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Editor's Notebook

Partnerships May Hold Key to the Future

aparker@accessintel.com

By Andrew Parker

With the U.S. government "fiscal cliff" averted in early January but debt ceiling talks and spending cuts still up in the air as of this writing, uncertainty remains about how much money will be available for future U.S. military needs, including its helicopter fleet. The commercial sector has a few bright spots but with the global economy still in flux, companies are looking for ways to combine resources and leverage common goals to meet the needs of helicopter operators.

Of course this concept of teaming isn't new, and while there are many examples of successful partnerships and joint ventures during 2012 and before, I'd like to focus on two announcements made in January where aircraft OEMs are pooling their resources to address the needs of emerging markets, both in commercial and military acquisition circles.

The long-term teaming agreement between Sikorsky and Boeing (see story on page 14) to develop a Phase 1 Joint Multi-Role demonstrator—which is the precursor to Future Vertical Lift, or FVL—for the U.S. Army Aviation Applied Technology Directorate is a recent example of collaboration in the military arena. While officials from both companies didn't offer many details during a January 17 conference call with reporters, they did indicate a desire for speed as part of the equation, which could point to Sikorsky's S-97 Raider (the offshoot of the X2 technology demonstrator) being involved in some way, or perhaps technology from Boeing's AH-64 Apache E variant could play a role.

More details will emerge in March, when the companies plan to submit a joint proposal to the U.S. Army. Phase 2 of the JMR program is scheduled for 2015 and the Sikorsky/Boeing team will produce "one or more" technology demonstrators by 2017.

The JMR agreement isn't the first time that Boeing and Sikorsky have worked together—the two collaborated on the RAH-66 Comanche, building two prototypes from 1996 to 2004 before the program was scrapped due to cost overruns. Will the advances achieved in the Comanche's design be incorporated into Boeing/Sikorsky's latest offering? Time will tell.

In mid-January, AgustaWestland announced an agreement to establish a joint venture with South American airline giant Embraer. The announcement comes roughly a month after another AgustaWestland joint venture—HeliVert, which is a partnership with Russian Helicopters—flew a Russian-produced AW139 for the first time (see story on page 20).

The memorandum of understanding with Embraer opens up the possibility of manufacturing AgustaWestland helicopters in Brazil for both commercial and military uses throughout Latin America.

AgustaWestland CEO Bruno Spagnolini noted the importance of "having an industrial presence" in a fast-growing helicopter market such as Brazil as central to creating the joint venture with Embraer.

The two companies have conducted preliminary studies that indicate a strong demand for twin-engine, medium lift rotorcraft, specifically in the offshore oil and gas sector. Other potential growth areas in South America include military and executive transport. AgustaWestland and Embraer will launch the joint venture "within a few months" after finalizing the agreement and obtaining regulatory approvals.

These are just a pair of very recent examples—like other industries, joint ventures, mergers, takeovers, buyouts and acquisitions have always been around, and at any moment the possibility exists that longtime rivals could become "friends" that combine resources for a shared objective. Of course there are also the partnerships that OEMs establish with component and systems providers, such as engine makers, avionics suppliers and completions specialists. But will this trend of multiple primes working together continue?

At the AHS Forum in May 2012, a panel of helicopter industry leaders predicted that teaming would hold the key to the future of the industry (see "*Innovation, Collaboration Essential to Future Success*," June 2012, page 32). "We've partnered with almost everybody here at the table over time," observed Bell Helicopter President & CEO John Garrison, "so I think the industry's going to grow, the opportunity is there, and you're going to see new entrants before you see fewer competitors. What happens in 2030? I can't speak to that, but we think the industry's profitable and worth investing in." Eurocopter CEO Lutz Bertling remarked that finding new markets means not only finding new operators, but also discovering new uses. "There is room for growth, but there will be new entrants. There will not only be six, there will be eight or nine, some of us might disappear, and those who will disappear are those who are not leading innovation."

With a number of unknowns still prevalent in the worldwide economy and U.S. defense budget, the road ahead appears—now more than ever—to be paved with cooperation. Let's hope that the major players in the helicopter industry can find ways to work together better than the politicians in Washington, D.C.

