversion, agreeableness, conscientiousness, neuroticism, and openness.
The Big 5 in Aviation Research

Many studies have related these five factors to safety. Sharon Clarke’s work at the University of Manchester in the United Kingdom looked at the links between accident involvement at work and these personality characteristics. Her research showed a strong connection between personality characteristics and accident involvement, with low agreeableness and low conscientiousness being the best personality predictors of accident involvement across a wide range of occupations and situations.

In aviation, the Big 5 personality factors have been featured in many studies of pilot personality during the last few years, including defining specific personality parameters for commercial aviation pilots. One U.S.-based study found a group of 93 experienced fixed-wing pilots to have significantly low scores on neuroticism and high scores on conscientiousness, with a strong trend toward higher scores on extraversion and agreeableness.

One U.S. Air Force (USAF) study found small, but significant, relationships between Big 5 factors and training outcomes in USAF trainee pilots. Another USAF study linked conscientiousness to safety-related incidents in USAF pilots, showing that higher levels of the factor were positively correlated with an increased incidence of flying mishaps.

Most of the quoted research studies either do not differentiate between fixed- and rotary-wing pilots or include both groups in an undifferentiated sample. An exception was a 2006 U.S. Army study that looked at the Big 5 factors of experienced U.S. Army rotary-wing aviators across a number of missions.

In the full sample of 75 pilots,
the researchers found average levels of extraversion, agreeableness, and conscientiousness together with low levels of neuroticism and openness. In differentiating between platform types, they found higher levels of extraversion in attack pilots and higher levels of conscientiousness in cargo and utility pilots (possibly the closest comparison group to commercial rotary-wing pilots). These results mirror the findings of earlier studies comparing the personality traits of fast jet and utility and cargo fixed-wing pilots.

**Helicopter Pilot Personality Results**

What personality traits are specific to helicopter pilots? Over the past five years, I have supplied in-depth psychological assessments of pilots and engineers for a North Sea operator, assessing more than 250 pilots representing a wide range of nationalities. All pilots surveyed were commercial civil pilots flying passengers and freight to North Sea oil and gas platforms.

The pilots have mainly been male (95 percent), which reflects the typical gender balance of commercial helicopter pilot license holders in the United Kingdom. The pilots have a range of experience from 200 to 12,000 hours, with 50 percent coming from a background of military training and experience. Typically, the pilots are of average or slightly above-average intelligence.

When you compare their Big 5 personality profiles to those seen in the general population, the commercial North Sea pilots show:

- **Significantly higher levels of extraversion**: these pilots tend to be more outgoing, assertive, and energetic than the general population
- **Significantly higher levels of agreeableness**: these pilots tend to be much more cooperative, empathic, and warm than the general population
- **Significantly higher levels of conscientiousness**: the pilots tend to be much more organized, methodical, and self-disciplined than the general population
- **Significantly lower levels of neuroticism**: the pilots tend to be very much more relaxed, calm, and emotionally stable than the general population

**Average levels of openness**: Pilots tend to be as flexible, reflective, and creative as the general population.

The results are also shown in figure 1.

**Margin of Error**

The results above are a selected sample of the helicopter community. All the pilots in this study had been preselected as potentially suitable to join the operator, so the sample is somewhat biased toward those who fit the company profile.

However, the sample still represents a significant proportion of the available commercial license holders. According to the 2015 statistics from the U.K. Civil Aviation Authority, around 1,000 people currently hold commercial helicopter pilot licenses in the United Kingdom, so my sample represents around 25 percent of that population.

The pilots were also evaluated in a selection and recruitment situation, so they were likely to be predisposed to show themselves at their best. This may contribute to some overestimation of positive personality characteristics.

However, the personality test used to assess the pilots has an inbuilt method of calculating what is called a “positive response tendency” — when subjects tend to score themselves consistently at the positive end of the scale. Most (around 99 percent) showed no evidence of this. The personality questionnaire results were also checked against other factors such as personal history and behavioral markers to ensure the validity of the individual results.

