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Editor's Notebook

Dangers of Multitasking; Focus on the Task at Hand

By Andrew Parker

aparker@accessintel.com

NTSB's investigation into an August 2011 helicopter EMS crash in Missouri (see story, page 16) made national headlines in early April after the safety board named text messaging and multitasking as one of the key factors that contributed to the Eurocopter AS350 B2 accident. Four people, including the pilot, died as a result of the incident, which has the distinction of being the first commercial aircraft crash where investigators cited texting as part of the probable cause. NTSB also noted pilot fatigue, a miscalculation of remaining fuel and improper training leading to the pilot failing to initiate an emergency autorotation procedure as a four-pronged chain of poor decisions that led to the crash.

According to the report, investigators reviewed cell phone records that indicated "the pilot sent and received multiple personal text messages throughout the day, including during time periods when the helicopter was in flight and while it was on the ground" at one of the hospital stops. The pilot's personal texting, which took place while flying, during pre-flight checks and while making a crucial decision about whether to continue the mission "was a self-induced distraction that took his attention away from his primary responsibility to ensure safe flight operations." In addition, "although there is no evidence that the pilot was texting at the time of the engine failure, his texting while airborne violated the company's cell phone use policy," the board's report states.

NTSB Chairman Deborah Hersman's point about multitasking becoming a larger problem across all sectors of transportation is worth repeating. She noted that whether you're driving your personal car, flying an EMS helicopter or operating another type of vehicle, "the focus must be on the task at hand: safe transportation."

Living in the Washington, D.C. area, I was not surprised to learn that my fellow drivers recently topped Los Angeles for the worst traffic in the United States, according to a February 2013 report from the Texas A&M Transportation Institute. This is on top of an Allstate Insurance report during 2012 that studied the auto insurance claims of America's 200 largest cities and found that residents of the nation's capital get into collisions on average once every 4.7 years. This means they're a whopping 112.1 percent more likely to be involved in an accident than the typical driver in the U.S., who wrecks his or her car once every 10 years. D.C. ranks first, Baltimore second at 87.9 percent, and other areas surrounding Washington to include Alexandria (62.6 percent more likely) and Arlington (53 percent) in Virginia placed in the top 25, at 7th and 12th, respectively.

Most people in the general population are attentive and avoid distractions when behind the wheel of a car, but it seems not as likely among those drivers around the nation's capital. Of course, ground-based travel is an apples-to-oranges comparison to aviation, as the percentage of attentive pilots is a lot higher among aircraft operators due to much better training and the potential of more serious consequences from higher speeds and the law of gravity.

But for those of us who are prone to the occasional bout of human nature and short spells of distracting behavior when operating a vehicle, despite the building evidence that this is a dangerous—and sometimes deadly—practice: This accident investigation (and the rise in car crashes related to texting) has caused me to re-examine my "focus on the task at hand" when operating a vehicle. I'm shutting down the cell phone and eliminating any potential distractions before turning the key to start the car. What will you do?

International Presence

It gives me great pleasure to welcome Andrew Drwiega into an expanded consulting role with *Rotor & Wing* under the new title of International Bureau Chief. Formerly Military Editor, Andrew has been writing for a number of years for aviation and defense publications, including serving as Editor-in-Chief of *Defence Helicopter* in the UK for seven years. He's also reported from Afghanistan and Iraq—something that takes a commitment to journalism far beyond the basics of the profession. On top of continuing to write about his specialization in military rotorcraft, Andrew will increase his coverage of civil markets and across the spectrum of the roles that helicopters play.

Rotor & Wing has always been an international magazine since its first issue went to press in 1966. In addition to our existing global coverage, with Andrew's increased role will come more in-depth stories from locations around the world, including Asia, South America, the Middle East and other emerging helicopter markets. Just in 2013 alone, Andrew has already travelled to Australia, India, around Europe, and most recently to Quad-A in the U.S. Other planned trips later this year include to Indonesia, Dubai and France for the Paris Air Show, along with a couple spots near his home base outside London.

To all the students out there still deciding on a career path: If circumnavigating the planet seems like an ideal job to you, then I'd caution that you go to work, not to sightsee. And you only get to do it by reporting original, timely news and features that cannot be found with a quick scan of the web. But if this still sounds like fun, then join our ranks and become a journalist. The world could use (a whole lot) more good ones like Andrew Drwiega.

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(Above) Cutaway view of AVX Aircraft's FVL concept. (Bottom) Bell 429 cockpit at Heli-Expo. *Photo by Frank Lombardi*. (Right) Eurocopter EC175 tail rotor during world tour. *Photo by Pat Gray*.

FEATURES

On the Cover: Bell Helicopter unleashed its V-280 Valor during Quad-A in April. The third-generation tiltrotor is Bell's submission for the U.S. Army's Joint Multi-Role competition, the precursor to Future Vertical Lift. *Graphic courtesy of Bell Helicopter, cover design by Gretchen Saval*

DEPARTMENTS

COLUMNS

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WHAT DO THE EXPERTS THINK?

- Ask questions to three experts on the topics of helicopter aerodynamics, AS9100 quality management systems audits and night vision goggle (NVG) certification at **rotorandwing.com**. Che Masters, certification engineer for NSF-ISR, discusses aerospace quality registration. Frank Lombardi, test and evaluation pilot, provides insights about the science behind helicopter flight. NVG certification expert Jessie Kearby fields questions about NVGs for both military and commercial uses.

DIRECT TO YOUR DESKTOP: CHECK YOUR E-MAIL

WEEK OF MAY 1:

- Digital edition of *Rotor & Wing* May 2013. Electronic version with enhanced web links makes navigating through the pages of *Rotor & Wing* easier than ever.

WEEK OF MAY 21:

- *Rotor & Wing*'s Military Insider e-letter. Get the latest updates from helicopter defense companies around the world, from Andrew Drwiega.

WEEK OF MAY 28:

- HOT PRODUCTS for Helicopter Operators—Latest in equipment upgrades, performance modifications, training devices and other tools for the rotorcraft industry.

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Feedback

Getting it Right

I very much enjoyed Dale Smith's insightful interview with Bristow's Mark Duncan (see March 2013, page 44). Back in the day when some of us were struggling to forecast the size and fit of the helicopter market in the offshore service industry we, too, focused on a mix of seats, miles, and dollars. But we ultimately learned to fixate less on the offshore operators and more on the oil companies themselves, who alone knew what was going to happen and where. The forecasters are still forecasting, but too few perceive the basic parameters. Dale Smith and Mark Duncan get it right.

Dave Lawrence

Fairfield, Conn.

Sensationalism?

I own the largest laser show company in my region, we do professional shows of all sizes, from arenas and stadiums to school classrooms. I would consider myself to be extremely well-versed in laser safety, and I have issues with your articles about the dangers of laser pointers and aircraft (see March 2013, pages 18 and 64).

First let me say that I certainly feel that lasers should NEVER be pointed at aircraft. There is a very real danger of flash-blindness, and anything that interferes with vision is a hazard to a pilot. Period. That is why the laws governing such things exist.

But is that not enough of a reason for concern without resorting to sensationalism? Your insinuation that the pilot pictured on page 18 received the injury to the white of his eye from a ground-based laser beam directly is unlikely to the point of ridiculousness. You should do some research to verify the information given before you publish junk science like this. Laser beams are dangerous to flesh (especially the retina) if sufficiently powerful, but that danger diminishes fairly rapidly the further the observer is from the source. Look up NOHD calculations (nominal ocular hazard distance) as a start. About the only way that the laser pointer in question could have damaged the white of the eye is if that person had been held down by force, and then used the Wicked Lasers to slowly burn the eye at extremely close range, on the order of inches. There is even more difficulty with the idea that the laser directly injured the white of the eye was injured because the color white naturally reflects light much more than it absorbs it. This means that white-colored objects (including the white of an eye) are the least susceptible to damage from high-intensity visible light.

Now, retinal damage is a whole different ballgame. There is certainly danger of retinal damage from any sufficiently high-intensity visible (and often invisible) light sources. But I get that it's a lot less sensational looking trying to show a picture of some guy's face and expecting people to see the alleged retinal damage. A huge red swollen spot on the eye would obviously present much more of a "fear factor," which is what you are obviously striving for.

In conclusion, lasers are dangerous... but junk science and fear mongering are even more so.

Pat G., Laserist

R&W's Question of the Month

What will the future helicopter look like and how will it function? Who do you think will win the Joint Multi-Role/ Future Vertical Lift contract?

Let us know, and look for your and others' responses in a future issue. You'll find contact information below.

Backed by Evidence

Thank you for your feedback, Pat. It is always welcome! As the researcher and writer of the laser piece you are talking about, I would like to provide a response.

What I reported about the laser injury was based on three sources. The first was a face-to-face interview with all of the officers, including the officer in the photograph, which included his assertion that a licensed physician specializing in ophthalmology attributed the injury to the laser device seized by ground officers. The second was a copy of the official charging document that was sworn to by the detective in front of a court magistrate. My third source was the official injury report filed by the officer with the police department. And while the March 2013 issue went to press too soon to include the outcome of the trial, the suspect—through his legal representation—pled guilty to the charges as filed on March 1, 2013.

So, while the assertion that a handheld laser device could have caused such damage is beyond everything I had seen or heard of before, I'm confident that I reported the facts as stated by the witnesses and court documents accurately.

Ernie Stephens

Editor-at-Large

Do you have comments on the rotorcraft industry or recent articles and viewpoints we've published? Send them to Editor, Rotor & Wing, *4 Choke Cherry Road, Second Floor, Rockville, Md. 20850, USA, fax us at 1-301-354-1809 or e-mail us at rotorandwing@accessintel.com. Please include a city and state or province with your name and ratings. We reserve the right to edit all submitted material.*

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Meet the Contributors

LEE BENSON is a retired senior pilot for the Los Angeles County Fire Department. Before he was named senior pilot, Lee ran the aviation section's safety and training programs, including organizing the section's yearly safety meeting with other public agencies and the press.

ANDREW DRWIEGA, International Bureau Chief, is a senior defense/aviation journalist with a specialization in international military rotorcraft. Based in London, he has reported from Iraq and Afghanistan on numerous occasions on attachment with American and British helicopter forces. Andrew is a member of the Army Aviation Association of America, the Royal United Services Institute, the Air Power Association and is an associate member of the Royal Aeronautical Society. He has a BA (Hons) degree in War Studies. Andrew covers defense and global rotorcraft markets.

THIERRY DUBOIS is a long-time contributor to Access Intelligence publications. He has been an aerospace journalist for 12 years, specializing in helicopters since 2006. He writes on technical subjects, both for professional media and a popular science magazine in France. Follow him on Twitter: **@aerodub**

PAT GRAY is our "Offshore Notebook" contributor, having flown in Gulf of Mexico helicopter operations for 20-plus years. Prior to that, he was in Vietnam in 1958 as a young paratrooper. He retired from the Army Reserve as a chief warrant officer 4, with more than 30 years active and reserve service. Gray's civil helicopter experience covers crop dusting and Alaska bush, corporate, pipeline and offshore flying.

FRANK LOMBARDI, an ATP with both fixed-wing and rotary-wing ratings, began his flying career in 1991 after graduating with a bachelor's of science in aerospace engineering, working on various airplane and helicopter programs as a flight test engineer for Grumman Aerospace Corp. Frank became a police officer for a major East Coast police department in 1995, and has been flying helicopters in the department's aviation section since 2000. He remains active in test and evaluation, and holds a master's degree in aviation systems-flight testing from the University of Tennessee Space Institute.

DOUGLAS NELMS has more than 30 years of experience as an aviation journalist and currently works as a freelance writer. He has served as managing editor of *Rotor & Wing*. A former U.S. Army helicopter pilot, Nelms specializes in writing about helicopters.

DALE SMITH has been an aviation journalist for 24 years specializing in business aviation. He is currently a contributing writer for *Rotor & Wing* and other leading aviation magazines. He has been a licensed pilot since 1974 and has flown 35 different types of general aviation, business and WWII vintage aircraft.

ERNIE STEPHENS, Editor-at-Large, spent 27 years with a major county police department, retiring as a decorated sergeant and chief pilot of its aviation section in 2006. He began his flying career in the late 1980s when he earned his rotorcraft license and incorporated a small aviation company as a sideline to his law enforcement career. Ernie holds a B.S. in Management of Technical Operations and an M.S. in Aeronautical Science from Embry-Riddle Aeronautical University, where he is also a professor and former director of academics for one of the school's satellite campuses. He has been writing features and columns for *Rotor & Wing* since 2003, and has performed evaluation flights in some of the latest, most technologically advanced rotorcraft in the world. In 2008 and 2009, Ernie was nominated for the Aerospace Journalist of the Year Award

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PUBLIC SERVICE | SAR

UK Government Finally Cuts Military from Helicopter SAR Role with Bristow Selection

The saga of the British government's drive to replace the 70-year tradition of military involvement in providing the majority of the UK's search and rescue (SAR) helicopters with a privatized 'for profit' organization in order to divest the service off the military balance sheet is now at an end.

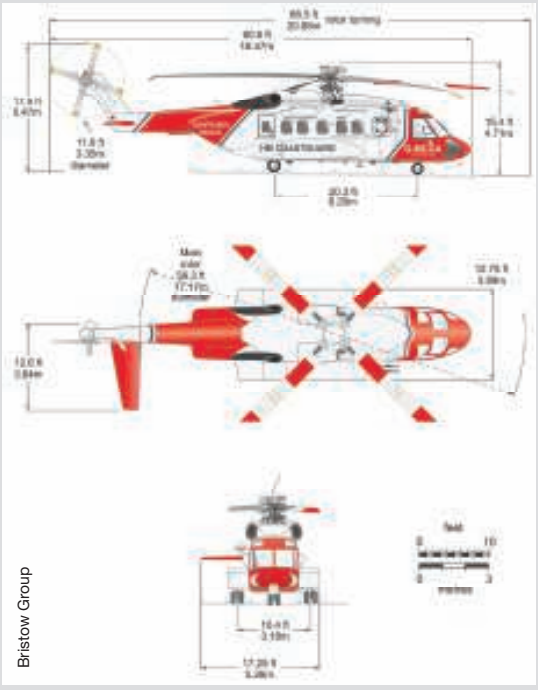
Bristow Group

Graphical rendering of an AW189 in Bristow colors.

The announcement by Patrick McLoughlin, the UK Secretary of State at the Department for Transport (DfT), regarding the selection of Bristow Helicopters as the future provider of the SAR helicopter service in the UK was disingenuous at best, and at worst the affirmation that long-term policies regarding SAR have been led by accountants rather than strategists.

The very first part of the statement disguises the fact that the drive to civilianize the SAR service has been running since May 9, 2006, not the Nov. 28, 2011 as was stated. The date in 2006 marked the first joint announcement by the Department for Transport (DfT) and the Ministry of Defence (MoD) that began the quest for the "harmonization of UK SAR." This in fact marked the beginning of the end of military SAR helicopters in the UK as the team quickly demonstrated a lack of commitment to investigate too closely the option of retaining the military part of the structure. This had been preceded by an increasing lack of investment by the MoD in the SAR force and its equipment as those serving in the force at the time attest.

Standing the military down from the civil SAR role does not mean that the requirement does not exist within the armed forces. They still retain a responsibility for delivering personnel recovery, a milder approach to rescuing isolated personnel, although full combat search and rescue operations are beyond the UK military and they do not train for that level of expertise and joint coordination. The RAF has not participated with aircraft and air/ground crews in any of the European Defence Agency or European Air Group exercises over the last few years (although one or two observers/coordinators were sent at best). It is also still unclear about who would respond to a military aircraft crash at sea, particularly if the aircraft is armed. There is a danger now that SAR expertise will be sidelined in terms of training



Bristow Group

Sikorsky S-92 spec sheet for UK search and rescue.

Bristow/Sikorsky

Coastguard S-92 already in service.

and equipment within UK forces, which will impact the front line capability.

From 2006, the way in which the SAR-H program was conducted was secretive with very little public discussion up to the declaration of the Soteria consortium (Royal Bank of Scotland, Sikorsky, Thales, CHC Helicopter) as preferred bidder at the end of 2010.