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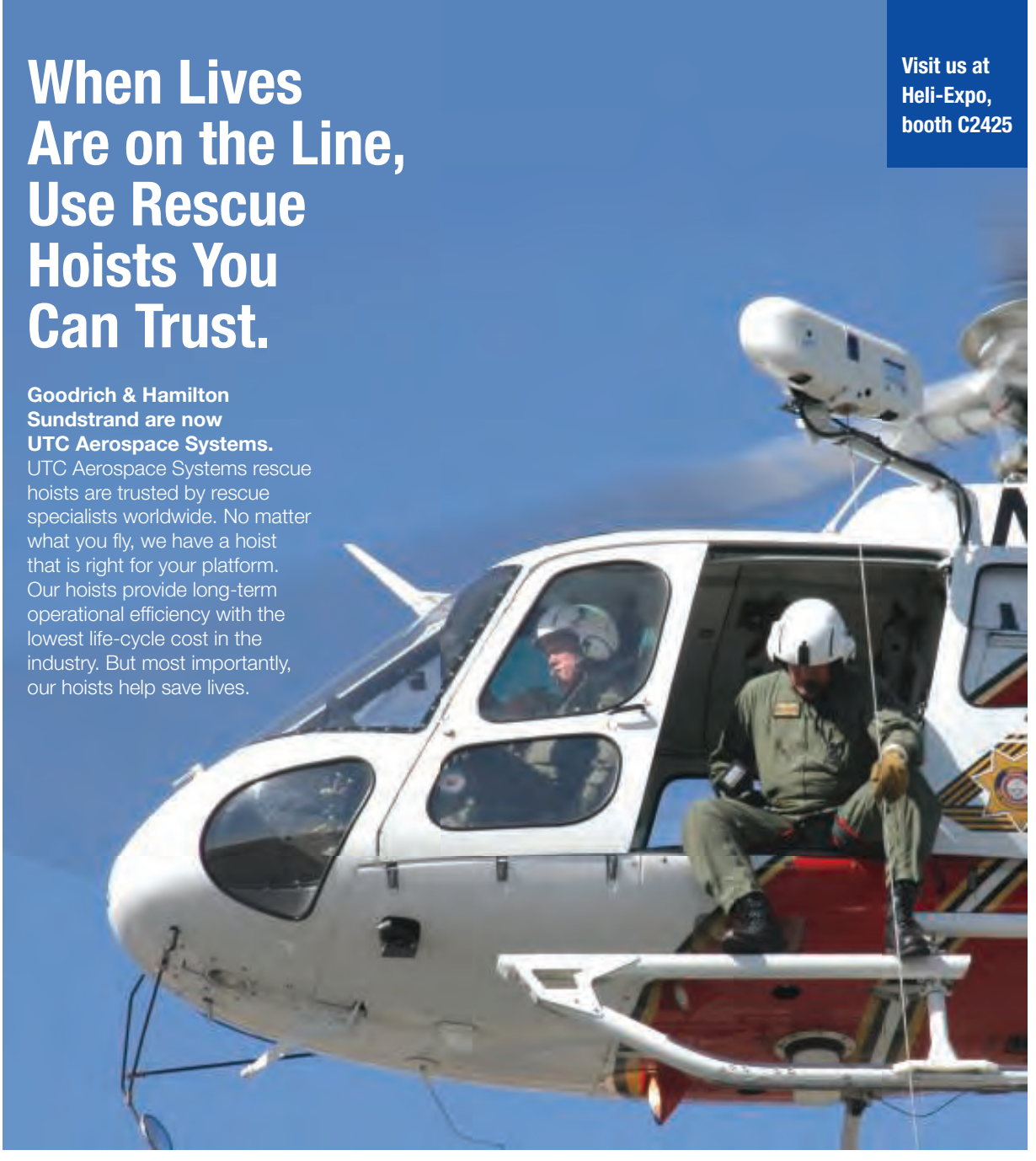

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(Above) Bell 525 Relentless cabin. Photo by Pat Gray. (Bottom) Elbit Systems of America (ESA) large display. (Right) Eurocopter sling load system in operation as part of a power line utility project.

FEATURES

On the Cover: AgustaWestland AW189 prototype during a demonstration flight on December 6 at Arlington Municipal Airport in Texas. *Photo courtesy of AgustaWestland.*

DEPARTMENTS

COLUMNS

Vol. 47 | *No. 2*
February 2013

40

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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 FEBRUARY 1:

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

WEEK OF FEBRUARY 19:

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

WEEK OF FEBRUARY 25:

- 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

Fair and Balanced?

I am extremely concerned with *Rotor & Wing*'s December 2012 "Military Insider" column by Andrew Drwiega regarding the U.S. Army's Armed Aerial Scout (AAS) program which was surprisingly one-sided, laden with inaccuracies, and failed to reflect *Rotor & Wing*'s high standards of accuracy and journalistic integrity. In fact, the entire piece was predicated on the observations of a person identified as a paid "advisor" to one of the companies pursuing the next generation AAS.

Readers who expect fair and balanced reporting will appreciate the facts: the incumbent Kiowa Warrior has served the Army for decades and, in doing so, has earned an impressive reputation and a loyal following. The most requested Close Air Support platform in Army Aviation, the Kiowa Warrior has logged more than 800,000 combat hours, and achieved the highest OPTEMPO, readiness and mission-capable rates of any Army aircraft operating in Iraq or Afghanistan. Importantly, the Kiowa Warrior is well-integrated into Army supply chains, training programs, and personnel systems.

Readers of the Military Insider column might never know that in October 2012, *Rotor & Wing* reported that the upgraded OH-58F Kiowa Warrior has "a more powerful engine with an enhanced tail rotor designed to meet hot and high requirements at 6,000 feet and 95 degrees," and that the OH-58 Block II aircraft "will cost less than upgrading to another design, and will integrate into the Army's existing supply chains to save additional money for spares inventory, as well as with training and personnel."

In fact, the block upgrade strategy for the OH-58—which has successfully demonstrated 6K/95 performance—is estimated to be some $10 billion less expensive than other options currently under consideration. The Army conducted the Voluntary Flight Demonstration and supporting data collection to make an informed decision based on facts and proven performance. *Rotor & Wing* has failed—in this case—to support a fair and balanced discussion of the alternatives.

Robert Hastings, Senior Vice President

Communications & Government Affairs

Bell Helicopter

R&W's Question of the Month

What are your organization's expectations for Heli-Expo 2013 in Las Vegas?

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

Matter of Opinion

In answer the letter from Mr. Hastings, there are a number of issues to address. Firstly, Military Insider is a personal commentary column designed to present points of view and opinions in a way that regular features do not. As is pointed out in the letter, *Rotor & Wing* has on previous occasions praised the contribution that OH-58 has made to the U.S. military during its long and valuable service life.

Although the article was said to be "laden with inaccuracies," no specific examples are mentioned.

With reference to coverage of Bell Helicopter's involvement in the U.S. Army's Voluntary Flight Demonstration exercise, Bell's participation was included in a feature written by another author in the same issue (Army Completes VFD Phase of AAS Program, pages 22 to 25).