Lastly, these findings were based on a specific sample and don’t take individual variance in personality into account. In other words, individual results may vary.

For the operator for whom I performed the assessments, pilot selection wasn’t a question of fitting a personality template, but more a general reassurance that the pilot was within the range of personality types that research has shown to be associated with safe operations:

- High levels of agreeableness (that is, they get on well with others) and conscientiousness (that is, they are safety conscious and less likely to take risks).
- The operator valued individual differences but also valued pilots who are safe. When carrying out the psychological assessments, the criterion I was told to use was this: “Would you be happy flying with them occupying the right-hand seat?”

**Positive Traits for Safe Flying**

Based on this research, how are helicopter pilots in the United Kingdom different from the general public? First, they are slightly more outgoing and energetic, and they are significantly better at getting along with others. These two traits are vital to the foundation of positive crew resource management in multicrew operations.

Second, helicopter pilots are much more conscientious than most, which is the basis of safety consciousness and reliability. Lastly, they show a lower, sometimes much lower, level of general anxiety than most people — they are resilient and calm under pressure.

Knowing what constitutes the suitable temperament for commercial pilots can have important implications for both selection and training, particularly when it comes to new pilots. By keeping these traits in mind, operators could benefit from an emotionally well-equipped pilot workforce.

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Paul Dickens is a U.K. registered and chartered clinical psychologist and an accredited aviation psychologist. He consults with aerospace manufacturers and commercial aviation operators, specializing in aircrew psychological assessment and pilot support on mental health issues. He consults widely on mental well-being activities and crew resource management, particularly with commercial helicopter operators, and has presented at several international conferences on pilot mental health and safety. He has recently started learning to fly a Robinson R22.
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Who Regulates the Sky?

By Dan Sweet

Imagine that you are driving cross-country with your family, your spouse by your side. The kids in the backseat are rapidly escalating a dispute over an alleged incursion across an invisible demilitarized zone (Don’t make me stop this minivan!). As you crest a hill, you enter a different state and encounter a small city, with signs alerting you to various speed zones and the fact that you must use a hands-free device with your cell phone.

Now, imagine you are making a cross-country flight in your helicopter, peacefully flying above the intense family skirmishes on the roads below. You also pass over the state border and the city. As a professional pilot, you are aware of the various classes of airspace and temporary flight restrictions, having noted them when you filed your flight plan. What you might not know is that the state, county, and city you’re over-flying have each just enacted their own laws regulating access through their airspace.

Unfortunately, the U.S. government acknowledges it does not have the manpower to enforce its existing laws for unmanned aircraft systems (UAS, or drones). As a result, regional lawmakers (states, counties, municipalities, townships, boroughs, cities, and towns) are enacting their own regulations on drone use, typically in the name of public safety or privacy.

While these local laws currently only focus on drones, the communities enacting these regulations are also establishing legal precedents that could eventually allow them to govern their airspace in the same way they administer their roads.

At this point, you might be thinking How is it possible for local governments to enact laws that regulate the aircraft in the sky? Well, that's where the concept of federal preemption comes in.

Statues and Preemption

Under federal law (49 U.S.C. §40103), the U.S. government has exclusive sovereignty over all airspace throughout the United States. This law also directs the FAA to develop plans and policy for the use of this navigable airspace. This means that if anything moves through this space — especially for commercial purposes — then that airspace is considered navigable. Essentially, these laws dictate that the federal government is responsible for everything that flies over the ground.

That brings us to preemption, and more specifically, field preemption. Preemption is a fundamental principle of U.S. law that states when state or local laws conflict with federal law, federal law supersedes all state and local laws. (U.S. Constitution, Article VI, Clause 2, also known as the Supremacy Clause).