However, RBS pulled out of the consortium and details emerged that representatives of CHC had received commercially sensitive information and on Feb. 8, 2011, DfT made the decision not to sign the contract. This meant that the bidding process was effectively restarted which has now led to the appointment of Bristow. CHC did bid again but was asked to stand down before the final decision between Bond and Bristow was made.

There was little, if any, discussion about continuing the SAR role within the military. At one point the SAR-H program did require a percentage of crewmen to be from the military, but this brought into question civilian managers having authority over military personnel, which was unworkable for numerous reasons.

When McLoughlin stated that the contract "represents a major investment by the government in providing a search and rescue helicopter service," it should remembered that it is saving from the defense budget by standing down the military SAR force and the base facilities that were being used.

He continued: "Experience of front-line operations has informed the military decision that the skills required for personnel recovery on the battlefield and in the maritime environment can be sustained without the need for military personnel being engaged in UK search and rescue." In fact, in the past SAR crewmen who were experienced paramedics were taken from their roles in civilian SAR to supplement the crews operating in Afghanistan. This statement also fails to acknowledge that senior pilots operating in Iraq and Afghanistan over the years actually had SAR experience prior to joining support helicopters. SAR operational deployments were also seen within the military as an excellent posting for "decompressing" from Afghanistan for those who had seen tough tours there.

One agitator in the whole process has been the Maritime Coastguard Agency (MCA), which has harbored a desire to ease the military out of helicopter SAR activities for well over a decade and now has its wish. Its 30 years of experience in SAR does not match the 70 years (ironically celebrated this year) by the RAF.

Many will point to the growth of civil SAR providers, however many of these have small operational areas of responsibility with the exception of China. Most of the major SAR operators including Canada, France, Germany, Italy, the Netherlands, Portugal and of course the U.S. continue to operate military SAR.

Key considerations when providing a helicopter SAR include the following. First, rescue missions during the night

Royal Air Force

UK Royal Air Force Sikorsky S-61 Sea King.

using night vision goggles (NVGs). The military uses NVGs as a matter of course and have a huge amount of experience, training and confidence in operating with them on. In the United States, the U.S. Army's special aviation unit, the 160th, are known as "the Nightstalkers" for precisely that reason. The military views night operations as the safest time to fly, thus training hard for it. A civilian organization will not be able to replicate the level of competency that this background instills, nor is it likely to spend as much time training, either real or synthetic.

Secondly, the military training ethos is built around calculated risk taking, vital when making go/no go decisions. The breadth of training and techniques required by all military pilots, from snow to desert, hot and high to nap-of-the-earth, are all qualities that a civilian pilot does not need to train for, but will not therefore have to face the continuous challenges that this training demands of career military personnel.

Losing the military element to SAR also means a decreased range of operating options. Where before Royal Navy helicopters could land to refuel, if required onboard naval vessels, this will not be an option for civilian-registered helicopters, as crew will not have the relevant training and experience.

McLoughlin also makes no mention of the fact that the number of bases will decrease from the current 12 locations to 10. All of the military bases currently used are now excluded from operations, regardless of whether the site was suitable and the effect that this will have on local communities. While he is also keen to emphasize the creation of new civil jobs, he makes no mention at the military jobs that will disappear as the result of this decision. Some personnel may leave the armed forces and be recruited by Bristow Helicopters, but the overall effect is likely to be a decrease in the number of helicopter specialists within the armed forces.

While the professionalism of civilian SAR crewmen and operators is beyond question, there is now the possibility of industrial action by commercially employed individuals as an ultimate option to resolving contractual disputes—something that the military could never do. While this is unlikely, it is possible.

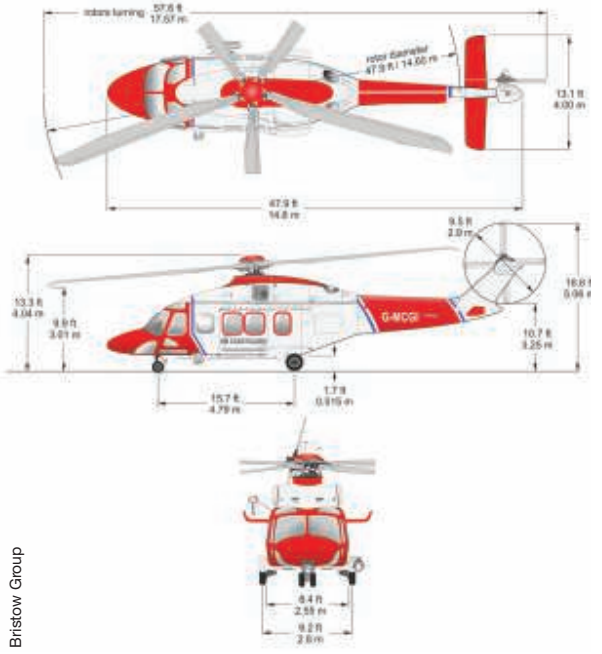
The declared ambition of the quest for a civilian SAR operator was for an organization that could "match or exceed" the version it was replacing, which does not impart a feeling of vibrant expectation.

The DfT contract award will provide Bristow Helicopters with £1.6 billion ($2.4 billion) over the lifetime of the service provision which starts in 2015, is planned to be fully operational by 2017 and should then run for up to 10 years. During the SAR-H days, the contract was to have been 25 years but the general opinion at the time was that this did not allow the civilian operator to make a profit.

While there is no question about the sincerity and ability of Bristow Helicopters to manage a SAR service, something it already has a depth of experience in doing (according to the company it has operated over 15,000 missions during which more than 7,000 people have been rescued), the task now being asked of it as the UK's sole provider and operator of SAR helicopters is much bigger than anything before.

The question remains: If the customer (UK government) wants to keep the cost at a minimum and not pay as much as it would have if it retained SAR within the military, what incentive is there for the civilian SAR operator to keep its helicopters, equipment, crewmen and ground staff at the peak of capability and performance and not siphon money off to ensure profit margins are kept up? Maybe that's what is really meant by at least "matching" what went before? Many industry watchers believe Bristow Helicopters will face a tough challenge to maintain expectations while making a profit over the 10-year period without further investment by the government.
—Commentary by Andrew Drwiega, International Bureau Chief

Spec sheet of the UK AgustaWestland AW189.



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Safety Board: Texting, Distracted Multitasking Factors in 2011 EMS Crash

The U.S. National Transportation Safety Board (NTSB) has determined that a private text conversation was one of the factors that contributed to a series of poor decisions resulting in the August 2011 crash of an Air Methods Eurocopter AS350 B2 in Mosby, Mo. Four people died as a result of the accident, including the pilot, James Freudenberg. According to NTSB, in addition to being distracted from texting, three other factors contributed to the crash—fatigue, training, and taking off with less fuel than needed resulting in the pilot failing to "make the flight control inputs necessary to enter an autorotation," an emergency maneuver required within about two seconds after the loss of engine power in order to land safely.

The agency released a report regarding the LifeNet-operated AS350 that reveals the pilot engaged in a text conversation while conducting mandatory pre-flight checks, prior to accepting a mission to transport a patient from a hospital in Bethany to a Liberty, Mo. hospital about 62 miles away.

After departing the Air Methods base, the pilot reported having two hours' worth of fuel, but then reported having only about 30 minutes of fuel remaining once he reached the first hospital, according to the safety board. An examination of the pilot's cell phone records caused NTSB to cite distraction from texting as a contributing factor, as Freudenberg made several calls and text messages during the helicopter's pre-flight inspection, as well as in flight to the first hospital and while he was making "mission-critical decisions" about delaying the operation due to the fuel situation.

After arriving at the first hospital, the pilot was scheduled to fly the AS350 to a nearby airport for refueling. The helicopter ran out of fuel and the engine lost power within sight of the airport, and Freudenberg did not respond with the necessary flight inputs for autorotation. Investigators found that because of a lack of specific guidance in FAA training materials, the pilot may not have been aware of specific control inputs needed to enter an autorotation at cruise speed.

The agency is recommending FAA suspend the use of non-flight-related portable electronic devices (PEDs) during flight and safety-critical inspections, along with eight other safety recommendations resulting from the crash investigation related to updating flight manuals, informing other pilots about the circumstances of this accident, and installing crash-resistant flight recorder systems on all turbine-powered aircraft.

The findings highlight "what is a growing concern across transportation distraction and the myth of multi-tasking," NTSB Chairman Deborah Hersman noted in a statement. "When operating heavy machinery, whether it's a personal vehicle or an emergency medical services helicopter, the focus must be on the task at hand: safe transportation." *—By Woodrow Bellamy III and Editor-in-Chief Andrew Parker*

■ COMMERCIAL | HEAVYLIFT

Erickson to Expand Fleet, Services with Purchase of Evergreen Helicopters

Front portion of the Erickson Air-Crane S-64 "Sun Bird" at Heli-Expo.

Portland, Ore.-based Erickson Air-Crane has reached a stock purchase agreement to acquire Evergreen Helicopters, an operator of 64 aircraft—including helicopters and fixed-wing—with headquarters in McMinnville, Ore. The acquisition is set to almost double the size of Erickson as a company. Erickson owns and operates a fleet of 18 S-64 heavy-lift Aircranes.

Established in 1960 by Delford Smith, Evergreen Helicopters offers a number of cargo and personnel transport services for commercial operators and government agencies, as well as the U.S. military. Operations span North America, Africa, Asia Pacific and the Middle East. Erickson President & CEO Udo Rieder noted that the company is "on the cusp of transforming our business." The agreement is worth $250 million, comprised of $185 million in cash, $17.5 million in promissory notes and four million preferred shares of Erickson valued at $47.5 million (at a cost of $11.85 per share). Erickson anticipates the transaction to close in second quarter 2013 following regulatory approvals. Along with an acquisition of Air Amazonia, Erickson will operate a fleet of 100 aircraft following the Evergreen purchase.

Rieder said that Erickson is at the start of "a new chapter. Never has our vision been broader, our opportunities greater, or our missions more important."

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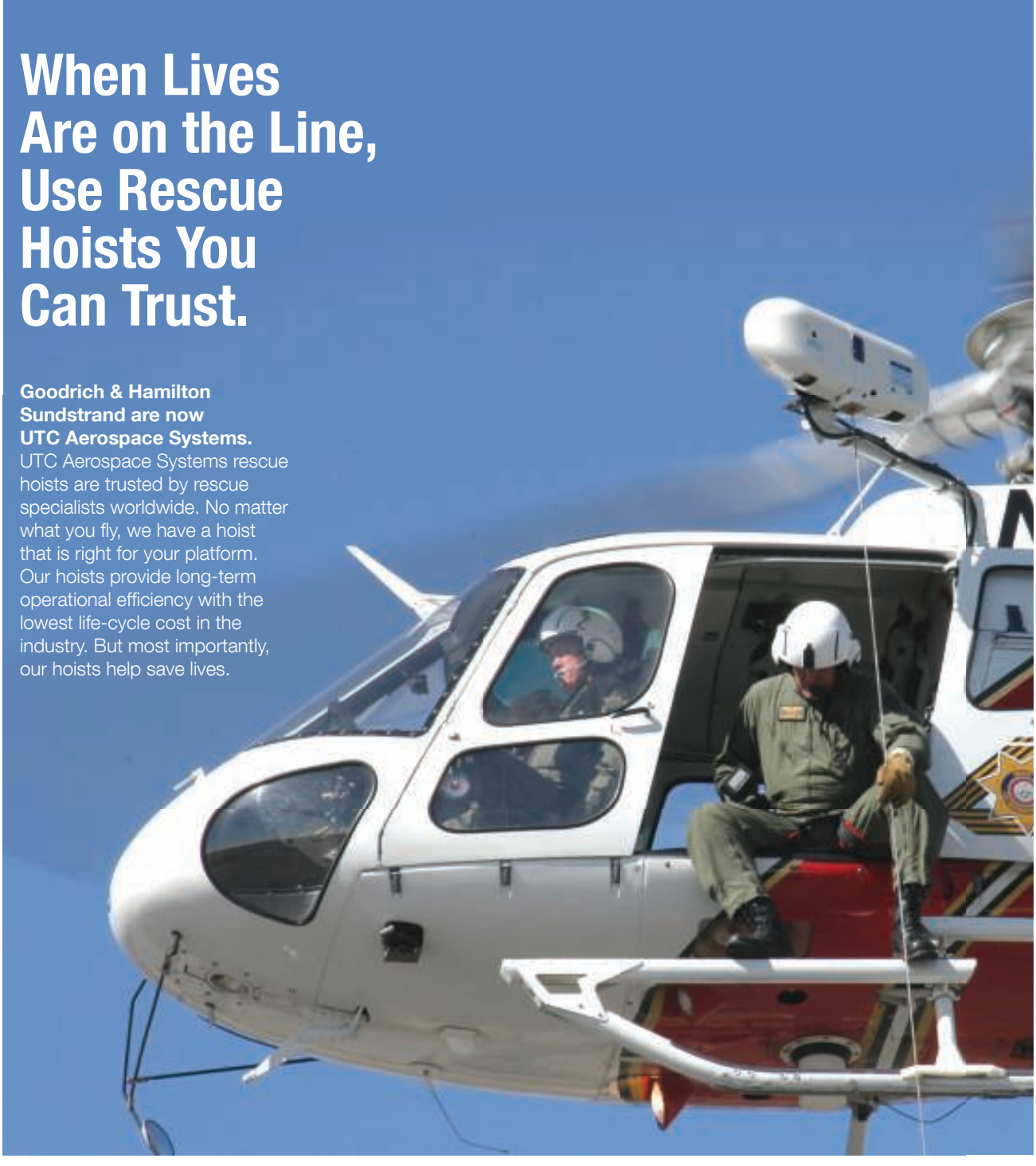

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■ MILITARY | PROCUREMENT

Osprey Takes on Greyhound in Fight Over U.S. Navy's COD

The U.S. Navy's future Carrier Onboard Delivery (COD) requirement looks like it's breaking down into a straight fight between a modernized version of the current aircraft, Northrop Grumman's C-2A Greyhound, and the new contender in the Bell-Boeing V-22 Osprey. At the Navy League's Sea-Air-Space Exposition at National Harbor, Md. (from April 8-10), both of the contenders were highlighting why their platform was the most suitable and affordable.

Northrop Grumman's director of the C-2 Greyhound program Steve Squires said that the Navy would be buying into continuity if it selected to modernize its existing 35 Greyhounds. The Northrop Grumman offer is to leverage the Navy's investment in upgrading its E-2D Hawkeye, with a focus on a new center wing section and new engines together with an upgraded C-2A cabin. This would bring commonality of platform between the two aircraft closer together with a saving in logistics, not to mention crew training and operation.

Squires said that two aircraft currently operating a six-month detachment will haul one million pounds of cargo, transport 5,000 passengers and log around 1,000 flight hours. Regarding future operations in the Pacific Ocean, he pointed to studies that showed a requirement for a 1,300-nm reach carrying 10,000 lbs/26 passengers—or a combination of both.

However, he added that regular operations usually meant typical loads of between 5,000-6,000 lbs. He said new Rolls Royce T56-427A engines (5,100 shp) on the E-2D Hawkeye would result in a 13-15 percent fuel savings.

The existing C2 Greyhounds will be close to their out-of-service deadline between 2020-2025.

In contrast, the Bell-Boeing partnership believes that the Osprey, while suitable for the COD mission, can also add value by potentially increasing its utility in ship-to-ship resupply and load transfer. The landing on the carrier may be the last in a series of landings when delivering to a carrier battle group, suggested Richard Linhart, vice president of military business development at Bell Helicopter, speaking to *Rotor & Wing* at the Sea-Air-Space convention.

With the U.S. Marine Corps heading toward being the biggest user of the MV-22B Osprey at 360 aircraft, a requirement has already been identified by the U.S. Navy for 48 V-22s to fulfill multi-mission roles, meaning a leap to another 35 or so Ospreys would just add numbers to a new type coming into service.