Finally, I see no distinction between including the comments of a "paid" advisor to EADS North America, against statements made daily by those marketing directors and the like for Bell Helicopter, EADS North America or any other OEM (all paid representatives).

The reason that his comments were so valid was because as a 28-year Army veteran who has flown the OH-58D, been a Chief of Staff and commanded an Aviation Brigade in combat, he was ideally placed to offer an opinion on this important subject.

His affiliation was clearly stated in the article so that readers could put his personal comments into context, something that the professional readership of *Rotor & Wing* is able to do as a matter of course.

Andrew Drwiega

Military Insider columnist

Rotor & Wing

Corrections

In the December 2012 Training News section on page 42, retired Lt. Glenn Daley was identified as a current member of NYPD. In addition, remarks about a water impulse cannon were incorrectly attributed to Daley.

The last name of Elbit Systems of America CEO Raanan Horowitz was misspelled in the "Coming Up" section on the January issue on page 53.

A subcategory in Military Insider on page 50 of the December 2012 issue that was mistakenly labeled "R&D" should have read "Airframes."

We sincerely regret the errors.

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, Military Editor, is a senior defense journalist with a particular focus on international military rotorcraft. He has reported on attachment from Iraq three times (the latest of which was with a U.S. Marine Corps MV-22 squadron), and three times with British forces in Afghanistan (Kandahar and Camp Bastion), as well as from numerous exercises. He has flown in a wide variety of rotorcraft including the MV-22B Osprey, AH-64D Apache, Rooivalk and many others.

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, began flying in the 1980s, earning his commercial pilot's license and starting an aerial photography company as a sideline. In his regular job as a county police officer, he was transferred to the department's newly established aviation unit, where he served as the sergeant in charge and chief pilot until his retirement in 2006. In addition to regular contributions in the pages of *Rotor & Wing*, Ernie (aka "Werewolf") has written for Access Intelligence sister publication *Avionics Magazine*, **www.aviationtoday.com/av**

TERRY TERRELL gained his early aviation experience as a U.S. Navy fixed-wing instructor and U.S. Coast Guard aircraft commander, where his service included SAR in Sikorsky S-61s. Terry served as a cross-qualified captain and safety special projects officer with Houston's Transco Energy, and later with Atlanta's Kennestone AVSTAT Helicopter Ambulance Program and Georgia Baptist LifeFlight.

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PRODUCTS | AIRFRAMES

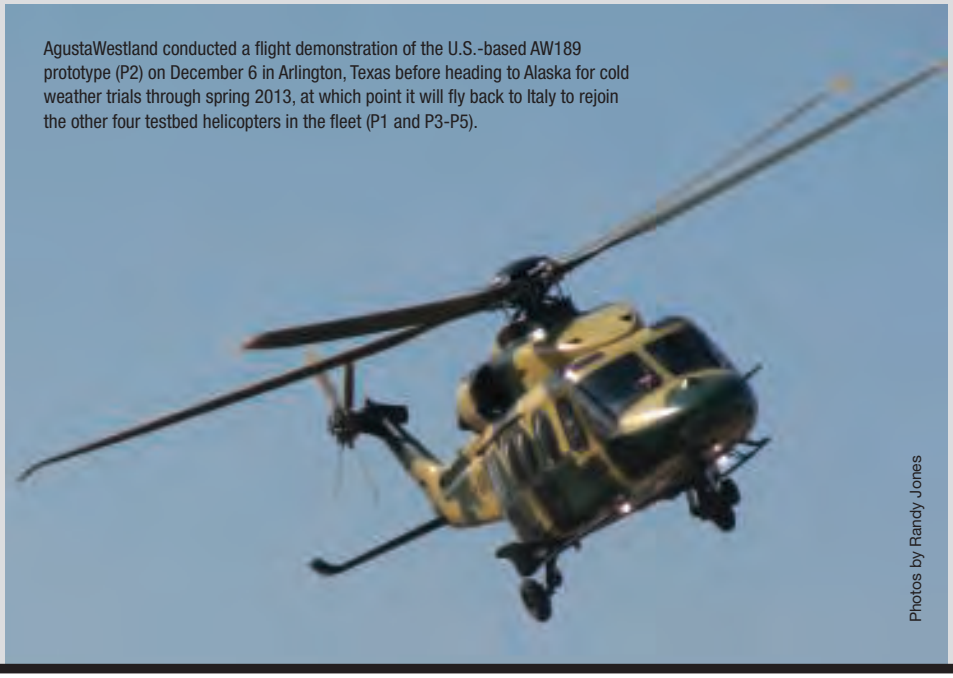
AW189 Prototype Heads to Alaska After Texas Demo as Part of U.S. Stops During Global Flight Test Campaign

AgustaWestland is in the midst U.S. flight tests of the AW189 that will continue through spring 2013. The testbed—one of five AW189 prototypes—made stops in Arizona and Texas before flying to Alaska for cold weather trials as part of a nine-month effort. The manufacturer provided an aerial demonstration of the AW189 on December 6 at its facility at Arlington Municipal Airport (GKY), as well as an update on the AW609, formerly the BA609 before AgustaWestland purchased Bell Helicopter's share in the tiltrotor design in November 2011.

According to AgustaWestland, one of the five AW189 prototypes began the U.S. trials in July 2012, conducting performance checks, hot and high testing, and cold weather operations. Other tests include handling qualities, hover performance and Cat A/B takeoff and landing. The manufacturer has carried out more than 160 flight hours in the U.S. through December 2012. The five prototypes have amassed a total of more than 800 flight hours, with certification expected in second quarter 2013.