Field preemption is also an element of this situation. A 1992 court ruling determined that federal law will “preempt state law if the federal regulatory scheme is so pervasive as to ‘occupy the field’ in that area of the law, that is to warrant an inference that Congress did not intend the states to supplement it” (Gade v. National Solid Wastes Mgmt. Ass’n, 505 U.S. 88, 98 (1992)).

In this instance, by establishing local drone laws, local governments are slowly chiseling away at federal sovereignty and preemption. Without challenges by the federal government asserting its right to administer the National Airspace System (NAS), these laws may have the unintended consequence of allowing state and local governments to legislate the NAS.

The Crack in the Door

As technology changes, the laws governing the NAS haven’t changed, but the types of aircraft operating there now include myriad drones of various sizes and purposes. The FAA has even established specific rules for integration of UAS into the National Airspace System:

- In 2012, Congress passed the FAA Modernization and Reform Act, which required the FAA to integrate drones into the NAS
- The FAA adopted protocols in December 2015 for recreational-use drone registration and regulations
- The FAA adopted protocols in June 2016 for commercial-use drone regulations
- The FAA implemented Part 107 commercial-use drone regulations in August 2016.

Again, it all seems quite simple. Through sovereignty, preemption, and the FAA’s Federal Aviation Regulations, the federal government has legal authority over the skies and everything that flies in it. However, there is a loophole in FAR Part 107 that permits some local regulation.

When adopting Part 107 in 2016, the FAA specifically omitted a blanket preemption provision, specifically to allow state and local agencies the ability to incorporate regulations for “historic police powers” and other law enforcement elements. This omission may legally permit state and local governments to issue regulations for drones of all types and uses.

A Patchwork of Regulations

The result of all of these local laws is a veritable patchwork quilt of regulations. They vary by location, with no common standard, potentially creating an airspace that is so complicated that UAS operators cannot be reasonably expected to comply at all times. Conflicting local legislation will be especially relevant for operators of UAS aircraft crossing different jurisdictions. These operations could include law enforcement, air medical operations, and utility inspection.
In addition to local drone regulations, an increasing number of cities are beginning to enact laws regulating aircraft noise. Most noticeable are the efforts to curtail helicopter operations in Los Angeles and New York City, where noise complaints about rotorcraft have resulted in strict limitations regarding routes, hours, and landing sites. Los Angeles anti-noise activists have proposed a 2,000-foot floor for helicopter operations in that city.

On Long Island, Hamptons residents have filed thousands of noise complaints about the East Hampton Airport in an effort to restrict or eliminate its use by aircraft such as helicopters and private jets that are popular with some other residents. The resulting lawsuit went as high as the U.S. Supreme Court, which struck down the restrictions without hearing the case. The group seeking to restrict access to the East Hampton airport is continuing its campaign, hiring a new law firm to file special permits with the FAA.

**Regulatory Enforcement**

When one combines the existing federal aviation laws with the overabundance of local laws, it can be maddening to determine which laws apply to which location. Equally, few agencies at any level are dedicating resources to enforcing the laws. The FAA has acknowledged that it is ill-equipped to enforce its own UAS regulations. In August 2016, the agency issued a 14-page document titled “Law Enforcement Guidance for Suspected UAS Operations, version 3.” Stated in this document:

> The FAA retains the responsibility for enforcing Federal Aviation Regulations, including those applicable to the use of UAS. The agency recognizes though that State and local Law Enforcement Agencies (LEA) are often in the best position to deter, detect, immediately investigate, and, as appropriate, pursue enforcement actions to stop unauthorized or unsafe UAS operations.

At the state and local levels, few police agencies have the workforce to enforce drone laws. Short of a drone operator getting caught in the act of breaking the law, there is little actual enforcement in most communities around the United States.

The courts have also taken a stand on drone operations. The U.S. Court of Appeals has ruled that recreational UAS owners will no longer have to register their unmanned systems with the FAA. The court stated that the regulation requiring UAS owners to register their aircraft — enacted by the FAA in December 2015 — directly contradicted another rule that was already in place from federal legislation in 2012 (John A. Taylor v. Michael P. Huerta, as Administrator, Federal Aviation Administration, Case 15-1495, U.S. Appeals Court, District of Columbia, May 19, 2017).