Linhart also said that testing was underway for the Osprey to act as an aerial refueling platform, potentially for F-18 fighters. "The Osprey flying at 250 knots [not its maximum speed] could do the job effectively," he said. Wind tunnel tests have been conducted over the last year on how the drogue basket would be deployed from the V-22. USMC and the U.S. Air Force currently carry out refueling the Osprey to extend its range, but the V-22 acting as a tanker would be a new mission.

Anti-submarine warfare (ASW) is another potential mission that could be offered to the Navy, pushing out the acoustic search for submarines beyond the current range of the fleet's dedicated Sea Hawks. "The aircraft could certainly drop sonar buoys," said Linhard, although he added that there is no current solution on offer.

Photo by Andrew Drwiega

Bell-Boeing's V-22 Osprey display at the Sea-Air-Space exhibition in National Harbor, Md.

The Navy does have one problem that neither aircraft can currently meet—the delivery of a Joint Strike Fighter engine from shore to ship over distance. Neither aircraft can carry the engine internally in one piece, due to the way it is packaged. The V-22 could take it as an underslung load but it would be impractical to do so over any meaningful distance. "We are working with the program people on a number of ideas," stated Linhart.

The U.S. Navy could issue a draft Request for Proposals (RFP) as early as next year with a potential decision in 2015. Actual funding may then be expected around 2017 (given the usual provisions associated with the Department of Defense's budgeting issues). *—By Andrew Drwiega, International Bureau Chief*

■ COMMERCIAL | AIRFRAMES

Honeywell Outlook: Demand for Helicopters Remains Strong Through 2015

Phoenix-based Honeywell's 15th Turbine-Powered Civil Helicopter Purchase Outlook, released in March, forecasts a market for 4,900-5,600 new civil helicopters from 2013 to 2017. The report identifies "very strong" demand over the next three years from all regions of the world, with delivery rates expected to reach 1,000 units per year. For 2016 and 2017, similar delivery rates are possible "if economic recovery trends continue," the outlook notes.

Purchase plans for the North America region are up for the first time in five years, rising 35 percent for the initial three-year period vs. Honeywell's 2012 Outlook. Brian Sill,

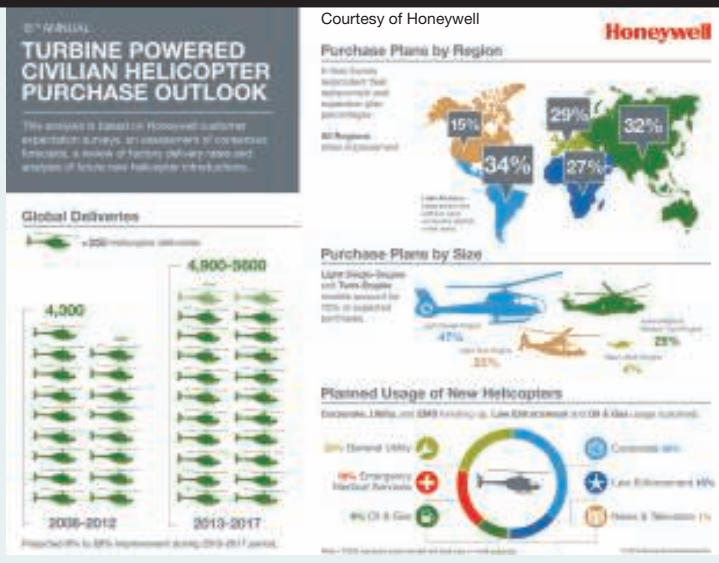
vice president of aftermarket helicopter sales, noted that rotorcraft usage is up in the offshore oil & gas, utility, training and corporate sectors.

The United States and Canada represent 27 percent of the total worldwide demand over the next five years, with the Western Hemisphere accounting for 47 percent of the total. Europe comes in at around 28 percent, with Asia/Oceania at 19 percent and Africa/Middle East at 6 percent of the total global demand.

Honeywell asked survey respondents to indicate their current level of satisfaction with the models they operate, asking the question, "How likely is it that you would recommend this model to a friend or colleague?" While the engine maker noted that "there were many other make/models currently in production that also received excellent scores," the top six variants receiving 25 responses or more were (in alphabetical order): the AgustaWestland AW139, Bell 206 series, 407 and 412, Eurocopter EC130/AS350 and Sikorsky S-76. Those six types accounted for more than 50 percent of the customer satisfaction responses.

Operators are also indicating an increase in fleet utilization, with 10 percent in North America planning increases over the next 12 months and only 3 percent planning decreases. In Europe, the numbers are 16 percent increases/7 percent decreases, with Latin America 27 percent increase/5 percent decrease; Middle East and Africa 33 percent increase/15 percent decrease; and Asia at 35 percent higher/6 percent lower. *—By Andrew Parker, Editor-in-Chief*

Courtesy of Honeywell



Key elements of Honeywell's 15th Turbine-Powered Civilian Helicopter Purchase Outlook, covering 2013 to 2017.

SERVICES | CERTIFICATION

Russian Aviation Authority Grants Certification to Robinson R66

Robinson Helicopters announced that the Russian Interstate Aviation Committee Aviation Register (IACAR) issued a type certificate for the R66 turbine on March 15, 2013, the culmination of a process that began in November 2010. The welcome news will now allow Robinson to export 22 R66 helicopters to Russia. A further 18 are in production and will now be delivered to Russian later in the year.


Photo by Barry Schwartz

Rolls-Royce RR300 at Heli-Expo 2013.

According to Robinson, the FAA's approval in early March of the ELOS (Equivalent Level of Safety) for the R66 hydraulic control system removed an exemption in the R66's original type certificate. The exemption had been granted over a regulation requiring an alternate for the hydraulic control system. This is no longer required due to the fact that the single valve used in both the R44 and R66 has flown millions of hours without a failure.


Robinson

R66 lineup at Robinson's plant in Torrance, Calif.

A demonstration to the FAA in February 2013 proved that a pilot could overcome a hydraulic control jam while retaining control of the aircraft. Once the ELOS was granted, IACAR representatives certified the R66.

Seven R66 demonstrators were delivered to Russia prior to certification. In January 2002, Robinson's R44 was the first U.S. manufactured helicopter to be approved by Russia and the Commonwealth of Independent States (CIS). —*By Andrew Drwiega, International Bureau Chief*

COMMERCIAL | FORECASTING

Consultants: China Civil Market to Hit 2,200-Plus Helicopters by 2022

Shanghai-based Avia-Tek aviation consultancy has forecast the delivery of 65 civil helicopters into the Chinese rotorcraft market during 2013, bringing the total number of airframes in China to 435.

Avia-Tek publishes an annual report that in 2011 predicted that the Chinese civil market would have 357 helicopters by the end of 2012. The exact number was actually 370, according to the company's findings.

Avia-Tek's 2012-2022 forecast sees civil helicopter numbers increasing to 1,564 by 2020 and 2,209 by the end of 2022, representing a CAGR of 19.6 percent during the period.

"We expect that the single- and twin-turbine segments will experience faster growth only after the more urgent need for intermediate, twin-turbine, and heavy lift helicopters is filled," says Matthieu Devoisselle, one of Avia-Tek's founding partners. The report points to key growth in the search & rescue (SAR) and oil & gas sectors.

Partner and co-founder Todd Siena said that while European OEMs were currently the leading turbine suppliers in terms of value and units, the piston market was the domain of Robinson and Sikorsky.

MILITARY | IN MEMORIAM

Margaret Thatcher's Falklands Defense Required Extensive Helicopter Operations on Land and at Sea

Former British Prime Minister Margaret Thatcher, who died on April 8 at age 87, may be remembered militarily for leading the United Kingdom in the campaign to retake the Falkland Islands in 1982, which had been invaded by Argentina's forces in a surprise attack.

She served three terms in office and her defining moment could be said to have been during the Falklands War. Her close relationship with then U.S. President Ronald Reagan ensured, after the failed shuttle diplomacy by Secretary of State Alexander Haig, that the United States provided the UK with the latest AIM 9-L Sidewinder missiles for British Harrier aircraft (a crucial contribution) as well as logistical support and the use of Ascension Island (from which the longest bombing raid in history was made—the attack of Port Stanley airfield by a Vulcan bomber over 8,000 miles).

The role of helicopters during the conflict was also essential. Ship-to-ship and ship-to-shore operations while the British counter invasion fleet were reorganizing at Ascension Island, half way to the Falklands, and then again when the British landed at San Carlos Bay.

There was also the attack and subsequent beaching of the Argentinian submarine Santa Fe by two Westland Wasps and ultimately a Westland Wessex (Sikorsky S-58). Westland Sea Kings (Sikorsky S-61) and Lynx helicopters also played a role in anti-submarine warfare by using their dipping sonar to protect the fleet.

Westland Scouts also played a role in battlefield casualty evacuation as well as conduction missile attacks on land targets.

Perhaps the most famous aircraft from the war was a Boeing Chinook (CH-47), Bravo November, that was airborne when an Argentine Exocet missile fired by a Super Etendard hit its mother ship, the Atlantic Conveyor. One of four Chinooks on the ship, it was the only helicopter remaining in the Falklands task force that could conduct heavy lift tasks—one of the reasons why the British infantry had to 'yomp,' not fly in bounds in their campaign to retake Port Stanley.

The aircraft is still flying today and has been continuously active during the Afghanistan campaign. *—By Andrew Drwiega, International Bureau Chief*

COMMERCIAL | CHARTER

SKOL Receives Mi-171 Pair

Russian Helicopters has delivered two Mi-171 transport helicopters with type certification to Russian charter carrier SKOL Airlines. SKOL's new Mi-171s are equipped with special lifting and transport equipment, including an external hoist with a 4,400-pound-capacity and an on-board boom able to lift loads of up to 330 pounds. The new helicopters are expected to help SKOL improve its position in the international air-freight market, where the capabilities of the Mi-171 are highly valued, according to Russian Helicopters. SKOL is currently in talks with the company for new supply contracts to add more Mi-171s to its fleet.

SKOL Airlines Mi-171.

Russian Helicopters

TRAINING | SIMULATORS

Rotorsim AW139 Full Flight Simulator Obtains Italian Level D Approval

ENAC, the Italian Civil Aviation Authority, has issued Level D certification for Rotorsim's CAE 3000 Series AW139 full-flight simulator (FFS). Rotorsim, a joint venture between CAE and AgustaWestland, currently has the new AW139 FFS located at the AgustaWestland Training Academy in Sesto Calende, Italy. The FFS is the third simulator for the company, and features added upgrades allowing for new mission training to include search and rescue (SAR) roles. The simulator enables pilots to train for confined area operations, autorotation and landing on platforms at sea, among other challenging procedures.

PRODUCTS | AIRFRAMES

Africair Orders Two Scott's Bell 47GT-6s

Africair, independent representative of Bell for Africa, has signed a purchase agreement with Scott's–Bell 47 (SB47) for two 47GT-6 helicopters. The Miami, Fla.-based operator said it would re-sell the pair of helicopters into Africa. SB47 unveiled the new Bell 47GT-6 earlier this month at Heli-Expo. The helicopter is based on the 47-3B-2A. It will receive power from the Rolls-Royce RR300 and feature an upgraded instrument panel. The 47-GT-6 is scheduled to enter service in 2016.

New Engines, Upgraded Systems Power Boeing AH-64 Echo

Boeing has now delivered 40 newly developed AH-64E Apaches under the initial low rate initial production (LRIP) program—31 going to the U.S. Army and nine to foreign military sales (FMS) customers. The 31 aircraft are the first of 51 being produced for the Army under LRIP. Those 51 do not include those going to FMS customers, according to Col. Jeffrey E. Hager, project manager for Apache.

Total order for the Echo model still stands at 690 aircraft, to be delivered at an estimated rate of four per month, Hager said. Another 79 aircraft are currently projected for international operators under FMS, although "others are standing behind those," with letters of request signed.

There have been reports that the Army has deferred the purchase of new-build AH-64Es for five years under the Army's Equipment Modernization plan. However, these are "misleading or incomplete," according to an Army spokesperson. The new builds were actually shifted outside the Program Objective Memorandum (POM) prior to the full rate production decision. At the same time, the remaining line was increased to maintain 48 aircraft per year and maintain the minimum EOQ (Economic Order Quantity), she noted. There is still a requirement for 56 new builds for a total of 690 aircraft.

First deliveries of the aircraft to the Army began in October 2011. The initial operational unit to be fully equipped with the Echo model is the 1-229th Attack Helicopter Battalion (Tiger Sharks) of the 16th Combat Aviation Brigade at Joint Base Lewis-McChord, Wash. The 1-229th received its first AH-64E in January, with a full complement of 24 aircraft delivered by the end of April.

These will replace 24 AH-64D models already attached to the unit. The unit is currently scheduled to deploy to Afghanistan next year, according to CPT Jesse Paulsboe, PAO for the 16th Combat Aviation Brigade.


Boeing AH-64E Apaches taking off.
Boeing

While the Army has been hit with a nine percent budget cut under the sequestration, "where the impact really hits home is the work force with two days [off] per pay period," rather than in a reduction of the AH-64E order, Hager said. "But the message is that we still have a mission [to introduce the Echo into the Army], and that we need to do the mission effectively, even with the less hours that we have."

Deliveries of the AH-64E will run through FY27 to reach the total of 690 aircraft. These will be a combination of remanufactured, reusing exiting parts, and new-build aircraft. The first 43 produced under LRIP will be remanufactured AH-64 airframes with existing fuselages. The majority of the remaining 647 aircraft will be remanufactured using zero-time fuselages, he said. "This strategy extends the aircraft useful life while significantly reducing the production cost." Only 56 of the total 690 will be truly "new build" aircraft requiring all new parts and components.

While the Echo will have numerous improvements over the Delta, the major change will be in terms of performance, Hager noted.

Upgrades include the more powerful transmission and engines, along with composite main rotor blades. The transmission is the first new transmission in the almost 30-year history of the Apache, and the first time in the history of the AH-64 that the aircraft will be engine limited rather than transmission limited, Hager said.

The new 2,000 SHP General Electric T-700-GE-701D engines will raise the performance level of the aircraft above that of the original Alpha models, he said. The added weight put on the Delta model by adding capabilities had actually reduced the performance of the aircraft. The Echo model restores the lost performance while adding modernized capabilities.

The new engines will also include an enhanced digital electronic control unit (EDECU) for full digital control for better fuel performance and power, similar to FADEC. The aircraft will also have new avionics architecture versus the Delta model, allowing more "plug and play" capability for future hardware and software improvements.

Three major improvements for the pilots include Link 16 interoperability, a cognitive decision aiding system (CDAS) and Level 4 tactical common data link (TCDL) unmanned aerial vehicle (UAV) control.

Col. Hager explained that the AH-64E will be the first Army rotary wing system capable of communicating on the Link 16 network. This capability will significantly expand Apache's interoperability footprint to include additional Air Force and Navy platforms already communicating over Link 16. As an example, Apaches perform missions at relatively low altitude in more reconnaissance and attack situations, he said. Air Force

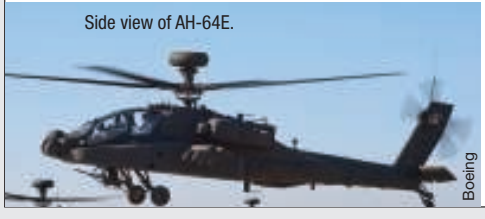
aircraft typically fly higher and faster. An Air Force aircraft may detect slow-moving targets on the ground and pass the location to the Apaches over the Link 16 network. The Apaches can then maneuver in and determine if the target is a threat, all while the Air Force platform continues its original mission. Link 16 will be fielded in 2015.

The CDAS will introduce a set of new capabilities known as "behaviors" that serve to reduce pilot workload, he said. For example, one CDAS behavior will automatically detect when the aircraft has been painted by an enemy radar missile system, determine the nature of the attack to include missile range, and provide the pilot with options to avoid the attack. The pilot simply clicks on the preferred option and the aircraft maneuvers the aircraft to safety, then updates its position to take it back to the original mission flight plan once the threat is resolved.

The Level 4 TCDL UAV control allows full communication between the aircraft's pilots and a TCDL-controllable UAV, with a range of more than 50 kilometers, Hager said.