Mike Bucari, market analyst based at AgustaWestland's Philadelphia location, explained that prototypes P1, P3 and P5 are based in Italy, while P2 is being used in the U.S. and P4 is located in the UK. He noted the "significant investment" that AgustaWestland is making with five prototypes, launching the AW189 in June 2011 as part of a family of helicopters—the relatives being the AW139 and AW169—with common avionics, internal and external structure, maintenance and components/parts, among other shared resources.

"The reason I say there's a common aspect among the three is the way the aircraft is laid out, the way the avionics are laid out, the displays on the MFD and the PFD—they're going to be pretty much the same. So that it's an easy of transition in a



AgustaWestland conducted a flight demonstration of the U.S.-based AW189 prototype (P2) on December 6 in Arlington, Texas before heading to Alaska for cold weather trials through spring 2013, at which point it will fly back to Italy to rejoin the other four testbed helicopters in the fleet (P1 and P3-P5).

Photos by Randy Jones

AW189 fly-by.

multi-ship fleet for a pilot to go from one aircraft to another," Bucari said. He also mentioned a proprietary software design.

"No longer are we on the heels of a Honeywell or a Chelton for any software updates that need to be done," he said. "Now we have full control of the process, now we have the capability of doing that all in-house. It really allows a large amount of flexibility."

Bucari went on to explain the "family approach" to the design of the AW139, AW169 and AW189, saying "they're kind of like brothers of one another—not derivatives of one another, but brothers. They share a common family background—they look the same, fly the same, talk the same, but they're a completely different aircraft."

Richard Luck, head of AW609 marketing, explained that AgustaWestland has increased the flying frequency of the test program over the past 11 months, compiling more than 750 hours, or around 10 percent of the total program. AgustaWestland became the sole owner of the BA609 in November 2011, with the type certificate transferred over in February 2012. FAA certification for the AW609 is projected in 2016.

AW189 P2 testbed on the tarmac at Arlington Municipal Airport (GKY) during a Dec. 6 demo flight.

Recent program advancements include hiring more staff on a 250-person integrated development team; completion of test facilities in Arlington, Texas and Cascina Costa, Italy; and opening a flight simulator facility in Arlington and a software integration center in Cascina Costa. AgustaWestland has also sent product specifications to suppliers of major AW609 systems, such as BAE, Pratt & Whitney and Rockwell Collins.

AW189 prototype P4, which is based in the UK. *Photo courtesy of AgustaWestland*

Center panel on the AW189 P2 prototype.

MILITARY | TECHNOLOGY

Sikorsky, Boeing Partner Again on JMR/Future Vertical Lift

Sikorsky and Boeing will once again team over a military rotorcraft project, this time the venture is the U.S. Army Aviation Applied Technology Directorate's (AATD) requirement for a Joint Multi-Role (JMR) technology demonstrator (TD), the forerunner to the Future Vertical Lift (FVL) requirement in the 2030s.

Signed on January 13, the agreement means that the companies will submit a joint proposal to the AATD for the JMR TD Phase 1. A contract would follow in autumn for a platform demonstrator that would be used to evaluate next generation technology.

There has been no statement whether the JMR would be based on any current helicopter manufactured by either Sikorsky or Boeing, although a Boeing representative said the expectation was that further details regarding the project would be revealed before the March 2013 deadline.

Phase 2 would begin in 2015 and that would take the project forward through the inclusion of the mission equipment package. Should the Sikorsky Boeing team then be successful, the hope is that they would then be jointly responsible for the production of the FVL (medium) aircraft, which would replace the current Sikorsky Black Hawk and Boeing Apache fleets within Army Aviation (around 4,000 helicopters).

The two rotorcraft primes have teamed before, most notably on the ill-fated RAH-66 Comanche. Two RAH-66 prototypes were built and conducted flight testing from 1996 to 2004. Widely acknowledged as having made important steps forward during its development, despite the aircraft's eventual cancellation due to considerable cost overruns, it is feasible that both companies feel that aspects of their previous joint development project could be useful to the JMR. Both Sikorsky with its S-97 Raider development based on the X2 and Boeing with its advanced Apache E have cutting-edge technologies to bring to the party. This makes teaming in this economically challenging environment a logical step for both companies.

Chris Chadwick's released statement on the announcement alluded to the shared history: "Our teaming agreement is the continuation of a long-standing relationship between Boeing and Sikorsky and reflects a common vision for the future of Army aviation." He continued: "Our combined technical strengths and our collective program management expertise make this partnership an exciting development in meeting the Army's JMR program objectives."

Finally, the statement hinted that there could be more than one demonstrator aircraft developed for the 2017 deadline. *—By Andrew Drwiega, Military Editor*

PRODUCTS | AIRFRAMES

Brazil's Atlas Purchases First Russian Ka-62 Exports

Credit: Russian Helicopters

Graphic illustration of the Ka-62 in Atlas livery.

Brazilian company Atlas Táxi Aéreo has ordered seven Russian-made multirole Ka-62 helicopters (with an option for a further seven). The contract was discussed and agreed when Brazilian President Dilma Rousseff visited Russia and met President Vladimir Putin in early December. This is the first export order for the new Ka-62.

The order will be spread over 12 months beginning in first quarter 2015 when the first two will be delivered. Two more are scheduled for handover before the end of the year with the final helicopter arriving in Brazil by the end of first quarter 2016.