The 2012 rule in question comes from Section 336 of the FAA Modernization and Reform Act, which states that the FAA “may not promulgate any rule or regulation
regarding a model aircraft.” In Section 336, Congress defines a model aircraft as “an unmanned aircraft that is (1) capable of sustained flight in the atmosphere; (2) flown within visual line of sight of the person operating the aircraft; and (3) flown for hobby or recreational purposes.”

In an opinion filed by Circuit Judge Brett Kavanaugh, he says, “Statutory interpretation does not get much simpler. The Registration Rule is unlawful as applied to model aircraft.”

**What’s Next, and Why You Should be Concerned**
Currently, the FAA is unable or unwilling to assume total responsibility for every aircraft in the NAS. At the same time, it is making attempts to enact rules that will require drone owners to mark their aircraft with permanent identification of the owner.

Congress is also trying to get involved. On May 25, U.S. Sens. Mike Lee (R-Utah), Tom Cotton (R-Ark.), Dianne Feinstein (D-Calif.), and Richard Blumenthal (D-Conn.) introduced S 1772, the Drone Federalism Act of 2017. While the bill recognizes the FAA’s general authority over the NAS, it provides authority to state and local governments to control drone operations within 200 feet of the ground or a structure. The bill does not affect the current federal preemption for manned aviation.

In the House, Rep. Jason Lewis (R-Minn.) introduced similar language in HR 2930, the Drone Innovation Act of 2017. These bills have attracted a great deal of national attention.

Discussions on drone integration continue in the FAA’s Drone Advisory Committee (DAC). The FAA directed the committee to “evaluate and analyze state or local government interests” which “could form the basis for recommendations to the DAC reflecting a consensus view that could be used to inform future agency action related to the relative role of state and local governments in regulating aspects of low-altitude UAS operations.”

The erosion of preemption and the increase in regional laws currently affect only drone operators. If you own and operate a drone for recreational or commercial use, make sure you know what laws apply to your area.

Also be aware that these regulations may eventually allow local governments to regulate full-sized aircraft. As most of you will recognize, once rules are in place for one class or aircraft, the legal precedent is in place to regulate any class of aircraft.

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Dan Sweet is HAI’s director of public relations and communications.
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Matt Callan Named Director of Regulations and International Affairs

HAI is pleased to announce the hiring of Matt Callan as director of regulations and international affairs. Callan will represent HAI members on all regulatory issues related to the international helicopter community. He recently retired from the U.S. Coast Guard after 31 years as an officer and helicopter pilot, with approximately 5,800 flight hours in five different military aircraft.

“We are grateful that Matt has joined our team,” says Matt Zuccaro, president and CEO of HAI. “Staying on top of international regulatory affairs is necessary to support our global membership, and Matt is going to serve this community very, very well.”

In the Coast Guard, Callan was most recently assigned to the National Defense University, Eisenhower School, at Fort Lesley J. McNair in Washington, D.C., where he served as the designated lead for the Transportation Industry Study.

“I’m looking forward to continuing to work in the aviation field, and particularly with helicopters,” says Callan.

“I’m now the staff liaison for the Government Services and Fly Neighborly committees, so some of my long-term goals are to develop methods of promoting and supporting HAI members through those venues,” continues Callan. “I will also seek to expand our international relations through the International Civil Aviation Organization and the International Federation of Helicopter Associations.”

Before joining the Coast Guard, Callan also served in the U.S. Navy as a helicopter pilot. A native of California, he graduated from California State University, Chico with a bachelor’s in criminal justice in 1981 and earned a master’s in public administration in 1986.
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The U.S. Commercial Service achieves client results via four key services:

- Business matchmaking
- Trade counseling
- Market intelligence
- Commercial diplomacy.