The pilot of the Echo can control and fire the drone, or he can use it as a "third crewmember," with the drone's ground controller directing the UAV wherever the Apache pilot needs it.

"The ground controller for the UAV is always watching the sensor systems, so the pilot can ask the controller to watch a building or intersection while is off servicing another target. The controller can then call the pilot, letting him know what the UAV is showing." The pilot can view in real time what the drone is seeing, then go back and service that target. "This gives the pilot the ability to get the situational awareness very quickly," Hager said.


Side view of AH-64E.
Boeing

While it is too early to start looking at the "AH-64 Block IV," a Modernization Integration Strategy Team is looking ahead "at changes that could be possible for the aircraft," he explained.

One such change will be a maritime, or "over-water" version that will allow the fire control radar to identify and target ships.

Currently, the aircraft's fire control radar is confused even by waves in the water, presenting all kinds of false targets. With the new maritime radar mode, the Apache will be able to see and target ships just as it does now with tanks and other land-based vehicles, he said. The Apache team has already started preliminary design efforts for the new maritime capability.

Lastly, what the AH-64E is not. It is no longer the AH-64D Block III, despite people still calling it that, Hager said. Also, the term "Guardian" is just an unofficial nickname, as Huey and Loach were nicknames for the UH-1 Iroquois and OH-6 Cayuse. The name "Huey" stuck. "Loach" didn't. *—By Douglas Nelms*

CONTRACTS

The U.S. Naval Air Systems Command has issued a $6.6-million contract to **Lockheed Martin** for continued operational support of two K-Max unmanned aircraft systems (UAS). The cargo resupply aircraft are deployed with the U.S. Marine Corps. Work will take place at NAVAIR's Patuxent River, Md. base and various OCONUS locations. According to the Department of Defense, the contract is expected to run through September.

K-Max, **Kaman Aerospace's** converted helicopter UAS, first entered service in Afghanistan to provide operationally piloted battlefield air cargo resupply for the U.S. military in 2011.

Stratford, Conn.-based **Sikorsky Aircraft** has obtained a $10.1-million extension of an existing U.S. Navy contract that calls for the conversion of one UH-3H into a UH-3D trainer. Eighty percent of the work will take place in Cherry Point, N.C., with the remaining 20 percent in Stratford. Projected for completion in October 2014, the agreement includes related testing support.

The U.S. Army has awarded **Boeing** a $17.9-million contract to provide design and engineering services in support of the CH-47 Advanced Chinook Rotor Blade. According to the Department of Defense, work for the cost-plus-fixed-fee award is expected to be complete in 2017.

Fort Worth, Texas-based **Bell Helicopter** has won a $13.1-million contract to supply long lead parts and components as part of the delivery of 15 Lot 11 UH-1Y Venoms and 10 Lot 11 AH-1Z Vipers to the U.S. Marine Corps. Around 60 percent of the work will occur in Fort Worth, with 40 percent in Amarillo, Texas. Completion is scheduled for September 2014.

The U.S. Navy has issued a $27.9-million modification to a **Lockheed Martin Mission Systems and Training** contract covering long lead materials and support for nine mission avionics systems and common cockpits for the Danish government's **Sikorsky** MH-60Rs. The agreement, which is part of the foreign military sales (FMS) program, is with the Danish Defence Acquisition and Logistics Organization. Work will be split into a number of locations, with much of it taking place in Farmingdale (around 55 percent) and Owego, N.Y. (31 percent) through June 2013. The rest will occur in Ciudad Real, Spain (5 percent), Syracuse, N.Y. (5 percent), Everett, Wash. (3 percent), and at various facilities around the U.S.

PEOPLE

Flight Lt. **Christopher Gordon**, a Royal Air Force (RAF) Chinook pilot, has received the Distinguished Flying Cross for rescuing British and Afghan troops during a major contact with the Taliban in Helmand Province, Afghanistan. Flying one of two Chinooks, escorted by a Boeing Apache attack helicopter, his mission had required the insertion of the troops into a known insurgent "safe haven." However, due to heavy fire, the subsequent extraction of the ground troops initially had to be abandoned.

Intelligence reports indicated that the Taliban were preparing for a major assault on the friendly ground forces once the Apache was forced to break contact to refuel and rearm. Gordon persuaded his crews to make a final rescue attempt before this happened, resulting in him placing the Chinook in a position to protect the troops from Taliban fire while they boarded the aircraft. *Read the full story at* **www.rotorandwing.com**

Rotary and fixed-wing pilot **Jeanette Eaton** recently joined the board of the Eastern Regional Helicopter Council. Currently regional manager for North Atlantic sales at Bell Helicopter Textron, Eaton is a member of other various organizations that promote women in aviation, including Whirly Girls, the Ninety-Nines and Woman in Aviation, as well as the Northeast Pilots Group, AOPA and the New England Helicopter Council. Eaton joined Bell in 2004 and previously worked at Sikorsky Aircraft in Stratford, Conn.

Scott's Bell 47 has named **Neil Marshall** chief operating officer. He was the general manager of the company during the start-up phase following Scott's acquisition of the Bell 47 type certificate. Marshall also served as program director for the Bell 429 during its development from 2008 to 2010.

CW4 **Stormy Ripley**, senior safety officer for the Combat Aviation Brigade, 1st Armored Division, received the Order of Saint Michael and Legion of Merit during a retirement ceremony following 27 years of active duty service in the U.S. Army. She served as a Sikorsky UH-60 Black Hawk pilot for 21 years.

Cobham has promoted **David Ashton** to executive vice president of business development and technology, and **Julian Hellebrand** to executive vice president of lifecycle management (LCM) and program management. Ashton was previously vice president of Cobham's Tactical Communications & Surveillance (TC&S) unit, and will continue to serve in the role until the company hires a replacement. Hellebrand was formerly chief of staff to the CEO and group director of communications.

Fargo, N.D.-based Spectrum Aeromed has appointed Chad **Chad Kost** to a newly created position of chief operating officer. He served in a consulting role for brief period before joining Spectrum Aeromed full time, and his previous experience includes 17 years in the banking industry.

FlightSafety International has promoted **John Van Maren** to vice president of simulation and **George Brady** (left) to director of product support and simulator operations. The company has also appointed **Greg Arend** director of commercial programs for its design, manufacturing and support complex in Tulsa, Okla.

coming events

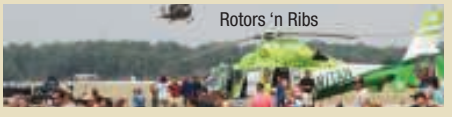
May 16–18: 6th International Helicopter Industry Exhibition, Moscow, Russia. Contact HeliRussia, phone +7 (0) 495 958 9490 or visit helirussia.ru/en

May 21–23: AHS International 69th Annual Forum and Technology Display, Phoenix, Ariz. Contact AHS, phone 1-703-684-6777 or visit www.vtol.org

May 21–23: European Business Aviation Convention and Exhibition (EBACE), Geneva PALEXPO and Geneva International Airport, Geneva, Switzerland. Visit www.ebace.aero

June 17–23: Paris Airshow, Le Bourget, Paris, France. Visit www.paris-air-show.com

June 29: Rotors 'n Ribs, Goshen, Ind. Contact Indiana Helicopters at 1-574-233-1040 or visit www.indianahelicopters.com



July 29–Aug. 4: EAA AirVenture, Wittman Regional Airport, Oshkosh, Wis. Visit www.eaa.org

Aug. 12–15: Association of Unmanned Vehicle Systems International (AUVSI) Unmanned Systems 2013, Walter E. Washington Convention Center, Washington, D.C. Visit www.auvsi.org

Oct. 10–12: Aircraft Owners and Pilots Association Aviation Summit, Fort Worth, Texas. Visit www.aopa.org.

Oct. 21–23: AUSA Annual Meeting and Exposition, Walter E. Washington Convention Center, Washington, D.C. Visit www.ausa.org

■ SERVICES | CERTIFICATION

Indonesia Joins Nations in Bell 429 Weight Club


Mercy One Bell 429.
Frank Lombardo

Bell Helicopter has earned Indonesian Directorate General of Civil Aviation (DGCA) approval to increase the maximum gross weight of the 429 to 7,500 lbs. The 500-lb increase is based on Transport Canada's certification in December 2011. Indonesia becomes the 17th country to approve the exception, joining five others in Southeast Asia/Oceania and five in South America, in addition to Canada, China, India, Israel, Mexico and Nigeria. Missing from the list is the U.S. FAA, which denied the weight increase in mid-2012, and EASA in Europe. FAA noted that the boost would create an "advantage" versus other competitors in the category that are restricted to 7,000 lbs. (The 429's primary competition is the Eurocopter EC145 and MD902.) Bell's position is that raising the weight limit would allow operators to install additional safety equipment, carry more cargo/payload and fly at longer ranges, among other options. During an exclusive interview with *Rotor & Wing* in March, Bell Helicopter President & CEO John Garrison explained that the company appealed the decision and is in the process of re-applying for the exception. The situation has also caused FAA to step back and look at the wider issue of regulations governing Parts 27 and 29.

Read the full story online at **www.rotorandwing.com**

■ PUBLIC SERVICE | SAR

Nine Attempts Needed to Rescue Trawler Crewman Caught in Raging Storm


Sea rescue.
UK RAF

On March 21, 2013, the crew of a UK Royal Air Force (RAF) Sikorsky S-61 Sea King rescued a French trawler crewman with serious head injuries on the ninth attempt when a violent storm in the Irish Sea made a boat-to-boat transfer impossible. Although a Royal Navy hydrographic ship, HMS Echo, and the Royal National Lifeboat Institution boat Angel responded to the trawler captain's call for help, the violent pitching and rolling of the 25-foot trawler Alf meant that a winching operation was the only practical option.

The crew of the S-61, Rescue 169 from A Flight 22 Squadron, initially made six attempts to get winchwoman Sgt. Rachel Robinson onboard the trawler, but she was continually unable to securely land due to the 40-foot range of pitching and the dangerous role of the vessel, with the speed of the winch cable pay-out unable to keep pace with the ship's motion. Waves sweeping the small landing area also carried her off target several times.

Needing to refuel, the helicopter returned the 50-plus miles to shore then came back for a second attempt. What had made matters worse, and more complicated, was that the French captain and crew spoke little English, therefore all communication between the helicopter and the trawler had to be conducted through UK and French coastguards via satellite phone.

A new plan was formed for the next rescue attempt. The lifeboat was positioned around 65 feet (20 meters) off the trawler's starboard side giving the S-61's pilot an improved visual reference for the extraction attempt, and with HMS Echo trying its best to shield the vessel from some of the weather, on the third occasion Sgt. Robinson got down successfully onto the trawler's deck.

The crewman's head injuries were found to be critical and Robinson determined an immediate hospital transfer was necessary. Using a single-strop, the Sea King's pilot Taff Wilkins calculated the lift to the optimum second, climbing his Sea King as the trawler reached the top of a swell and lifting both the injured crewman and winchwoman away from the heaving deck. Although with head injuries and hypothermia, the crewman was treated during his return to hospital on the mainland and survived. *—By Andrew Drwiega, International Bureau Chief*


Trawler engulfed by large wave.
UK RAF

■ COMMERCIAL | OFFSHORE

Weststar Purchases Eight AgustaWestland Helicopters, Eurocopter EC225 Duo

Malaysia's Weststar Aviation Services has placed an order for eight helicopters from AgustaWestland, consisting of a pair of large-cabin AW189s and a half-dozen AW139s. The helicopters will support overseas expansion of the company's offshore oil and gas operations, including to Africa, South America and the Middle East. The AgustaWestland order follows another recent Weststar purchase of two EC225s from Eurocopter. The heavy-lift helicopters will also see service in the oil & gas sector. Weststar is based at Sultan Abdul Aziz Shah Airport in Malaysia.

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FUTURE VERTICAL

Bell Helicopter

Examining the contenders behind the U.S. Department of Defense's Joint Multi-Role (JMR) Technology Demonstrator competition, the precursor to moving toward a Future Vertical Lift (FVL) decision for a new type of U.S. Army rotorcraft beyond 2030.

By Andrew Drwiega, International Bureau Chief

LIFT: AN OVERVIEW

The U.S. Army's rotorcraft fleet is wearing out at a much faster rate than was predicted thanks to a decade of operations in Afghanistan and Iraq. Department of Defense findings state: "The Operational Tempo (OPTEMPO) in Operation Iraqi Freedom (OIF) was, and Operation Enduring Freedom (OEF) is, five times that of peace time, and much higher than the design usage spectrum, further taxing the already aging fleet."

The concept of Future Vertical Lift is to use new technology, materials and designs to deliver rotorcraft that are quicker, have further range, better payload, are more reliable, easier to maintain and operate, have lower operating costs, and can reduce the logistical footprint of "big Army." So it's a significant challenge to most original platform manufacturers whose trend of late has been to broaden their "families" of aircraft or provide remanufacture and Block upgrades of existing aircraft.

While FVL is expected to develop into a family of systems, the initial focus is on the medium lift because that is where the greatest number of helicopters to be replaced resides—around 4,000 or so.

The Joint Multi-Role technology demonstration is the first part of three "separate and distinct Science and Technology (S&T) acquisitions", according to the Army's synopsis. "The first acquisition was JMR TD Configuration Trades and Analysis; followed by Phase 1, Air Vehicle Development; and Phase 2, Mission Systems Development. In Phase 2, the Government intends to demonstrate advanced mission systems architectures." JMR TD is only focused on the development of the aerial platform.

Graphical rendering of the Bell V-280 Valor third-generation tiltrotor shown in a landing scene as part of the military troop transport role.

Graphic courtesy AVX

Utility configuration for AVX Aircraft's Joint Multi-Role concept. The company has also displayed an attack configuration.

JMR TD Milestones

Preliminary design and risk review	3Q FY14
Detailed design and system risk review	2Q FY15
Pre-demonstration risk/test readiness review	2Q FY17
First flight	4Q FY17

The Contenders

There are five main parties who have publically declared an interest in the JMR TD. These are: AVX Aircraft, Boeing/Sikorsky, Bell Helicopter, EADS North America and Piasecki—although the latter two have not been vocal about their bids (an extremely rare phenomenon in the case of EADS and its Eurocopter offering). So here are their bids (in alphabetical order).

AVX Aircraft

AVX Aircraft, perhaps the company with the least known team and product, features a coaxial rotor aircraft, but with twin-ducted fans instead of the pusher prop of the Sikorsky/Boeing bid.

"As one of the four contractors for the CTA, over the last 18 months we have been working very closely with the U.S. Army, AATD and others," said Ian Brown, director, program management. "They have been revising their requirements and the latest line in the sand is 230 knots and 30,000 lbs gross weight. That drove us to a higher power point. We were originally going to use the ITEP engines but now looking at the Advanced Affordable Turbine Engine (AATE), which is about 4800 hp, so all the extra power will give us our performance."

Brown said that the AVX design would bring greater operational capability. "Our six-by-six-foot cabin is twice the interior of the Black Hawk cabin today. That not only allows us to meet the troop and crew loads but we also have two space seats."

Brown added that 12 NATO litters could be fitted, or an auxiliary fuel system for self-deployment over distances. They also have plans to make the aircraft optionally manned.

"There are two different missions but the utility and attack version will have 90 percent commonality and will fly at the same speed. The O&S cost will be much reduced. Rotating components have a life but when our aircraft goes at full speed the rotor becomes like a wing. Forty percent of the lift is going to come from the fuselage and the canards, and the ducts that surround the fans which all serve to unload the rotor system," he explained.

As the Army would like 360-degree cover fire they initially wanted to place a machine gun on the ramp door but were recommended to take it off as that would be the main exiting and entering point for troops, so the guns will be mounted on the side.

"This guy can lift 13,000 lbs under slung, with the internal payload at 8,000 lbs. We had to carry the 777 howitzer; so we could take over some of the Chinook loads," stated Brown. "The coaxial or compound is going to give you the speed you need which is also a positive point for casualty evacuation."