The Ka-62 is one of the latest helicopters to come out of Russian Helicopters' design agency. Testing should begin in 2013 with international certification expected by the time the first aircraft arrives in Brazil. According to Russian Helicopters, the deal includes the establishment of a local service center in Brazil. Atlas Táxi Aéreo currently operates five Sikorsky S-76As, as well as two Mi-171A1s. The Russian Navy has also declared an interest in the Kamov Ka-62 and is said to be preparing a maritime version of the helicopter. *—By Andrew Drwiega*

MILITARY | PROCUREMENT

Bell-Boeing Wins $1.4 Billion USMC/Air Force V-22 Contract

Bell-Boeing's Joint Project Office has obtained a $1.4-billion contract extension to supply 17 MV-22 tiltrotors to the U.S. Marine Corps and four CV-22s to the U.S. Air Force.

The agreement is an expansion of an existing V-22 Lot 17 contract. The deal also provides funding to purchase components related to the manufacture of 19 Lot 18 MV-22s and three CV-22s in fiscal year 2014.

Around 40 percent of the work is scheduled to take place at locations in Texas (Fort Worth, Amarillo and Dallas), while 19 percent will occur in Ridley Park, Pa. and the rest at dozens of sites around the United States. Completion is targeted for September 2016.

Bell-Boeing has also received a separate $33.6-million contract involving engineering and technical support for the V-22's flight control system.

The agreement covers avionics software, flight test planning, upgraded flight controls and integration testing. Bell-Boeing will conduct most of the work in Philadelphia (around 90 percent), with the remainder in Fort Worth. Estimated completion is scheduled for December 2013.

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Michael Young
Former Senior Captain
Eastman Kodak
Aviation Services

Scott Fera, Senior Vice President, Marketing
FlightSafety International

Dear Mr. Fera,

I have been employed by Eastman Kodak Company in Rochester, New York, for the past 13 years. As you are undoubtedly aware, Kodak filed for bankruptcy on January 19, 2012. On that morning, all members of our 65-year-old flight department were called into the hangar and told we were closing, effective immediately. Though not entirely unexpected, it was nevertheless a shock for us all to learn our home of many years (we had all been there more than ten) would no longer be there.

The closure came less than a week prior to my next scheduled Global Express recurrent training in Wilmington. Prior to the fateful day, I had prayed I would at least secure one more recurrent, in order to retain the credentials needed to stay afloat doing contract work until I landed another permanent job. However, that was not to be, and I'd been forced to come to terms with the fact my 61.58 Global currency would expire at the end of April.

So, imagine the elation my wife and I experienced a few weeks ago as we sat drinking coffee, staring at each other, wondering what to do next, when I received an email notification that FlightSafety was reinstituting its phenomenally generous Proficiency Protection Plan. A friend and long-time co-worker benefitted from the program in 2009 after being downsized, but that was immediately following the onslaught of the financial crisis of 2008.

I hadn't even imagined it would be available to me at this time. What a gift! Having trained at FlightSafety for nearly 30 years, I've always considered it the pinnacle of flight training. The leader. The team of professionals I've dealt with over the years, primarily in Wilmington, has made each training experience a true pleasure. They welcome me on the first day, greeting me by name. Throughout the week everyone there, up to and including the cleaning staff and the gentlemen who take care of the coffee area upstairs, treat me and my buddies like we truly matter. It's a culture of customer service based on competence and cordiality. So honestly, though this is one of the most generous gifts I've ever received, it comes as little surprise based on FlightSafety's history of benevolence within the aviation industry.

All that said, I'd just like to say thank you, from the bottom of my heart, to all involved in presenting the overwhelming gift of a complimentary recurrent training session. It will help us immensely in seeing our way through this unfortunate turn of events, enabling me to remain marketable and employable as we plan for the future. Due to FlightSafety's overwhelming generosity and loyalty, I am in turn a loyal customer, promoter and friend for life. Thanks again!

Sincerely,
Mike Young
(Michael D. Young, former Sr. Captain, Eastman Kodak Aviation Services)

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SERVICES | HUMS

U.S. Coast Guard MH-60T Fleet Receives Honeywell HUMS

The U.S. Coast Guard (USCG) has awarded a $4.8-million contract to Honeywell for the installation of the company's Zing health and usage monitoring system (HUMS) across the USCG's fleet of MH-60T helicopters.

The USCG order is for 42 Zing HUMS 1230 aircraft kits and 24 ground support kits. Data collected from sensors located around the aircraft is downloaded into a ground station, which shows the status of a range of components. Data is collected, processed and interpreted from systems including the engines, gearboxes and other dynamic components.

USCG will benefit from this type of HUMS in that it should cut mission aborts due to system malfunctions. HUMS systems are also designed to decrease the requirement for non-essential maintenance due to their monitoring capability. In some cases, HUMS can prevent damage through over maintenance. By monitoring vibration and presenting it through actionable data, faults should be able to be rectified prior to actually failing.

The U.S. Army also uses Honeywell's HUMS technology in Apache, Kiowa Warrior and Chinook D model helicopters, as well as in Special Operations Command (SOCOM) rotorcraft. It completed installations of the 160th Special Operations Aviation Regiments MH-47Gs in April and is now working to install the system over the MH-60M fleet.

For more HUMS and avionics news, visit our sister publication, *Avionics Magazine*: **www.avionicstoday.com**

COMMERCIAL | TOURISM

Eurocopter Hands Over First EC135P2+ to Beijing Capital

Corporate-configured Beijing Capital Helicopter's EC135P2+.

Eurocopter

Hainan Airlines Group affiliate Beijing Capital Helicopter took delivery of its first VIP-configured Eurocopter EC135P2+ on January 15. The company will use the helicopter for passenger transport, tourism and EMS operations, including aerial tours during the upcoming Lunar New Year holidays. The new EC135 adds to Beijing Helicopter's current fleet of five AS350B3 Squirrels.

MILITARY | AIRFRAMES

UK Extends Sea King SKIOS to 2016

Royal Air Force Sea King Mk.3.