The stories of Kaman Aerospace and BLR Aerospace — both of whom landed multimillion dollar deals — are examples of the success a company can have when it works with ITA to navigate the global marketplace.

**BLR Aerospace Uses Gold Key to Increase Export Sales**

BLR Aerospace designs, develops, manufactures, and markets aerodynamic systems for airplanes and helicopters. The company contacted the U.S. Commercial Service office in Seattle to learn how it could leverage its resources and programs to increase global sales of its helicopter fleet products.

After meeting with their local trade specialist and receiving market intelligence on the countries of interest, BLR Aerospace contracted to use ITA’s Gold Key business matchmaking service. The Gold Key service connects U.S. companies with thoroughly vetted partner prospects in foreign markets and provides a deeper understanding of regional and cultural nuances in overseas markets.

A Gold Key service is designed to target specific geographic areas. The service includes prescreened meetings with as many as five potential agents, distributors, or other strategic partners, as well as market research, follow-up assistance, and help with travel, accommodations, and interpreter and clerical support.

To be eligible to participate, your company must have goods or services that are export ready and that are of U.S. origin or have at least 51 percent U.S. content. Fees for Gold Key service range between $700 and $2,300, depending on company size, the markets of interest, and the scope of services needed.

BLR Aerospace’s first set of Gold Key meetings was such a success that it was followed by four more. The company was able to reach out to partners in Colombia, Indonesia, the United Kingdom, Turkey, and Italy. Based on BLR Aerospace’s current activity, its support from the U.S. Commercial Service may generate more than $4 million of sales.

**Kaman Aerospace Closes on $20 Million Deal with China**

The opening of Chinese airspace to civil aviation has attracted the attention of U.S. aerospace companies for years. According to the 2016 ITA Aircraft Parts Top Markets Report (http://bit.ly/toptrademarket), “China is expected to be the world’s largest single-country market for civil aircraft sales over the next 20 years. Boeing estimates that China will need to add more than 6,000 planes to its commercial fleet to meet traffic demand; at the same time, China’s fleet of business jets, helicopters, training aircraft, and other general aviation equipment will grow significantly.”

Kaman Aerospace was one of the companies that benefited from this growth, closing on a $20 million deal with China Department of Forestry for two K-MAX heavy-lift helicopters.
The U.S. Commercial Service, Kaman Aerospace took advantage of these opportunities. The company manufactures helicopters and aerospace components in Bloomfield, Connecticut. One of its products, the K-MAX heavy-lift helicopter, is used for firefighting, forestry, oil and gas support, and unmanned military applications.

In 2004, Kaman closed the K-MAX production line to focus on developing new helicopters. However, it continued to maintain service offerings for updates and refurbishments on the product line.

In 2012, Terry Fogarty and George Schafer, managers with Kaman Aerospace, contacted Anne Evans, director of the U.S. Commercial Service office in Connecticut, to discuss opportunities for marketing a commercial version of the K-MAX to overseas markets for firefighting and heavy-lift applications. Kaman representatives joined a business development trade mission to China, which was jointly led by Connecticut’s U.S. Commercial Service office and the governor of that state.

The goal was to promote the capabilities of the K-MAX equipment to the China State Forestry Administration. In 2015, a year after the last meetings and demonstrations, Kaman made a sale to that Chinese agency for approximately $20 million.

“Over the three years of working with our China representative, the many visits to China, and the China State Forestry Administration’s visit to the United States, Anne Evans and her staff were instrumental in supporting the completion of this sale,” says Terry Fogarty, senior director, business development, for K-MAX helicopter programs. “We are very appreciative of her efforts and of the efforts of the staff at the Beijing Embassy for their support of our signing ceremony.”

These are just two examples of how companies working with ITA have succeeded in the global marketplace. The helicopter industry is competitive; therefore, working with ITA to determine markets with high probabilities of success is helpful to avoid costly challenges and time-consuming learning curves.