AVX proposes to build two aircraft for the JMR TD: one for the flight test and one that will go straight into the wind tunnel. Wind tunnel tests have already been run on one at three-quarters scale to validate the lift and drag of the fuselage, but not yet the rotor.

"We can use the GE T706 engines that are on the MH-60M Black Hawk—they are in production and in service so that is another huge risk reduction," said Brown. He added that the AVX team is in place with such notables at Rockwell Collins, General Electric and BAE Systems declared onboard.

Bell Helicopter

Bell Helicopter made public its JMR TD entry, the V-280 Valor, in April at the Army Aviation Association of America (Quad-A) annual gathering in Fort Worth. "This is our third-generation of tiltrotor which is based on over 55 years of experience," began Keith Flail, Bell's program director, FVL military programs.

"This is not going to be a product but a demonstration of capability for the buying agencies. You look at where we are with the great success of the V-22 with more than 170,000 combat hours and over 200 aircraft fielded. The DoD has already seen and what a tiltrotor can provide operationally compared to a conventional aircraft—particularly twice the speed and range. We have so many lessons learned and coming forward with new technologies to focus on what the Army needs."

Having built tiltrotors that are smaller (Eagle Eye) and larger (V-22) than the JMR requirement, Bell's FVL team considers that they are well positioned to deliver to the Army's require-

ments—whatever they will emerge as. "The start point is to be able to hover out of ground effect at 6,000 feet, an optimized engine and transition to 280 knots with between one and two-thirds better fuel efficiency than with a conventional helicopter or a compound that wants to burn more gas to go faster," stated Flail.

A major change between the V-280 and other tiltrotors is the fixed non-rotating engine for the air assault mission. "There are six foot wide doors for troops to rapidly egress on the LZ, crew chiefs can lay down suppressive fire, so there is no concern about running or firing into the rotors or tail rotor. There are both operational reasons and technical advantages for this particular application as we look at where turbine engines are going in the future. There will be higher exhaust gas temperatures, which would become a factor if we rotated the engine in this application. At the moment you get more lift power through this in the V-22 but as we go to the next generation with less thrust to provide lift, there is no benefit in rotating the engine."

Talking strategically, Flail noted that due to the restrictions of the defense budget "we are going to end up with a smaller force structure so in the V-280 you can go twice as far, twice as fast, and your ability to project combat power around the battlefield is immensely improved. Force projection and force protection is what it is all about.

"The fly-by-wire allowed us to use different configurations and we have evaluated those; we wanted to keep the size down and maintain the performance," said Flair. "We looked at T-tail and H-tail, but selected the V-tail (butterfly). This also offers alternative positions for antennas and defensive aid systems."

As everything in the TD is currently focused on the utility rather than the attack version, Bell is still considering how it can maximize the attack platform: "we would have stores that could fold out and back into the aircraft so you still have the aerodynamic efficiency that you need at the high cruise airspeeds. We want to bring the same principles in commonality that we have applied to the H1 Yankee and Zulu helicopters for the Marine Corps for the U.S. Army."

Boeing/Sikorsky

On January 13, Boeing made a fundamental and deliberate leap away from developing the next generation of tiltrotor technology (it is still committed to the V-22 program) in leaving its partner Bell Helicopter Textron for new joint venture partner Sikorsky.

Douglas Shidler, Sikorsky's director of the JMR TD program, said that the Army needed to start its FVL approach with the Armed Aerial Scout requirement.

"Start on your small fleet, go for your Armed Aerial Scout, if you don't do something your industrial base is going to lose its capability to develop a future platform. We did the X2 to ensure we had continuity throughout our engineers, those who started young on the X2 have now matured and are working on the S-97 Raider," which is Sikorsky's own AAS offering.

Shidler said that the aim was for the first AAS unit to be equipped by 2025-27. The first unit equipped with FVL will be in the 2035-38 timeframe. "If the Army buys 100 aircraft a year, how long will it take to replace those thousands of medium lift helicopters," he questioned, underlining the need for precise timing of the FVL program.

The Boeing/Sikorsky JMR TD is an X2-based configuration, which will demonstrate technologies to allow the Army to establish its definitive requirements for future vertical lift.

"Some people say we are offering a new, never-been-done-before platform. But it could arguably be our fourth platform that began with the XH-59A/S-69 helicopter advancing blade concept (that reached over 204 knots), which we brought to a close at the end of the 1980s, with X2 being the second, S-97 the third and finally the JMR. X2 and Raider are rapidly prototyping platforms—using existing technology."

He added that this was Sikorsky's sixth fly-by-wire platform (the CH-53K, S-92, UH-60, etc.), with vibration control systems on multiple platforms, composite technology and rigid rotors: "What we are doing now is blending those together."

Boeing's involvement comes from its experience (and dominance) of the attack market while Sikorsky offers the same in its range of UH-60 platforms. Added Shidler: "In the tech demonstrator phase there is a cost share and a fair amount of money is needed—so the resources of both companies can be brought into play. The scale of the TD has not been announced yet, only that it will be in an X2 configuration." There has been no decision on the powerplant and the conceptual design is being done jointly, with Boeing people co-located in Connecticut.

Steve Weiner is Sikorsky's director of engineering sciences, as well as the chief designer of the X2 technology demonstrator. He told Rotor & Wing that Sikorsky had conducted a series of internal studies into the concept of the future of the helicopter, looking at all technologies. He said they understood the need to expand the operational range of the helicopter, particularly speed and maneuver.

"Every system is a compromise," he said. "The co-axial rotor maintains pitch and yaw. There is a clutched propeller so that when the aircraft needs to hover that is turned off. The Raider will provide hot and high performance and at speeds of up to 220 knots."

When the propeller is turned off, he continued, "the aircraft behaves like a regular helicopter with speed up to 160 knots. We use the main rotor to provide lift at speed. To brake, we can reverse the prop to quickly slow in a short distance," he said, adding that "fly-by-wire is our standard work now and we are way along the learning curve."

When the Army's Aviation Applied Technology Directorate (AATD) awarded four contracts for JMR configuration and trades analysis studies in 2011, Sikorsky was one of the beneficiaries alongside Boeing, the Bell-Boeing

Boeing and Sikorsky's JMR offering is based on the compound X2.

Boeing/Sikorsky

Bell Helicopter's new V-280 Valor tiltrotor in airplane mode.

partnership and AVX Aircraft. Said Weiner: "the CTA study meant that we could look across many options, from single rotor aircraft to compounds, as well as different types of tiltrotor. During multiple studies 2004-05 looking at multiple configurations—then there wasn't AAS or FVL—we were looking at speed. We selected the X2 to retain the attributes of a helicopter and we wanted to go fast without reconfiguring. The reason for that, if you have a problem in flight you don't want to have to reconfigure the aircraft. With the S-97 you can autorotate like any other helicopter, without having to reconfigure the platform. We also wanted to make sure it has a comparable rotor downwash for SAR and disaster relief."

EADS North America

This offering is a complete unknown. A derivative of Eurocopter's X3 aircraft is perhaps to be expected for the EADS North America bid. The company describes the X3 as a hybrid technology demonstrator that has attained a speed of 180 knots that various company spokesmen continue to affirm is well within its limits.

Its tour of North America was used to showcase it to military aviators, among others. This could well have laid the groundwork for what is to come—whenever it comes!

Piasecki Aircraft

This well-known research organization has entered its PA61-4 Advanced Winged Compound (AWC) into the JMR arena. It has a vectored thrust ducted propeller (VTDP) as seen on its X-49 aircraft. The long wing not only provides lift but also anti-torque and pivots in flight.

THE NEW GE OFFSHORE H

Photo by Pat Gray

AgustaWestland AW189, Bell 525, Eurocopter EC175, Kamov Ka-62 and Sikorsky S-92 are the heavy hitters in the emerging class of large cabin, long-range helicopters.

By Pat Gray

Sabers have been drawn and the battle is on for the deepwater offshore helicopter market that has already emerged. The large energy companies are now drilling exploratory wells in ocean depths of 10,000 feet or more at distances that exceed 200 miles from shorelines all over the world. The history of ocean drilling has always been in a leap-frog fashion with outward movement from shore generally being in stages of maybe 20 miles at a time. There were and are a variety of rigs used for drilling such as jack-ups and semi-submersibles that could be floated to a location and easily stabilized over the seabed. When a paying well was hit, the drilling rig would do a completion, cap the well and move on to a new location.

Eventually a rigid steel platform would be attached to the seabed and production would begin. Other wells would be developed nearby until you had a fully constructed "field" of wells or platforms. When those production platforms were put into service, almost all of them were equipped with a helideck that was certified for a maximum weight, usually around 5,000 or 6,000 pounds. However, the drilling rig helidecks were capable of 10,000 pounds and upward. For many years, 100 miles from shore was about the limit for drilling due to sea depth, lack of technology and government prohibits on the outer shelf.

The 100-mile range is ideal for existing shore-based helicopters in providing crew changes, establishing refueling points just about anywhere, and even basing small helicopters on the platforms, if needed. In many cases, platforms are 20 to 30 miles apart or less, allowing the helicopters to hop about anywhere without worries of fuel availability, navigation or lost communication with the shore. That scenario will stay as it is until all of the close-in oil and gas is depleted.

Shallow well drilling, though still active, is giving way to deepwater and ultra deepwater drilling, and all the conveniences of having stepping stone platforms en route to a deep water rig 200-plus miles out is no longer a certainty. There will be relatively few, if any, fixed platforms in the deep waters. By use of directional drilling, multiple wells will be consolidated on one platform giving it a subsea, spider web-like presence. The operator's need

NERATION OF ELICOPTERS

Eurocopter EC175 on the tarmac, with image from the cockpit of the helicopter taking off blended into the background.

is for larger capacity and longer-range helicopters that can get the crews transferred in a more efficient manner. Because of their weight, these new helicopters will only be able to take advantage of a few en route refueling points due to helideck weight restrictions.

As it became apparent that the existing fleet of medium and heavy helicopters were not the best fit for this role, the manufactures began looking for ways to accommodate the offshore market and in most cases, went to the operators and their customers for input on needs and desires. The result of that input and other studies indicated a helicopter that would fit between the two.

The new breed of helicopters are being referred to as "medium heavy" class twins or "super medium twins" that will be coming to market with gross weights at or near 16,000 to 17,000 pounds with ranges of at least 400 miles carrying 16 to 19 passengers on board.

The helicopters are powered with engines producing 2,000 horsepower but giving increased fuel efficiency over less-powerful engines. They have navigation and integrated flight control systems that greatly ease pilot workload and ergonomic cockpits that can actually make long helicopter flights comfortable, increasing safety by having the crews more alert. Passenger comfort and safety are also being attended to with such items as four-point safety belts, large pop-out windows, emergency lighting, air conditioning and comfortable seats, some even covered with leather.

The players in this market are the usual regulars—AgustaWestland, Bell, Eurocopter, Russian Helicopters and Sikorsky. It is too early to see how the exact performance characteristics stack up against each other because none except the Sikorsky S-92 and Eurocopter EC225 heavies have reached the market. The S-76, EC155 and AgustaWestland AW139 are not, for the purpose of this article, in the "super twin" category. Some history is needed to make good comparisons on these new models. Let's see what we do know.

AgustaWestland AW189

The new AW189 arrived via the military AW149, which in turn used the AW139 for much of its design heritage. The AW139 has been around long enough for operators to appreciate the value of the medium twin helicopter. It was one of the first helicopters to give the S-76 real competition in that market, if sales are any measure of success. The AW189 will have seating for 16 to 18 passengers and one or two crewmembers. AgustaWestland is also seeking certification for single-pilot operation. Gross weight will be 17,600 lbs. Engines are two GE C27-2E1 rated at 2,000 hp each. Speed is 140 to 150 knots. These figures may not be accurate because the aircraft is still in development stage and the numbers

Commemorative S-92 at the Sikorsky booth during Heli-Expo 2013 in March.

are subject to change, but this gives an idea of approximate performance.

Bell 525

The Relentless will be a clean-sheet design with no derivatives or other specific helicopters in Bell's inventory to match it. It is still in the design stage with some sub-assemblies having been built. It will be the only civil helicopter with a fly-by-wire flight control system. Sikorsky is said to be working on a triple redundant fly-by-wire computer module for retrofit onto the S-92 at some future date. A lot of design work has gone into the flight control system and cockpit ergonomics. Like its competitors, there will be a fully integrated and automated flight control system. As an example, if an engine failure occurred, the autopilot system would take over before the pilot could react. Things like fuel shut off, yaw control, altitude hold and power management, to name some. Of course, the pilot could override any or all of the automation if the emergency warranted it.

There are no crew doors for the cockpit, but Bell came up with an innovative approach by allowing the crew seats to swivel 90 degrees or more so that entry and exit can be easily accommodated through the sliding passenger doors. The cyclic control stick is a side controller complete with an armrest—a real treat for short-armed pilots. The collective control has increased sensitivity due to only having a maximum movement of three inches. Garmin is the avionics of choice. One unique feature is a small LED panel that has a touchscreen with aps on it for navigating through most of the systems.

Eurocopter EC175 and EC225

Four pre-production EC175 models have been built and flown for test and demonstration purposes. Still experimental, it made stops in North America on a world tour allowing potential operators to fly and evaluate it. Rotor & Wing was given the opportunity to take a first-hand look as well. Some of the numbers for the EC175 include:

- Gross Weight: 16,535 lbs
- Advertised max speed: 175 knots
- Service Ceiling: 19,690 feet
- Advertised Cruise Speed: 150 knots
- Seating Capacity: 16 passengers, 2 crew (18 passengers optional)
- Fuel capacity internal tanks 685 gals or 715 with pressure fueling (slightly over four hours maximum endurance.)

This should give it an action radius of 200 miles in the SAR configuration, 190 with 12 seats filled and 135 miles with 16 passengers in the offshore version. The helicopter should have no problems getting to the 200-mile range but it would need to refuel on the way home if it went that far. Most likely the drilling rig of destination would have fuel available.

The high points of the EC175 are found in the cockpit. The automation and the avionics suite are so good that they can be compared with any airliner flying today. It's like the helicopter world has finally arrived. Features include synthetic vision, H-TAWS, coupled TCAS to the AFCS for automatic collision avoidance, four-axis autopilot with dual duplex integration into the AFCS, tail fin cameras that view personnel and cargo loading displayed on the multifunction display (MFD). Auto takeoffs and auto approaches to 30 feet. When flight plans are loaded, course intercepts, headings and altitude holds are precise without hunting. OEI's are seamless with automatic shutdowns and configuration for continued flight in the mode that the loss took place.

There is some heritage in the EC175 design such as the avionics being based on the EC225 suite and other design features found in the Eurocopter family. The manufacturing is a joint venture with Chinese Harbin Industries who will be producing their version, the Z-15.

The EC225 is the other helicopter working in the heavy twin offshore market. It grosses out at 24,250 and it too carries 19 passengers. The engines are Turbomeca Makila 2A1's at 1,902 hp. Standard fuel capacity is 674 gallons but it has several options for extra fuel such as side-mounted pods that will give it additional range when needed.

Avionics is a product of Helionix, a part of Eurocopter's parent company. It has dual flight control computers linked to the MFDs. They are self monitoring and one will take over if the other has a detected error. Another feature is found in the AFCS. When the autopilot is in the cruise mode the pilot can switch it to ground speed mode for use in the approach and can modulate speed even down to a hover. The fea-

ture can bring the helicopter down to the landing decision point (LDP) and hover there if needed.

Russian Helicopters Kamov Ka-62

A derivative of the military Ka-60, this is a serious entry into the "small" helicopter market by the Russian manufacturer. It's sleek, aerodynamic looks are a real selling point, making it comparable to what western manufacturers have been producing for many years. It's not certain that the Ka-62 is in the super twin category. The stated capacity is 16 passengers and a crew of two. Gross weight is 14,330 lbs and engine power from dual Turbomeca Ardiden 3G engines is rated at 1,282 hp each. The helicopter is making headway with operators in South America, including Brazilian launch customer Atlas Taxi Aero. The Ka-62 is sure to make some European friends as well, but it's unlikely to find a home in the Gulf of Mexico. Then again, if the price is right, who knows?