AgustaWestland

The United Kingdom's Ministry of Defence (MoD) has approved a £258-million contract to extend the Sea King Integrated Operational Support (SKIOS) program to the expected end of service of the helicopter type in 2016.

The SKIOS extension has been necessary following the need to rebid the search and rescues-helicopter (SAR-H) project. The military were initially due to end their provision of SAR coverage by 2012 when the Soteria Consortium (comprising CHC Helicopters, Thales UK and the Royal Bank of Scotland), who had won the original Private Financial Initiative (PFI) contract, were due to take over. However, the contract was scrapped in early 2011 following the discovery of irregularities concerning the bid.

There are still around 90 Sea Kings still in service between the Royal Air Force (HAR3/3A) and Royal Navy (Mk4), most notably as SAR aircraft covering the UK and the Falkland Islands. There are also a small number of RN Sea King Mk7s that provide airborne surveillance and control, more recently operating in Afghanistan. Other RN Sea King's are operated by the Commando Helicopter Force and these are due to be replaced by the RAF Merlin AW101 helicopters in the near future.

Roayl Navy Sea King Mk.4.

AgustaWestland

Vector Aerospace will continue to provide maintenance, repair and overhaul (MRO) support to the Sea King fleet under the direction of the prime contractor, AgustaWestland. *—By Andrew Drwiega, Military Editor*

PUBLIC SERVICE | EMS

Air Methods Buys 20 Bell 407GXs, 22 Eurocopter Variants

Bell Helicopter has secured an order from HEMS provider Air Methods for 20 407GX helicopters, which feature Garmin's G1000H avionics. Under the agreement, Air Methods division United Rotorcraft will equip the helicopters with an EMS interior—including an articulating loading system—and other medical systems like oxygen, suction air and electrical power. Bell's partnership with Air Methods dates back to 1980 with the Bell 206.

The HEMS provider has also purchased 22 helicopters from American Eurocopter, 10 of which are the upgraded "T2" version of the EC130 that was uncovered at Heli-Expo in February 2012. The order, which also includes six copies each of the AS350B3e and EC135P2e, is valued at more than $80 million. Englewood, Colo.-based Air Methods operates a fleet of more than 330 Eurocopter variants, which make up around 80 percent of its fleet.

United Rotorcraft will also handle the completions, with American Eurocopter scheduled to start deliveries to the air medical provider in mid-2014, running through 2015.

PRODUCTS | ENGINES

Turbomeca Arriel 2E Receives EASA Certification

EASA has certified the Turbomeca Arriel 2E engine, which is scheduled for entry into service at the end of 2013 on the Eurocopter EC145T2. The Arriel 2E has a takeoff power of 950 shp, and is controlled by a dual-channel FADEC, and a new engine data recorder. According to Turbomeca, the engine also features a higher time between overhaul (TBO), with up to 4,000 hours at entry into service.

SERVICES | CERTIFICATION

EASA Approves Cobham HeliSAS

Cobham Commercial Systems has obtained an EASA supplemental type certificate (STC) for its HeliSAS stability augmentation system and autopilot. The approval grants installation of HeliSAS on the Eurocopter AS350B, B1-3, BA and EC130B4 variants in European Union nations.

Cobham's Wulfsberg Electronics unit has received a contract to supply its digital audio control system (DACS) for the AgustaWestland AW119Kx. The audio system will be installed on 15 helicopters that will enter service during 2013 with Life Flight Network in Aurora, Ore.

PEOPLE

Hong Kong, China-based Metrojet has appointed **Tan Siah-Joo** as director of its Commercial division. He joined the company in June 2011 as director of corporate development, after working a number of years at Singapore Airlines Group subsidiaries, including SilkAir and SIA Engineering Company.

Jim Kettles has joined YES Communications as vice president and part owner. He brings more than 30 years of helicopter industry experience to the Dallas, Texas-based media and event planning company. Kettle has flown various commercial and military aircraft in the U.S. and Canada, including in the offshore, EMS, corporate, law enforcement, utility and electronic newsgathering (ENG) sectors.

Thales Group's board of directors has elected **Jean-Bernard Levy** as chairman and CEO. He replaces **Luc Vigneron**, who resigned in December. Levy was previously chairman of the management board at Vivendi, and his background also includes serving as chairman and CEO of Matra Communication, and CEO and managing partner of Offo et Cie.

Jim Christiansen is the new vice president of international business development for FlightSafety International. He comes from Hawker Beechcraft, where he was vice president of sales for business jets in the eastern U.S. Christiansen also previously worked for NetJets.

Garmin's board of directors has appointed **Clifton Pemble** to take over as president and CEO from one of the company's co-founders, Dr. **Min Kao**. Pemble began working for Garmin in 1989 as an engineer, most recent serving as president and chief operating officer. Pemble has served on the board of directors of Garmin since August 2004.

King Aerospace Commercial Corp. has hired **Tony Bailey** as CEO, responsible for directing all of the operations for the modification, completions and maintenance provider. He comes from Comlux, where he served as CEO. Bailey, whose previous experience also includes director of maintenance at Pentastar Aviation, will be based at King Aerospace's modification facility in Ardmore, Okla.

coming events

March 4–7: HAI Heli-Expo 2013, Las Vegas, Nev. Contact HAI, 1-703-683-4646 or visit www.rotor.com

March 12-14: ATC Global, Amsterdam RAI Center, Amsterdam, Netherlands. Visit www.atcglobalhub.com

March 18–20: 9th Annual CHC Safety & Safety Summit, Vancouver, Canada. Contact CHC, phone 1-604-232-7424 or visit www.chcsafetyqualitysummit.com