**Resources for Exporting Companies**


Additionally, ITA's Industry and Analysis Unit has a staff of industry, trade, and economic analysts who devise and implement international trade, investment, and export promotion strategies that strengthen the global competitiveness of U.S. industries.

These initiatives unlock export and investment opportunities for U.S. businesses by combining in-depth quantitative and qualitative analysis with the ITA's industry relationships. Visit [http://bit.ly/ITA-IAO](http://bit.ly/ITA-IAO) for more information about ITA's Office of Transportation and Machinery, as well as important market research regarding top markets for U.S. exports.

The ITA helps companies of all sizes export to markets around the world, and its staff have years of experience supporting their clients’ export endeavors. U.S.-based companies looking to increase foreign sales or meet vetted partners should reach out to their local ITA specialist via [http://bit.ly/USCSAerospace](http://bit.ly/USCSAerospace) and find out more about all the services offered.

We look forward to working with you!
Amanda Craeger
Cedar City, Utah, USA

Current Job: Turbine helicopter mechanic
First Aviation Job: As a civilian, my first job maintaining helicopters was with Upper Limit Aviation
Favorite Helicopter: Bell 407

Q Your current role?
A I work for Southern Utah University as an A&P mechanic for their flight training program. I am primarily responsible for maintaining our turbine fleet, which consists of Bell 206L models. My responsibilities are to track scheduled maintenance and provide flight line maintenance, as needed.

Q First helicopter ride?
A My first helicopter ride was in a Sikorsky UH-60 Black Hawk. The company I was assigned to in South Korea had just completed a phase inspection, and I was offered a seat on the aircraft during the test flight. It was rewarding to go up in an aircraft that I had a part in maintaining. I still find it rewarding.

Q What are your career goals?
A I’d love to work on EMS helicopters. I love the idea of working on projects that serve an important mission.

Q How did you decide helicopter aviation was the career for you?
A I joined the Army as an aircraft pneumdraulics repairer. While in the Army, I gained experience on multiple airframes, including the Boeing CH-47 Chinook, Sikorsky UH-60 Black Hawk, Bell OH-58 Kiowa, and Boeing AH-64 Apache. After I completed my contract with the Army, I knew that aviation maintenance was what I wanted to do. I completed a Part 147 program at a community college and haven’t looked back since.

Q What challenges you about helicopter aviation?
A I love troubleshooting — it is almost a lost art. I think to be a good maintainer, troubleshooting skills are a must.
What about helicopters first captured your imagination?

Helicopter aviation found me. On my first ride during a vacation in Hawaii, I couldn’t believe how maneuverable a helicopter was — it really grabbed my attention. I decided that day I should learn to fly one.

Janie Foster

O’Fallon, Missouri, USA

Current Job: Pilot recruiter for Air Evac Lifeteam
First Part 135 Job: Flying a Bell 206 for utility and charter operations with Evergreen Helicopters in Alaska
Favorite Helicopters: Bell 206, Bell 412, and the Leonardo AW139

Your current role?

It’s my job to resource and recruit pilots in partnership with our regional directors to maintain a staff of more than 500 pilots at 134 bases located in 15 states.

What advice would you give to someone pursuing your path?

The aviation world is a constantly changing environment, so be “rigidly flexible,” as a wise chief pilot once advised me. There isn’t always a straight path to your end career goal. Have an idea of where you want to go, but be open to unanticipated opportunities that come along. And don’t forget to have fun!

What about helicopters first captured your imagination?

Helicopter aviation found me. On my first ride during a vacation in Hawaii, I couldn’t believe how maneuverable a helicopter was — it really grabbed my attention. I decided that day I should learn to fly one.

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

Maintaining a pipeline of qualified pilots, as well as the impact of the UAS industry on helicopter operations.

What inspires you?