Sikorsky S-92

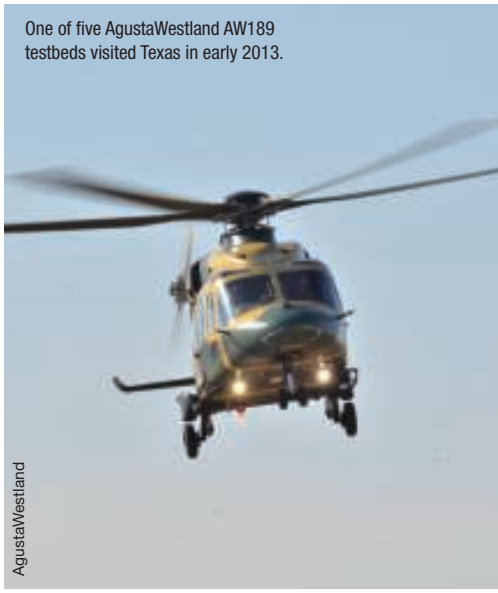
This helicopter has enjoyed a large percentage of the deepwater crew change business. It is considered a heavy twin with a gross weight of 26,500 lbs. It seats 19 passengers in a standup, spacious cabin. The S-92 does the offshore mission well but it is pricey at around $26 million per copy. It takes a lot of fuel to feed the GE CT7-8 engines but it can carry enough to go 200 miles and return without refueling, which is a big plus in the offshore market. Most S-92s are equipped with Rockwell Collins Pro Line IV avionics with all the bells and whistles. Dual MFD, four-axis autopilot, automatic hover mode, dual channel FADEC and coupled auto approaches, to name a few. The word is that Sikorsky is developing a fly-by-wire control system that may be retrofitted to the existing fleet.

The Future

It seems that the manufactures are always behind the curve in designing and building a helicopter for a specific market. Helicopter manufacturers have given us products, over the years, which have almost always had a multi-role objective. The users of these wonderful machines are the ones who have discovered and made markets for their many uses. This is probably a necessary path because no one really knows what the next great market will be when you have a product as flexible as a helicopter, but it is nice to know that at least one or more markets have been defined, and that the manufacturers are striving to provide helicopters that give the operators the needed tool to serve their customers.

Three of the new helicopters—the AW189, EC175 and Bell 525—had a large amount input from customer advisory teams made up mostly of offshore operators from Europe and the U.S. The manufacturers have listened and incorporated many of the suggestions into the airframes and avionics suites. Airframes have been given real corrosion protection in the places normally inaccessible, substituting composite materials where practicable. Maintenance panels have been provided to expose more inspection and work sites. Larger windows for cockpit visibility. Comfortable passenger seats with some actual leg room. Increased baggage areas. Crew stations that provide comfort. Automated flight controls. Externally mounted cameras. Powerful engines that give category A performance for all occasions. This list could go on but as you can see, this is a new way to build helicopters for a market fit.

One point absent until now is cost. The medium heavy helicopters will be priced somewhere around $18 million in 2013 money. When you compare this to the heavy twins at $25 million, there is no doubt where the market will be. The medium heavies will do everything that the heavies do with the exception of the heavies having a range advantage. The difference between one or two passengers should not pose a problem when acquisition and operating costs are factored in.


AgustaWestland

One of five AgustaWestland AW189 testbeds visited Texas in early 2013.

Bell 525 Relentless mock-up during a *Rotor & Wing* visit to Bell Helicopter in early 2013.


Photo by Pat Gray

Photos by Andrew Drwiega

Maj. Gen. William Crosby, Program Executive Officer Aviation, addressing delegates at the Quad-A annual gathering, held this year at the Fort Worth Convention Center in Texas.

Military personnel were hard to find at this year's U.S. Army Aviation Association of America gathering in Fort Worth, with worries aplenty on what sequestration means for budgets and programs.

By Andrew Drwiega, International Bureau Chief

UAD-A:
TA CASE OF THE UESTRATION BLUES

AgustaWestland took the wraps off its AW169 AAS during Quad-A. The helicopter is the manufacturer's submission for the Armed Aerial Scout competition, should the U.S. Army decide to proceed with the fleet replacement program.

Armed Aerial Scout: Will they or won't they? "What do we do with the Scout? Do we buy new or do we do a SLEP [service life extension program with the Kiowa Warrior]?" asked Maj. Gen. William "Tim" Crosby, PEO Army Aviation, during his address at the annual Quad-A convention, held this year in Fort Worth, Texas.

Addressing industry delegates in the audience, he continued: "I know you are poised and ready to execute [new helicopter deliveries] and you say 'Last year you said you were going to do this'... yes, but the truth changed!" Crosby was referring, of course, to the impact of U.S. government's sequestration or spending cuts in the defense budget, something his audience was only too aware of given the lack of military participants and delegates throughout the event.

International military speakers panel at Quad-A: (left to right) William Westerbeek, Netherlands, Olivier Gourlez de la Motte, French Army, and Kevin Whale with Canadian Forces.

"Look at what we are now facing," he said. "We are taking a step back and saying let's not make a rush to failure," Crosby continued (where memories of RAH-66 Comanche and Bell ARH-70A still reside). "Let's think about what is affordable across the portfolio and it is critical that we do that now. If we don't, then you could use some of your precious R&D on something we might not be able to pursue."

The AAS is needed, of that there is no doubt in the minds of the Army Aviation commanders who have said as much time and again. In fact the relatively late public unveiling on the exhibition floor of a contender from one of the bidders was the AgustaWestland AW169 AAS. This is a military version of the civil AW169 that has already flown, with certification expected during 2014. AgustaWestland states that more than 70 civil orders have been received. However, this would be a brand new type addition to the U.S. Army's fleet if selected. But the decision was no clearer, continued Crosby, even after the technology demonstrations of last year that most of the bidders participated in. "We are going to have to adjust—and slow a few things down," he said. There was short-term way ahead, Crosby added: "There are five or six programs that need to be put into the affordability category to keep the portfolio balanced ... to limit the impact it has on the fleet."

But for those who can afford to take the longer-term view, it is the Joint Multi-Role Technology Demonstrator (JMR TD) that has really captured the undercurrent of the rotorcraft manufacturers. The plan is for this to be the first stage of new and better designs that will eventually lead to the whole Future Vertical Lift (FVL) proposal, which will encompass light, medium, heavy and ultra types of helicopter.

"We talk about Future Vertical Lift and the systems that we need to invest in now," said Crosby. According to him the question Maj. Gen. James Barclay III, Assistant Deputy Chief of Staff, G3/5/7, was looking at in detail was when a particular system was going to be needed and when the technology was going to be available to match the need. "Following that we need to look at the sustainment plan to keep our existing systems until they arrive," he added, and referenced further investment in solutions to cope with degraded visual environments (brownouts) and the ever increasing manned-unmanned teaming (MUM-T).

There were potential further complications ahead he noted, particularly discussions "about putting a maneuver battalion back into every brigade—well that increases the scope of what the Combat Aviation Brigade has to do, so we have to look at the structure of that too."

Crosby admitted that while the AAS is the most pressing issue, the future of medium lift is the bigger issue over the long term: "We have made a conscious decision to look

at the medium lift. The AAS is most pressing but 75 percent of the fleet is in the attack/utility sector, so if you are looking for a return on investment, then you go after that and you need an alternative path for the Scout."

DoD FY14 Budget Announcement

Elsewhere at the show the impact of the U.S. Department of Defense's fiscal year 2014 proposal announced on April 10 saw EADS North America's Eurocopter subsidiary lose out with only 10 of the remaining 41 UH-72A Lakota helicopters slated for purchase. The organization's Chairman and CEO Sean O'Keefe expressed his regret that "an extremely successful program like the Lakota—with its demonstrated low cost and unbroken record of on-time and on-cost deliveries" was a casualty. With the majority of the 345 U.S. Army utility aircraft already delivered this was perhaps an easier cut for the DoD to make in the circumstances.

Boeing has been earmarked for 42 remanufactured Apache AH-64E attack helicopters as well as 22 remanufactured CH-47s and six new builds, all into the CH-47F model.

The following is an extract from FY14 Budget Overview, described as continuing to invest in the modernization of manned and unmanned aircraft, with aviation enablers, but at a slower pace:

- OH-58 Kiowa Warrior ($184M); upgrades supporting conversion from "D" to "F" model
- CH-47F Chinook helicopters ($1,050M); 6 new and 22 remanufactured aircraft
- UH-60 Black Hawk helicopters ($1,237M); 65 new aircraft—41 UH-60M (Utility) and 24 HH-60M (Medical) to modernize the fleet
- AH-64 Apache helicopters ($813M); 42 remanufactured Block III aircraft
- MQ-1 Gray Eagle Extended Range Multi-Purpose ($518M); 15 aircraft, supporting ground control stations and satellite communication terminals
- UH-72A Lakota Light Utility helicopters ($96M); all 10 aircraft are for the Army National Guard.

In a new move Gen. Barclay took to the public floor to outline some general thoughts and answer questions from exhibition attendees. He said that sequestration was resulting in more projects being pushed forward to the FY14-15 timeframe, but stated that in general, Army Aviation was better integrated than it had been as a result of great investment over the past decade.

He added that as the deployment to Afghanistan was wound down, he believed that the leaning on contractor support would lessen and that skills would be brought back into the "green" Army. The challenge there would be retaining the right mix and what could be afforded, but he added "we have got to get soldiers back to doing that workload" (Editor's Note: Contractors are valued for their high skill set in dedicated areas and this might be difficult to emulate and to ensure highly skilled personnel are retained by the Army).

When asked about the continuing role of the National Guard and the Reserve, he said it was critical. "Look at the gains we have made over the last 10 years—we cannot go back on the investment we have made in the Guard."

International Panel

The expected lack of senior U.S. Army personnel meant that the organizers looked for alternative presentations during the forum sessions. Air Commodore William Westerbeek, commander of the Defence Helicopter Command for the Royal Netherlands Air Force, talked the Netherlands being "one of the bigger, smaller countries." He expects that the RNLAF future helicopter force that will comprise 29 Apache Block II helicopters, 17 Chinook D/Fs and 20 NH-90 TTLs, with the existing Cougar (eight), AB 412 (three) and Alouette III (four) all being phased out by 2017. "What is important is the effect you want to achieve... how much bang for the buck we can get." He said that the RNLAF had received good value out of basing eight Apaches and three Chinooks at Fort Hood for training and familiarization with the U.S. Army. But he too admitted that the force "did not have the money to fly all the hours they wanted." Options, he said, included looking at neighboring countries such as Germany and Belgium to see what 'joint' cooperation in capability might be achieved in budget-hit times.

Regarding the use of synthetic simulators for training, he said that reducing flight hours was not a problem: "I am convinced that the product at the end will be the same, if not better."

MG Olivier Gourlez de la Motte, CMDT with the French Army, said that French forces traditionally deploy overseas within a framed agreement with NATO, adding that the current preference is to deploy "in cooperation with other nations." He mentioned the forces commonality in aircraft with Germany and Spain regarding the Tiger attack helicopter and NH90 support helicopter.

Wing Commander Col. Kevin Whale, Tactical Aviation, 1 Wing, Canadian Forces, said that Canadian forces had been deployed internationally for 93 percent of the last 24 years. His force would comprise 67 CH146 Griffon helicopters as well as 15 newer CH-47Fs. He added that the force was based on meeting four requirements: it had to be joint, offer inter-agency specialization and have international capability, all while retaining the general trust of the public at home.

HEADS OF INDUSTRY: ONE WITH THE TOP BRASS AT SI AVINCIS GROUP AND BREEZE-


Avincis

Rotor & Wing editors recently sat down with Sikorsky President Mick Maurer, Avincis Group CEO James Drummond and Breeze-Eastern's Brad Pedersen for interviews as part of our ongoing Q&A series with industry leaders.

By Andrew Parker, Editor-in-Chief

What do the chief executives of a longstanding U.S. helicopter manufacturer, a London-based emergency medical services, offshore and SAR operator, and a hoist and winch supplier from New Jersey have in common? All of them sat down with *Rotor & Wing* during Heli-Expo in March for exclusive interviews that are part of our ongoing series featuring CEOs from the top companies around the helicopter industry.


Photo by Andrew Parker

Sikorsky President Mick Maurer at Heli-Expo 2013.

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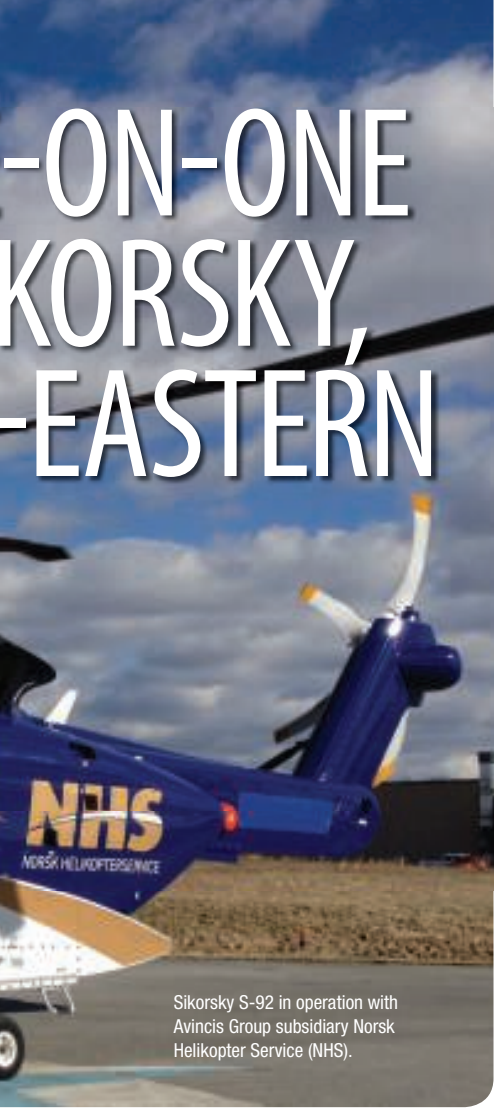

Sikorsky S-92 in operation with Avincis Group subsidiary Norsk Helikopter Service (NHS).

Sikorsky President Mick Maurer

Rotor & Wing: To what do you attribute Sikorsky's success during 2012?

Maurer: We have some pretty solid franchises, in terms of products. The single biggest order is the multi-year contract with the U.S. government on the H-60s, the Army and Navy contract for Black Hawks and Sea Hawks. It's very nice to have that base volume, to have that predictability, which allows you to invest in some other things. It also allows you to use that product to sell into other countries.

If you look at the global war on terror, it has turned into a helicopter war. The use of helicopters over the last 10 years has grown, the tactics have been validated and the effectiveness of the Black Hawk has been proven, and so we've seen a lot of demand come as a result of that. Then in the other two major product platforms that we have, the S-92 and S-76—a lot of it depends on the oil business. The oil and gas industry is doing well, the demand is there and also the need to have larger aircraft that can fly farther out to oil rigs as they explore deeper and deeper, that's been a real positive.

Then with the S-76 we transitioned from the C++ to the D, so on a relative basis we went out of production on the C++ and down to pretty low volume as we transitioned, and now we're ramping back up on the D. We've also been pretty strong on aftermarket. It's kind of been spread around, there's not one single element.

Rotor & Wing: What impact will sequestration have on Sikorsky?

Maurer: It won't be good, and it will probably affect our spares and aftermarket business a little sooner than the other sectors. But with or without sequestration, there's going to be a general downward pressure on U.S. military budgets. We have to be ready for that. The problem with sequestration is that it's a little tough from an uncertainty standpoint, but to the extent that the other pressures unfold slowly and predictably enough, we should be able to compensate. Aerospace is a cyclical business, they tend to be long cycles. We've been around for 90 years, and we'll still be around.

Rotor & Wing: What's the forecast look like for the commercial sector?

Maurer: There are two levels. On a relative basis, we'll experience a big increase because we're introducing the S-76D. On an absolute basis, it still looks very strong going forward because the oil market is the biggest, but we're also seeing lots of interest from search and rescue, and that's for both the S-92 and the S-76. We're getting demand from parapublic-type missions—interior ministries, homeland defense, coastguards, things like that—so pretty good trends in a number of areas.