March 25–28: 56th Annual AEA International Convention & Trade Show, Las Vegas, Nev. Contact Aircraft Electronics Assoc., phone 1-816-347-8400 or visit www.aea.net

April 8-10: Navy Lead Sea-Air-Space Exposition, Gaylord National Resort & Convention Center, National Harbor, Md. Visit www.seaairspace.org

April 9-11: Aircraft Interiors Expo, Hamburg Messe, Hamburg, Germany. Visit www.aircraftinteriorsexpo.com

April 10–14: Quad-A Annual Convention, Fort Worth, Texas. Contact Quad-A, phone 1-203-268-2450 or visit www.quad-a.org

April 16–18: Asian Business Aviation Conference & Exhibition (ABACE 2013), Shanghai, China. Contact NBAA, phone 1-202-783-9000 or visit www.abace.aero

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

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

Oct. 22-24: NBAA Annual Meeting & Convention, Las Vegas Convention Center, Las Vegas. Visit www.nbaa.org

Nov. 17-21: Dubai Airshow, Dubai World Central, Dubai. Visit www.dubaiairshow.aero.

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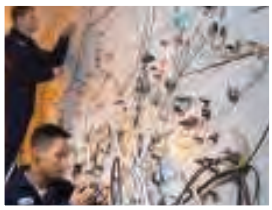


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SERVICES | FLIGHT TESTING

HeliVert-Built AW139 Takes Flight in Russia

Initial HeliVert-produced AW139.

Russian Helicopters and Agusta-Westland joint venture, HeliVert, has conducted the initial flight of the first Russian-produced AW139. The test flight, which included with the helicopter's maiden liftoff and controlled hover, took place on December 19 at the HeliVert assembly plant in Tomilino near Moscow, lasting 37 minutes. HeliVert plans to introduce a second AW139 into the flight test program in February.

COMMERCIAL | ACQUISITIONS

Chinese Investment Firm Acquires Enstrom Helicopter

Enstrom Helicopter is under new ownership as Chongqing Helicopter Investment Co. (CQHIC) has purchased the Menominee, Mich.-based company. According to Enstrom President Jerry Mullins, the acquisition will allow Enstrom to expand in China and Asia while increasing production rates at the facility in Menominee through an investment from CQHIC. The manufacturer reports a 50 percent uptick in hiring over the past 18 months.

PRODUCTS | AIRFRAMES

Russian Helicopters Plans Indian Assembly Complex

UIC Oboronprom subsidiary Russian Helicopters has agreed to establish an assembly plant in New Delhi with Elcom Systems Private Ltd., which is part of India's SUN Group. The facility will produce Kamov Ka- and Mil Mi- series variants, starting with the Ka-226T. The agreement, which was announced during Russian President Vladimir Putin's visit to India in late December, includes a framework to research advanced concepts, according to Russian Helicopters CEO Dmitry Petrov. It also includes a provision develop a joint Helicopter Academy for technical and flight training with Elcom Systems.

Russian Helicopters has secured a separate contract for additional Mi-17V-5 helicopters from the Indian Ministry of Defence. The agreement is an expansion of a 2008 deal with Rosoboronexport, with delivery expected in 2015. The Mi-17V-5s are intended for the Indian Air Force.

TRAINING | MAINTENANCE

Elbit Maintains IAF Bell 206, Cobra Trainers

The Israel Ministry of Defense has issued two contract extensions to Elbit Systems involving the operation and maintenance of the Israel Air Force (IAF) Flight Academy's fleet of Bell 206s, AH-1A Cobras and fixed-wing Hawker Beechcraft T-6s. The contracts were included in a December agreement with the MoD valued at around $315 million.

Under a contract that dates back to 2004, Elbit supplies power-by-the-hour (PBH) logistics and maintenance support for the Bell 206s and Cobras. A second agreement, first signed in 2009, covers maintenance for the T-6 trainers. Both contracts will start in 2014 when the current arrangement expires.

IAF Flight Academy training fleet.

Photo courtesy of Elbit Systems

MILITARY | SPECIAL OPS

Additional Funds Found for Special Ops MH-47G

Boeing has obtained a $34-million cost plus fixed fee contract for an MH-47G special operations variant Chinook from the U.S. Army. Delivery is expected by Oct. 31, 2015. This is the first of eight scheduled for handover to the U.S. Army through 2017.

The first MH-47G was deployed in 2007 and the final airframe of the 61 remanufactured MH-47Gs was delivered to the Army in March 2011. However, the 2010 Quadrennial Defense Review saw the initiation of a new program to increase the total number of MH-47Gs for use by the U.S. SOCOM from 61 to 69 aircraft. In 2011 a new-start program was initiated to add an extra eight MH-47Gs into the SOCOM fleet. The MH-47G Plus 8 program will incorporate SOF modifications but is similarly constructed along the lines of the CH-47F with a monolithic frame. In July 2012, the Pentagon's latest Quadrennial Roles and Missions Review (QRMR) was submitted to the Senate and House Armed Services committees. It was expected to support the expansion of the MH-47G fleet as part of investment to meet the stated policy objectives for the FY13-FY17 period, namely: "countering terrorism; deterring and defeating aggression; maintaining a safe, secure nuclear deterrent; defending the homeland and supporting civil authorities."

SERVICES | CERTIFICATION

Australia Certifies Civil Ka-32A11BC

Ka-32A11BC.

Australia is the latest country to give the increasingly popular Kamov Ka-32A11BC a certificate of airworthiness, making it the first Russian-made helicopter to achieve such approval. Civilian operators can now use it in a variety of roles including search and rescue (SAR), firefighting and for industrial work requiring sling-loads. The Ka-32A11BC is the latest civil variant of the old Ka-27 (Helix), which was originally produced for the Russian Navy and is still in service with military forces around the world including China, Vietnam, Taiwan and India.