Observing “up-and-coming” pilots and those transitioning from military to civilian aviation reach their desired milestones. They’re sincere, they work hard, and they don’t give up.
## Calendar of Events

### August 14–16
National Training Aircraft Symposium  
Embry-Riddle Aeronautical University  
Daytona Beach, Florida, USA  
commons.erau.edu/ntas

### August 20
World Helicopter Day  
“Celebrating helicopters and the people that operate them”  
worldhelicopterday.com

### August 30–September 1
ASA+FNA 29th Conference  
Aeromed Australasia and Flight Nurses Australia  
Darling Island, Sydney, Australia  
aeromedconference.com

### September 5–6
JETNET iQ Global Business Aviation Summit  
JETNET iQ  
New York, New York, USA  
jetnetiq.com/summit.shtml

### September 12–15
43rd European Rotorcraft Forum  
Milan, Italy  
www.erf2017.org

### September 19–21
Second Global Remotely Piloted Aircraft Systems Symposium  
International Civil Aviation Organization  
Montreal, Canada  
icao.int/meetings/RPAS17

### September 29–30
Transformative Vertical Flight Workshop  
AHS International  
Hartford, Connecticut, USA  
vtol.org/events/transformative-vertical-flight-workshop

### October 3–5
Helitech International 2017  
European Helicopter Association  
London, England, UK  
helitechinternational.com

### October 10–12
NBAA’s Business Aviation Convention & Exhibition  
National Business Aviation Association  
Las Vegas, Nevada, USA  
bbaa.org/events/bace/2017

### October 16–18
Air Medical Transport Conference  
The Association of Air Medical Services  
Fort Worth, Texas, USA  
aams.org/events/amtc

### October 17–18
Aerial Firefighting Europe 2017  
Tangent Link  
Nimes, France  
aerial-firefighting-europe.com

### October 22
16th Annual Wings, Wheels & Rotors Expo  
Los Alamitos Area Chamber of Commerce  
Los Alamitos, California, USA  
wwrexpo.org

### October 24–26
African Airshow  
Ghana Airport Company  
Accra, Ghana, Africa  
africanairshow.com

### November 7–9
6th Asian-Australian Rotorcraft Forum & Heli Japan 2017  
AHS International  
Kanazawa, Ishikawa, Japan  
vtol.org/arf

### November 12–16
Dubai Airshow  
F&E Aerospace  
Dubai, United Arab Emirates  
dubaiairshow.aero

### November 14–15
HAI Annual Firefighting Safety Conference  
Helicopter Association International  
Boise, Idaho, USA  
rotor.org/firefightingconf

### December 4–7
51st Annual NAAA Convention & Exposition  
National Agricultural Aviation Association  
Savannah, Georgia, USA  
agaviation.org/convention

### December 5–6
11th Rotorcraft Symposium  
European Aviation Safety Agency  
Cologne, Germany  
easa.europa.eu

### February 26 – March 1
(Exhibits open Feb. 27 – Mar. 1)  
HAI HELI-EXPO 2018  
Helicopter Association International  
Las Vegas, Nevada, USA  
heliexpo.rotor.org
Benedikt Grasl, a 2017 HFI scholarship recipient, grew up fascinated by aircraft and always wanted to be a pilot. Grasl was born and raised in Bad Vöslau, a small town in Austria.

He started in an aviation degree program at the University of Applied Sciences FH Joanneum in October 2009. From the beginning, he was immersed in an aviation environment and surrounded by people who shared the same passion. This access to mentors and like-minded students convinced him that he was on the right path.

Grasl completed the aviation degree program with a specialization in aeronautical engineering and graduated in 2014 with a master of science degree. After graduation, he started working as an aircraft systems engineer for Grob Aircraft in Germany and was involved in the development and certification process for a two-seat turboprop training airplane.

Although he liked his job, Grasl decided to take the next step toward his dream of becoming a pilot. In 2016, he moved to Hillsboro, Oregon, to start flight training at Hillsboro Aero Academy.