Rotor & Wing: Has Sikorsky examined any commercial applications for the X2/S-97 Raider?

Maurer: We're considering that, but I wouldn't put that as a front-burner item. You've got to have a lot of fortitude to go out and speculatively develop a commercial aircraft of any kind.

Without some major launch customer or group of orders to pull from, it doesn't happen often, while that approach is much more typical on the military side. So long-term, absolutely—we're in the commercial business and over time we have to introduce new products and there's no doubt that we'll continue to do that. But in terms of some front-burner commercial application for X2, probably not, it looks like the military is going to be first for that.

Rotor & Wing: How did the partnership with Boeing on Future Vertical Lift develop?

Maurer: We've always had relationships with Boeing over the years, not just on new aircraft but with the aftermarket. We looked at where the Future Vertical Lift/Joint Multi-Role was going and just started to have conversations about "Where do you see it going? What's your appetite for investment?" and that sort of thing. It really started as a much about a business deal as opposed to a discussion about whether we're going to go with a certain aircraft configuration.

It wasn't about that [compound vs. tiltrotor or other design], it was about do Boeing and Sikorsky want to collaborate on medium lift? Because we're both in there now, we both would like to stay there and it's just a massive program—right now, the government's ability to invest is a lot less than it used to be. So if you look at our collective ability to invest, tolerance for risk, things like that, we thought that collaborating in this program made a lot of sense.

We're going with an X2 configuration, but it's bigger. From a gross weight standpoint, it's roughly three times

what an S-97 Raider is. That's one of the big things that we're going to have to prove out in the JMR technology demonstrator program, and that's one of the questions the customer has—is this thing scalable to something that big?

Rotor & Wing: As CEO, what are your personal goals for Sikorsky?

Maurer: I've talked about having these big franchises. We really have to do well in executing and introducing the CH-53K so that we have that fourth pillar in the business. That's critically important in the long term, the way we're going to win or compete on anything else in the U.S. government—they're going to look at past performance and the 53K is really our key. We want to have a real program we can hold up and say, "Here's how to do it." That will help us with any other competition we have. So I look at that, and with FVL, it will happen long after I'm gone, but I want to make sure that whatever replaces the Black Hawk, that it's us. The other thing is anything to do with globalization. We've evolved from being really centered around the U.S. military while being an opportunistic exporter, to now where we need to become a real multi-local company that has an industrial presence in key parts of the world. That is part of the fabric in our key markets that we don't just ship things there—we make things there, we service things there, we develop products there, and we start to expand the footprint of the company so that we operate in these other international markets. So I'd put that as my top three.

Read the full interview online at www.rotorandwing.com

Avincis Group CEO James Drummond

Rotor & Wing: Please elaborate on the recent restructuring of the company.

Drummond: When I joined the business in July 2011, we actually had two groups of companies—there was the Inaer group of companies and the Bond group. They were held under a financial controlling company called World Helicopter Group. One of the things we had to do quickly was work out what to do with the two groups, and we decided that we only needed one group of companies [under a single umbrella]. So we created the Avincis Group. We think it's very important to maintain the individual operating companies within the group, and that's why the group is branded Avincis, but we're retaining Inaer, Bond, Australian Helicopters and Norsk Helikopter Service (NHS), because we firmly believe that proximity to the customer is really important. They need to understand [local needs] at a very deep level. The customers know that that responsibility's sitting right next to them—it's not sitting somewhere remote in some centralized location, but it's where they are, and that's really important. But there are clearly advantages of scale that we can deliver to the operating companies, and that's the purpose of Avincis Group—we determine the strategy and deliver the advantages of scale to the operating companies so they can provide better value to the customers.

Rotor & Wing How did you come up with the Avincis name?

Drummond: It was one of the more difficult decisions in the last two years. The board decided on the strategy for the group, and that was far easier than deciding what we were going to call it.

What I thought would be a 30-minute discussion turned into something a great deal longer and more difficult than that. In the end, we decided to put the question to everyone in the company, please tell us what you think the group should be called, and whoever picks the name that the board thinks is the best gets dinner for two at a restaurant of your choice and a bottle of champagne.

One of our people in Spain picked the name, he thought of it in the context of Leonardo da Vinci, the concept design for helicopters and also the concept of advancing. He thought Avincis sounded pretty good, and we agreed.

Rotor & Wing: What have you been hearing about new Sikorsky S-92 that just entered service with NHS?

Drummond: We took delivery of [two S-92s] in early February, and they went into revenue service in early March. We're very excited about it, it's a great helicopter and it provides vital diversity to the fleet. Our previous heavy fleet had been entirely Eurocopter—of course we have tremendous confidence

Avincis CEO James Drummond at Heli-Expo.

Photo by Andrew Parker

in Eurocopter and they will always be a part of the future of the business, no question—but as we grew the business, we needed some diversity within the fleet to avoid overly concentrating the risk of the business.

Rotor & Wing: What are the global trends you're watching and where do you foresee growth in emerging markets?

Drummond: We operate in Chile and Peru right now, and we see Latin America as a very strong and attractive market for growth, not just for the energy services business, but also the life/rescue and firefighting business, both services we're operating there right

now. All the countries in the region are investing heavily in building infrastructure as their economies grow, and this is the part of that infrastructure that we're providing. We continue to invest ourselves and see a good future there.

Other growth at the moment is in Australia and northern Europe. Those areas are we see most of the growth coming from in the medium term. Beyond that, there's areas elsewhere like Africa, where there's tons of investment going into infrastructure and energy services. But we can't be everywhere all at once, so we will look at those markets in another 12 months' time as we build the businesses in our current regions. Both Africa and India are really attractive. Southeast Asia is exciting, we just can't get all of these regions at once, unfortunately.

Rotor & Wing: What are your personal goals as CEO for the company?

Drummond: The vision for the company is we want to be seen as the best mission-critical aviation service requirement in the world. And seen not by ourselves, but by our customers, regulators, our workforce and our competitors. That's a fairly lofty goal, but I think it's realistic and it's achievable, and we believe we're making progress with that, so the [U.S. Transportation Safety Institute] Moral Courage award is one example. It's not the entirety, but it's a very significant step and important recognition, Richard [Mintern, Bond CEO] and Simon [Stuart, Bond's safety director] have done a great job.

That's what we want to achieve. If we're seen as the best services provider, we're not going to have a problem growing the business. If we're generally a very high standards operator, then we will not have a problem providing value to our customers, and making money. So that safety goal is not motherhood and apple pie, it's a real objective and it requires real investment over a sustained period of time. That's exactly what we're doing.

Read the full interview online at www.rotorandwing.com

Pedersen Hoisting Breeze-Eastern to New Levels of Customer Support

By Andrew Drwiega, International Bureau Chief

Breeze-Eastern President & CEO Brad Pedersen.

Brad Pedersen is Breeze-Eastern's new president and CEO and has been in place since the first week of June 2012. His aviation experience includes 17 years as a helicopter flight test engineer with Boeing, progressing to director of international Apache programs among other titles, and six years with Sikorsky where he was the Canadian Maritime Helicopter program manager, the UH-60M program manager and director of advanced programs. More recently he was president of the New Jersey-based Airborne Systems Group.

Pedersen says that his business sense started being accumulated from those early days. "We did flight testing off site and got to know that if I didn't have something, often something small, then we couldn't fly. So logistics and support were factors that I appreciated from an early stage." At Breeze-Eastern he wants to ensure logistics and customer support are made cornerstones of the business: "Some components have lead times up to a year or more so we have to anticipate the demand and have to have our own orders in with suppliers."

He emphasizes that expectations in business have changed, often from what we demand outside of work. "The people buying our parts, whether in Australia or wherever, are used to going online and buying a book, for example, and as soon as their order is in they receive a confirmation e-mail that the order has been placed. Then it's in shipping—positive affirmation along the line. That's what we need to aim for." Pedersen states that he hopes to lead the company through a mindset change "to make sure that our customers questions have been answered when we go home at night."

"We want to get 24-hour response time anywhere in the world. That takes work—our suppliers as well as distributors—to be in sync. You can't do it right nine times, then get it wrong on the 10th time, because it is the last one your customers remember you by. You have to keep doing it right."

He continued: "At Boeing and Sikorsky I learned the benefit of standard process. You need four things to make a change: the people; the organization; the tools; and the process. So the process serves the customer, not just individuals. If you don't have all the pieces in place, change is difficult."

Pedersen said that Breeze-Eastern is fortunate in that most of its suppliers are small companies and are fairly agile with the ability to respond. "Most of them are happy to support us in the direction we want to go. Every one of our distributors is on-board. Once we have shown them how much we are committed, they are prepared to respond."

The new factory has allowed the company to better organize its customer support: "We get things focused in one line, not two separate groups. We can pool our spares and repair requirements. Operators can make better real-time decisions."

He explained that the company is trying to introduce more transparency of where stock is being held. The objective is to release inventory quicker if customers have more visibility. "It's not rocket science, the software is there we just need to apply it," he states.

There have already been changes he pointed out. "A year ago, perhaps 18 months, overall repair turnaround times were 160-plus days—we are now down to 60 days (plus or minus). Our deliveries to people like Sikorsky have been close to 100 percent over the last six months."

GERMAN START-UP BUILDING ELECTRIC TWO-SEATER

Editor's Note: E-volo does not use the words "rotorcraft," "rotary-wing aircraft" or "helicopter." Yet, the author believes their concept clearly belongs to the rotorcraft family (according to the definition in Webster's dictionary). Therefore, the author is using "rotorcraft" to describe E-volo's concept.

E-volo, a Karlsruhe-based company that is developing the Volocopter VC200, hoped to be the first electric two-seater in the rotorcraft world, has received significant support from German authorities. A new aircraft category is being created, while subsidies are boosting the project.

In 2011, E-volo flew a single-seater, thus claiming the first flight of an electric vertical takeoff and landing (VTOL) aircraft. French-Australian engineer and commercial helicopter pilot Pascal Chrétien, who flew an electric helicopter two months earlier (see *Rotor & Wing*, November 2012), is formally contesting the claim.

"The innovative concept of an electric VTOL convinced the supreme authority for aviation in Germany, the Federal Ministry of Transport, to such an extent that it has commissioned a two- to three-year program for the creation of a new category in aviation," company manager Alex Zosel told *Rotor & Wing*. The German Ultralight Aircraft Association, the German Sports Aircraft Association and the civil aviation authorities will work with E-volo. They will define "a new manufacturing specification" and rules for where and when the Volocopter has permission to fly. They will also issue training specifications for future pilots.

Graphical rendering of E-volo's electric VC200.

Images courtesy E-volo

The first flight of the single-seat E-volo VC1 prototype took place in October 2011.

After "extensive endurance testing of the cabin, the landing gear and the rotor array," test flights of a VC200 prototype should begin in the middle of this year. They will take place on a glider airfield in Bruchsal. This is where the factory of DG Flugzeugbau is located. A specialist of gliders, DG Flugzeugbau will build the airframe in carbon-fiber composites.

The VC200 will be lifted by an array of 18 rotors. E-volo targets a speed of "over 54 knots," a ceiling of 6,500 feet and a maximum takeoff weight of 990 lbs. Today's battery technology would only allow 20 minutes of electric flight. Therefore, like Chevrolet has done with the Volt electric car, the VC200 will be fitted with a "range extender." A piston engine will run at constant rpm, driving a generator that will charge the batteries. This will make the VC200 a serial hybrid aircraft.

E-volo hopes progress in battery technology will enable reaching one hour of electric endurance within the next few years.

An optional pusher propeller will enable "an even faster flight." Separately, the VC200 will be equipped with a rescue parachute. E-volo officials would not discuss pricing.

One of three founders, Alex Zosel is manager of E-volo.

The federal ministry of economy and technology has granted £2 million ($2.6 million) as a subsidy. So far the company has spent "over £500,000," or around $650,000, Zosel said.

One of the three company founders, Zosel is the entrepreneur. Physicist Thomas Senkel used to specialize in the development of electric drives and the construction of ultra light vehicles. Meanwhile, Stephan Wolf has developed the software for the onboard flight computer.

Right from the start of the project, they chose a configuration based on an array of rotors. "Higher redundancy offers higher safety," Zosel explained. The Volocopter can land safely "even if some drives fail."

However, in case of total loss of power, it can't perform an autorotation. "Autorotation requires a variable pitch of the blades, which we do not have," Zosel admitted. This notwithstanding, helicopter aerodynamics department at the University of Stuttgart are currently investigating the braking effect of E-volo concept's rotors.

Flight controls use a fly-by-wire system, hence a claimed easiness of piloting. "Without any steering input, it would just hover there on the spot," noted Senkel, who piloted the proof-of-concept VC1 aircraft, commented at the time.

If the pilot moves the joystick forward, how does it translate into rotor movement? For forward flight, the Volocopter changes its pitch angle. Thus, the rear rotors increase their rotation speed and the front rotors decrease it. The same principle of differentiated speeds is applied for turns. Several independent and mutually monitoring airborne computers control the rotation speed of each drive separately.

E-volo is developing an electric two-seater that will feature an array of 18 rotors. The first version of the VC200 will be equipped with a "range extender" – a piston engine that will recharge the batteries, like in the Chevrolet Volt.

The VC1 has 16 rotors. With its four arms, it measures approximately 17 feet by 17 feet. It has an empty weight of around 180 lbs, including the batteries.

It first flew on Oct. 21, 2011. In 2012, the Lindbergh Foundation awarded its annual Lindbergh prize to E-volo.

This, and the claim for the flight of an electric VTOL, caused bitter feelings for Pascal Chrétien. The electric helicopter he had designed, with the support of France-based motorsports specialist Solution F, had flown in August 2011.

Chrétien has a record from a local court-appointed bailiff (in France, a bailiff can be an official witness). The Guinness World Records 2013 do list the first flight that took place in Venelles, southeast France. E-volo's Wolf hinted it was not a real flight because it was too low. An official at the Fédération Aéronautique Internationale, the Lausanne, Switzerland-based international air sports federation, told *Rotor & Wing* that there is no particular criterion to meet for an aircraft flight to be considered as such, "except taking off the ground, maybe under its own power."

In fact, Chrétien blames the French civil aviation authorities, which would not let him fly because there was no corresponding helicopter category at the time, he asserts. He infringed the law to perform his flights. They took place on private property, far from airports, he insists.

In hindsight, Chrétien concluded on E-volo, "by contrast, the German authorities let them fly and their government even supported them afterward. Good on them," adding: "France is one of the rare countries where you have to hide to develop innovations." *—By Thierry Dubois*

Public Service

By Lee Benson

Heliport Standards: Where the Bears Live

In 1998 at the Heli Japan Conference held in Gifu, Japan, I attended a presentation by the U.S. Federal Aviation Administration (FAA) on what they thought future heliport design criteria should include. For instance, at that time the FAA was pushing a 4,800-foot straight line approach at a 3-degree slope. That means you would start the approach 4,800 feet from the pad 250 feet above the heliport. Until then I had viewed heliports as a flat spot on a roof with a few lines, numbers and a windsock. This made them much easier to land on than a mountain peak where one actually had to do your own site survey for things like slope, rocks, tree trunks, bears and whatever the wind was up to. I figured heliports fell into the "can of corn" category. Emergency room nurses can be a bit difficult when you land on their hospital's heliport, but they aren't near as grumpy as grizzly bears. After listening to the presentation I became very concerned. Not because I cared about heliports, but because I was employed by a government service that utilized heliports in at least 40 percent of their missions. I really liked being employed by these folks and being somewhat smarter than the bear listed above, not the nurse, I started to pay attention. I solicited the opinions of our pilot staff and attended a few FAA and industry meetings in an effort to share the pilot staff's opinions of what they would like to see or not see at a heliport.

In 2004, FAA released Advisory Circular AC-2B, the Heliport Guideline, and at the time I thought that industry's input had injected a bit of common sense into the process. Before you say "that's only an AC, it's an 'advisory,' not a regulation," be informed that the individual states are responsible for regulating heliport design and many states incorporate this AC, in whole or part and it becomes the design condition that you have to meet in order to build a heliport. In my opinion this is an interesting way for the Feds to write a law without the burden of actually getting a law passed.