Grasl is a 2017 recipient of the HFI Commercial Helicopter Pilot Rating Scholarship. Flying is unfortunately expensive, and he could only afford the training by taking out a personal loan. “The scholarship is a great opportunity to take away some of the financial burden,” Grasl says. He currently holds a private and instrument rotorcraft rating and is working on his commercial pilot rating.

Grasl plans to apply for a flight instructor job at Hillsboro as soon as he has his commercial flight instructor license. In the future, he would like to fly in the helicopter air ambulance sector, but “I still have a long way to go before then.”

His advice to those looking to get into the industry? “Never stop dreaming big.”

“When I was little, I could have only dreamt of what I do right now, and somehow I managed to get to this point,” says Grasl. “You have to put a lot of work and effort into the training, but on the other hand you will get very rewarding moments.”
Philip H. “Phil” Fillingham passed away Wednesday, May 17, 2017, at his home in Monroe, New York. He was 98 years old, born May 29, 1918, in Cobham, Surrey in England.

Fillingham joined the British Royal Navy in September 1944. He earned his wings in January 1945, flying fixed-wing aircraft during his early military service. At the first opportunity, Fillingham requested a transfer to helicopter operations, and he soloed in November 1948 after 4.5 hours of training on a Sikorsky R-4. He left the Royal Navy in 1950.

He and his family emigrated to Canada at a time when there were only six helicopters in the entire country. Hired by Spartan Air Services, he began flying mapping and survey missions in a Bell 47. Later, he moved to Texas and took a job flying for PHI in a variety of locations, including projects in South America.

In 1964, Fillingham began working for Tenneco, Inc. of Houston, Texas, where he worked until his retirement in 1980. He continued to fly helicopters throughout the United States until September 1981, when he closed his logbook with 13,674 helicopter hours and 581 fixed-wing hours.

Fillingham was a lifetime member of the Twirly Birds as well as a freelance photographer. He photographed for The Photo News in New York and was a member of the Knights of Columbus Council 2079 of Monroe.

Fillingham is sadly missed by his loving family, including daughters Ann (Johnson) and Mary; sons John, Philip, and Frank; five grandchildren; nine great-grandchildren; and two sisters.

Former HAI Board Member Cpt. Bill Yarber “Flies West”


Yarber was born December 18, 1934, in Nampa, Idaho. After obtaining a degree in agricultural economics from the University of Idaho, he received his commission in the U.S. Navy as an ensign and was designated a naval aviator in March 1959.

Assigned to the Seahorses of Navy Helicopter Anti-Submarine Squadron One (HS-1), Yarber flew missions to detect and track Russian submarines during the Cold War. He later transferred to the Sea Griffins of HS-9.

Upon release from active duty, he joined a Naval Reserve Squadron (HS-892) until he retired in 1989. He is the recipient of the Navy Air Medal for saving four aviators downed in the Gulf of Mexico.

Outside of the military, Yarber worked as a commercial helicopter pilot out of Boise, Idaho, flying missions for wildland fires, snow surveys, agricultural spraying, and powerline construction from Hells Canyon Dam into Eastern Oregon. He logged over 7,000 hours of flight time in 24 different aircraft during his career.

Yarber joined Bell Helicopter Textron as a test pilot in March 1968, moving to the Bell marketing department in 1969. He eventually became division sales manager, and later regional marketing manager, directing the sales team across several western states. He was named Western Division Co-Salesman of the Year in 1989. Yarber retired from Bell Helicopter Textron in December 2000.

Yarber was active in the Twirly Birds and received their Les Morris Award in 2011 for his contributions to the industry.

Yarber is sadly missed by his loving family, including two daughters, four grandchildren, and numerous nieces and nephews.
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<td>800-622-2672</td>
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<td>Becker Avionics</td>
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<td>beckerusa.com</td>
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<td>DeVore Aviation Corporation</td>
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