Last year the FAA issued AC-2C, an updated Heliport Design guide. This document has led to a great deal of confusion in the heliport design community and some of the requirements are very difficult to understand from a pilot's view of risk vs. gain perspective.

For example, in 1974 the Los Angeles City Council enacted a municipal fire code that required all buildings above seven stories to have an Emergency Helicopter Landing Facility (EHLF). This height requirement is generated by the inability of a fire department ladder truck to reach above seven stories. The design standards for these facilities are kept very simple, basically a 50-foot by 50-foot clear spot on the roof with a 25-foot safety zone beyond that, with nothing high enough to be a hazard to the helicopter.

Usually you see these in the corner of the building so that two sides of the 25-foot safety zone are in clear airspace beyond the building. No private or government operations are allowed at these facilities unless there is an emergency condition at that building.

Unless some fool has a gun or the place is on fire, nobody is landing there. I always thought this was a good requirement because it met two standards, the intention was to provide a safe exit, via the rooftop, for folks who were trapped above the seventh floor by a fire below them and the folks that wrote it kept it simple.

Indeed while I was at Los Angeles County Fire I tried unsuccessfully to get a similar code written for the areas that we protected. Unfortunately the harder I tried to keep it simple, the more certain staff members were trying to mandate the equivalent of a full heliport. The libertarian in me was not about to help generate a rule that would require an investment of a couple of hundred thousand dollars for a facility that would probably span the life of the building without being used.

Under previous ACs, these EHLFs were not considered a heliport. The new AC-2C does consider an EHLF a heliport and therefore the EHLF will be inserted into the federal database causing considerable confusion, additionally unlike before normal airspace requirements will apply. Just because a building is within the clear airspace required for LAX doesn't mean it can't catch on fire. Do you think that on that once in a lifetime day that the building catches on fire, we might close a chunk of airspace to allow emergency operations for a few hours? If you make your living flying on and off heliports, you might want to read this circular, or your future in helicopters may be restricted to where the bears live. More to follow.

Offshore Notebook

By Pat Gray

Out Basing Around the Gulf

One of the advantages of operating rotary wing aircraft is that we are not confined to established airports or operate under FAA fixed-wing standards of "one shoe fits everyone" ideology. In years past, we have all suffered from visibility limitations, controllers not understanding our unique capabilities, ramp positioning problems, prohibitive costs and so on. I will say that in some cases, it is to our advantage to operate in the airport environment and many do. We'll leave it at that.

Around the Gulf of Mexico, stretching from Alabama to Corpus Christie, Texas, there are about 20 helicopter bases not on airports with another 10 that are on airports, almost all of which are south of Interstate Highway 10.

Why out base? Economics plays a big role. Practically every flight is southbound from the beach and back. This means less flight time the customer has to pay for. Convenience is big. For years a majority of skilled oil field workers have come from the bayous and small towns of south Louisiana. They work 24/7 for 7 or 14 days straight when offshore and when the shift changes, they want to get back to their families as soon as possible. Some other reasons are space to park automobiles and helicopters. Thirty or 40 helicopters take up a lot of space. Bristow U.S. operates a large out base near the town of Galliano, La. about 50 miles south of New Orleans. They have other out bases but this is their largest one. The location is about 10 miles from the beach on a straight flight. Vance Poleski, the base manager, gave me a hands-on tour of the facility, explaining how the base is operated and the statistics they compile.

The base is located on 90 acres of land and is adjacent to a four-lane divided highway, allowing easy access for personnel and cargo deliveries. At any given time there are 30 to 35 helicopters based there that comprise six or seven different models. Sikorsky S-92s and S-76s, AgustaWestland AW139s, Eurocopter EC135s, and Bell 407s and 206s.

As for passengers, they average 200 to 250 per day, the biggest days being Tuesdays, Wednesdays and Thursdays—the days that crew changes take place on the offshore rigs. On the other days flights are filled with oil field maintenance workers, engineers, administrative personnel, communication workers, oil and gas specialists; people who generally do not work on a seven-on and seven-off schedule. Most of them go out and return the same day.

The passengers arrive at the facility and park in a very large parking lot that contains 300 to 500 vehicles at any given time. They proceed to the check in counter, sign in, show a picture ID, deposit their luggage, have a seat and await their call for the flight. Once called, they attend an aircraft safety briefing that covers ditching procedures, exiting the aircraft, and movement around a running aircraft. This is done via video and is specific to the type of helicopter they will fly in. They are then driven to the helicopter on a tram, put on life vests and take a seat. This is very similar to scheduled airliner procedure but without the hassle of Homeland Security (TSA) requiring shoe removal, X-rays etc. On the same hand all passengers are screened to make sure they are not on the TSA no-fly list.

There are some special custom procedures that sometimes come into effect. If the offshore destination is a foreign-registered vessel in transit, then customs clearance is required. If the rig is secured to the ocean floor, then there is no customs requirement.

Normally, there are 50 pilots assigned to Galliano. They work a 14 and 14 schedule and most live far away from the base, like Arkansas, Alabama, Florida, Texas and other states. Bristow has 31 very nice modular homes on the base where the pilots eat sleep and rest. There is also a weight and exercise room available. There are 35 maintenance technicians assigned who work a seven and seven schedule. They too use the modular homes for temporary housing. Thirty-three of these personnel work at night and two are assigned ramp duty during the day. Every level of maintenance is done at the base with the exception of refurbishment, which is done at Bristow's home base in New Iberia, La. The base has a small control tower that supervises movement on the ramp and controls takeoffs, landings and traffic patterns. Pilots get their weather briefings, flight assignments and file flight plans in a spacious ready room. Flight tracking is done from Bristow's headquarters in New Iberia where all Bristow flights are tracked throughout the gulf.

There are about 75 IFR flights per month out of Galliano, most taking place during the winter months. ADS-B is used as much as possible. The S-92s have the equipment installed along with eight S-76s and the AW139s soon to be equipped.

All of the large offshore helicopter companies have similar bases at different locations around the gulf. It's a good system for expediting crew changes and giving airborne support to the energy industry at a cost savings.

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Law Enforcement Notebook

By Ernie Stephens

Sequestration Reservations

First of all, I hate partisan politics. There are too many times when it gets in the way of the nation's—any nation's—best interest. Second, while I knew the recent budget battle that raged on Capitol Hill was going to go down to the wire, I had good money that said a resolution was going to be reached at the eleventh hour, thus averting "sequestration," the automatic implementation of pre-determined budget cuts that were designed to be so harsh, both political parties would work hard to come up with mutually agreeable ways to avoid them. Well, I was wrong. The parties never reached an agreement on how to trim spending by the March 1 deadline, so the slash-and-burn consequences of sequestration took effect.

Sequestration calls for some pretty ugly spending cuts to a variety of U.S. government operations, including a reported $637-million reduction in the FAA's $15 billion fiscal 2013 budget. In addition to furloughing some of its employees, the FAA said it would have to cut funding to 189 of its 251 civilian-staffed air traffic control towers by April 7. In other words, close them.

The towers that were selected for closure had fewer than 10,000 commercial operations, and less than 150,000 total operations per year. However, any of those airports could file an appeal to keep its tower funded, but only a few were successful in doing so, leaving 149 contract towers on the chopping block.

This news makes me nervous. And I'm not alone. I put some calls in to some of my friends around the country who drive police helos. All fly in areas where at least one control tower they normally have to talk to made the closure list. And all said that they aren't happy about it.

To begin with, any airport that has a tower probably got it because it handles such a large volume of traffic, it needs an FAA referee. Take Martin State (MTN) outside of Baltimore, Md. It has a witch's brew of state police medevac aircraft, city and county police patrol helicopters, a flock of Air Nation Guard A-10 attack jets, military cargo planes, business jets, turboprops, and small private airplanes based there, plus a large mix of transient aircraft trying to circumnavigate the restricted airspace around Washington, DC. Highly experienced pilots are flying some of the aircraft in that total mix. But some folks flying those aircraft have less time in the air than a package of deli meat has in my refrigerator. And while taking off and landing amid that kind of traffic can be challenging enough, I'm equally concerned about what it will be like to conduct missions in close proximity to an environment when there's no FAA traffic cop in the tower.

Personally, I always found it more comforting to be working a call near an airport with an air traffic controller vectoring traffic away from me, as opposed to having to self-announce every 2-3 minutes near an airport without one. That isn't to say that I wasn't maintaining a vigilant scan while being handled by ATC. I'm just saying that it was nice to have another set of trained eyes—and a radar scope—helping to keep me from exchanging paint with another aircraft.

The issue, as I see it, is trying to safely do something abnormal around people who are used to everything being normal. The last time I checked, there were more than 280,000 airplanes registered in the U.S., but only around 11,000 helicopters (not including military aircraft). That alone makes rotorcraft the oddball of the airways. That huge fixed-wing community is used to working an uncontrolled airport by a standard set of pattern rules. So, they tend to look for other airplanes flying the obligatory racetrack pattern, at the published altitude, at the usual speeds. That's all fine… right up until you throw in Air-1 prosecuting a chase that has it yanking and banking in the middle of the downwind leg. Now, you have a Gulfstream pilot trying to sort you out on his TCAS, an 80-hour private pilot who has no idea of what to do, and a tower that has become nothing more than a storeroom for the airport manager.

I've been told that other operators, with those same concerns, lobbied local legislators for financial relief, and got it in the form of state funds to run the towers. To that I say, "Fine!" It'll keep the facility open, and maybe even offer employment opportunities to those dedicated FAA controllers the government could no longer keep on the payroll.

Last month, though, a reader called me an "alarmist," because I was warning people about eye injuries caused by laser strikes. And while I understood his point, I continue to stand by the evidence I saw that says a laser device injured a pilot's eye. But just to make sure that I and the guys I checked with aren't getting all stirred up about nothing in this case, let's call this column "part one of a two-part series." The reason is because the tower closures were scheduled to begin on April 7, just a few days before this issue went to press. So, the next time I post my column, some time will have passed since the cuts took place. We shall see then if this tower thing was a big deal or not.

Coming Up in rotor & wing

June 2013: Paris, SVS & Firefighting

Safety & Training Enhancements—We'll talk to a number of operators with exemplary safety records to find out what they are doing right and how safety management systems (SMS) are improving the culture of the organization. We'll also focus on safety and training enhancements that are making a real difference in the operational world.

Synthetic Vision—Editor-at-Large Ernie Stephens travels to Manhattan where he flies the soon-to-be-certified Honeywell Synthetic Vision system installed in the avionics maker's AgustaWestland AW139 test-bed aircraft, and see how it compares to the other systems already out there.

Aerial Firefighting—We'll interview a number of operators from around the globe who specialize in providing aircraft and skilled firefighting pilots wherever and whenever they might be needed and ask them how the mission has changed for better or worse in recent years. We also ask each to provide a list of what they consider the "essential equipment" for effective firefighting operations.

Paris Air Show Preview—Our team of editors, including International Bureau Chief Andrew Drwiega, will provide a look ahead at what to expect from the helicopter community at Le Bourget. The 50th iteration of the international event is set to draw thousands of visitors from June 17-23.

Columns—Leading Edge by Frank Lombardi; Safety Watch by Terry Terrell; and Military Insider by Andrew Drwiega.

Bonus Distribution: Paris Air Show, June 17-23, Le Bourget.

July 2013: Police & Excellence Ratings

ALEA Issue—Once again, we'll profile a police unit as part of our Operator Profile series. We'll also contact the vendors who are lined up to exhibit at the Airborne Law Enforcement Association (ALEA) annual conference, held in Orlando for 2013. We'll find out what new equipment is going to be available for law enforcement operators and what other products and services to expect on the show floor.

Return of the Excellence Ratings—*Rotor & Wing* is relaunching its Excellence Ratings, which surveys helicopter operators to find out who provides the best customer satisfaction in key areas. The 2013 Excellence Ratings survey will be conducted during the spring with results published in the July issue. Categories are Overall Aircraft Performance, Technological Innovations, Direct Operating Costs, Maintenance Issues, Technical Documentation, Technical Assistance, Factory Training, Parts Availability and Customer Support.

R&D Report—July will also feature the official launch of a new special section dedicated to rotorcraft science and technology. A spinoff from *Military Insider* that seeks to incorporate both military and commercial technology developments, "*R&D Report*" will examine Future Vertical Lift efforts and other research initiatives that will help shape the look of tomorrow's helicopter and how it will function. It will also include a number of reports from the AHS Forum and Technology Display, held in late May in Phoenix, Ariz.

Bonus Distribution: ALEA, July 17-20, Orlando, Fla.

Military Insider

By Andrew Drwiega

Hosting Industrial-Military Expositions; Searching for the Middle Ground

The opening late afternoon session of the U.S. Army Aviation Association of America (Quad-A) annual convention usually has a vibrant expectation to it. An eclectic mix of fighting men and women all with aviation in common, some shouldering old buddies with the "where the heck did you go" conversation; beside them old veterans—some recently retired and working in industry, others "really" retired and getting the respectful greetings that they have earned through their service. And amid all of this is expectant industry eager to push forward their products and services (and increase their revenues or just guarantee corporate survival).

All of this comes together for a few days of information sharing and pushing Army Aviation development forward a few more steps.

At Fort Worth this year, though, it was different. You could have shot a Hellfire down some of the aisles on opening night, safe in the knowledge you wouldn't hit anyone in uniform. The tumbleweed in the city's environs would have been at home here. The cuts made to the U.S. Army's travel budget through the sequestration process had a major impact. Although it did get better, marginally, the following day, it had died again by the close. With exhibitors taking a brave stance by declaring that they had more time to talk to those who were there (including industry peers on the surrounding stands), there was no escaping the fact that this cannot happen next year. Either the Department of Defense (DoD) will have to rethink its travel allowances, or the organizers and industry will have to drastically rework the way the convention is done.

To back away from industry conventions, particularly those that are as well established as this, is a grave mistake. Drastically reducing military contact with industry, especially the lower-tier players, will be bad for the future. The multinational OEMs will always have their lobbyists to maintain contact with those at the top in government and the senior military, but where the axe-restricting travel hits hardest is with the smaller concerns to whom suddenly having their order book frozen for 18 months means almost certain disaster. It is they who need to keep their business' finger on the pulse. They need to hear what Maj. Gen. William Crosby, PEO Aviation, has to say. And they need the word on the street, rubbing shoulders with those serving and their peers in business. This is their recon—their intel mission.

Crosby offered the organizers a solution: "If we can't come to you, then you come to us." He means hold the events near to the key U.S. Army Aviation sites of Huntsville, Redstone and Fort Rucker. The problem here is a lack of facilities suitable for staging events the size of Quad-A in these locales.

There is not the draw of the "side events" that the big cities offer either, or more importantly the range of hotels for the thousands that attend. Perhaps this ultimately leads to a plethora of smaller, more focused events, staged throughout the year. But that too would not be ideal as it could increase travel rather than reduce it. Or perhaps there is another solution.

Would the military be able to open their own facilities for this kind of event, for which they may even generate additional revenue? The problems are many: finding a suitable location, security access to the site—for industry, visitors and even media, power supply for all the stands, catering, parking—the list is long. But perhaps somewhere in there is a short-term solution that might be workable if not as a direct replacement, then perhaps as part of the solution? Certainly there are too many exhibition and conferences, both in the U.S. and internationally. And also during years-gone entertainment, by that I mean corporate after-hours events, played a role and it was very much "work hard, play hard." But that can be moderated.

Tightening up on what can be attended and supported by the military should be examined. But there needs to be a more pragmatic approach than just a blanket ban on all attendance. That, in business terms, reminds me of the oft-cited case where an organization that is going through a difficult period starts its cash-saving drive by cutting the advertising budget. Not smart, and almost always counter-productive!

Editor's Note: As this issue went to press, the Association of the U.S. Army (AUSA) announced that its 2014 Winter Symposium will be held at Redstone Arsenal in Hunstville, Ala.

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