The Ka-32A11BC is the version certified by Canada (1998) and Europe and has Klimov TV3-117MA engines. According to Russian Helicopters, the aircraft received certification in China, Indonesia and South Korea in 2008 and a year later was granted its European airworthiness certificate from the European Aviation Safety Agency (EASA). Two years later it was also certified in India and Brazil.

The helicopter is now being used for a variety of tasks in different nations: hauling cargo sling loads for Brazilian operator Helipark Taxi Aero as well as Heliswiss in Switzerland; SAR in Kazakhstan; and SAR and firefighting in Spain. In August 2012, the Russian Emergencies Ministry (EMERCOM) received the last of five aircraft that can be outfitted for SAR, firefighting and medical missions. A spokesman says the variant has been successfully deployed in Russia, Canada, Spain, Portugal, Switzerland, China, Austria, South Korea, Indonesia and Japan.

The Australian helicopter market could hold good prospects for Russian Helicopters, as the constant need for multi-functional and reliable specialized helicopters is acutely felt in this country. The Ka-32A11BC is the first Russian-made helicopter to receive airworthiness certification in Australia.

MILITARY | TECHNOLOGY

Telephonics Radar to Serve MQ-8B

Northrop Grumman Aerospace Systems has chosen the Telephonics Corp. AN/ZPY-4(V)1 surveillance radar as part of the U.S. Navy's Rapid Deployment Capability program for the MQ-8B Fire Scout vertical takeoff and landing tactical UAV. The radar is configured for intelligence, surveillance and reconnaissance (ISR) operations from both land and sea-based platforms.

PRODUCTS | AIRFRAMES

Riverside Chooses Becker Audio

Riverside County Sheriff's Department is planning to install Becker Avionics' DVCS6100 digital audio control system in four Eurocopter AS350s and a fixed-wing Cessna 182P that is used as a surveillance aircraft. The helicopters will receive avionics modifications to replace legacy systems with Becker's digital intercom. Riverside Sheriff's Department covers an area of more than 7,200 square miles in California.

HOT PRODUCTS

for Helicopter Operators

Aspen Avionics Evolution 1500H and NVG Modifications from Aero Dynamix

Aero Dynamix, Inc. is the industry leader and principle innovator of integrated Night Vision Imaging Systems (NVIS) solutions for commercial and military aircraft. ADI is a full line distributor and certified repair station for Aspen Avionics and offers internal NVG instrument modifications for Aspen products that do not compromise on the Aspen factory warranty. Featured here is the Evolution 1500H Package, which combines the powerful, award-winning Pro PFD 1000H with the versatile MFD 500H to deliver a full-featured, exceptionally easy-to-use glass panel. The Pro PFD 1000H provides professional-grade EFIS primary flight instruments, with a full-featured electronic HSI with moving map. The MFD 500H adds photo-quality moving maps, terrain awareness, geo-referenced charts and airport diagrams, and (with optional or existing sensors) traffic displays, WX500 Stormscope display, and the full suite of XM WX aviation weather products. Contact Aero Dynamix today at **sales@aerodynamics.com** for more information or to request a quote. Aero Dynamix has a wide array of optional equipment with the best prices and exceptional customer support for all your Night Vision requirements. Let Aero Dynamix be your one-stop-shop for night vision solutions. For more information visit **www.aerodynamix.com**

DAC International Offers DMA Aero MPS43 ADTS

DAC International is proud to showcase the DMA Aero MPS43 Air Data Test Set (ADTS). The MPS43 is a low cost, lightweight (8.8 lbs), portable, high accuracy fully automatic test set. This makes the unit perfect for helicopter operators utilizing today's newer avionics. The unit comes standard with a 30-minute backup battery and ADWIN PC control software so the operator is able to use and capture data on a laptop if desired. The MPS43 has ultra low speed (5 to 200 KNTS) for improved accuracy and stability. Options include a Gray Code Altitude Device read out and an external six-hour battery pack for off airport operation. For more information please contact DAC International at **dacinfo@dacint.com**, by phone at 1-512-331-5323 or on the web at **www.dacint.com**

HEATCON Designs Affordable Option for Aerospace Companies Struggling to Perform Costly Composite Repairs

While the repair of many composite structures may typically be performed using only hot bonders, the vacuum-generated pressure may not reach a sufficient level for more complex repairs, which could require 50 psi or higher. The patented, easy-to-use RepairClave provides aerospace facilities with the capability to perform these higher-pressure repairs at a much lower price than that of a traditional autoclave. With the absence of inert gases typically required for the pressure application process, the RepairClave provides a safer, more environmentally friendly alternative at a fraction of the cost. Heatcon's portable autoclave combines heat blanket technology with one pressure zone and multiple heater control zones to provide even air pressure and localized heat. Instead of heating the entire autoclave pressure vessel in order to achieve the temperature needed for curing a component, localized heat is applied by the same silicone rubber heat blankets used in the hot bonder repair. Only the actual repair area is heated, and since the volume of air inside the RepairClave does not reach cure temperatures, the use of an inert gas is not required. The RepairClave keeps things as simple as possible while still meeting required composite material curing specifications. In addition, some aerospace experts consider autoclaves to be overkill for most repair scenarios, but very appropriate for the RepairClave. HEATCON designed the RepairClave to be portable to appeal to aerospace firms with expanding operations, and to have added flexibility in shop floor layouts. RepairClaves are currently being used by helicopter manufacturers, universities, aerospace companies and others. Find out more at **www.heatcon.com**

BELL 525 PROGR
FOCUS ON RELENTLESS S

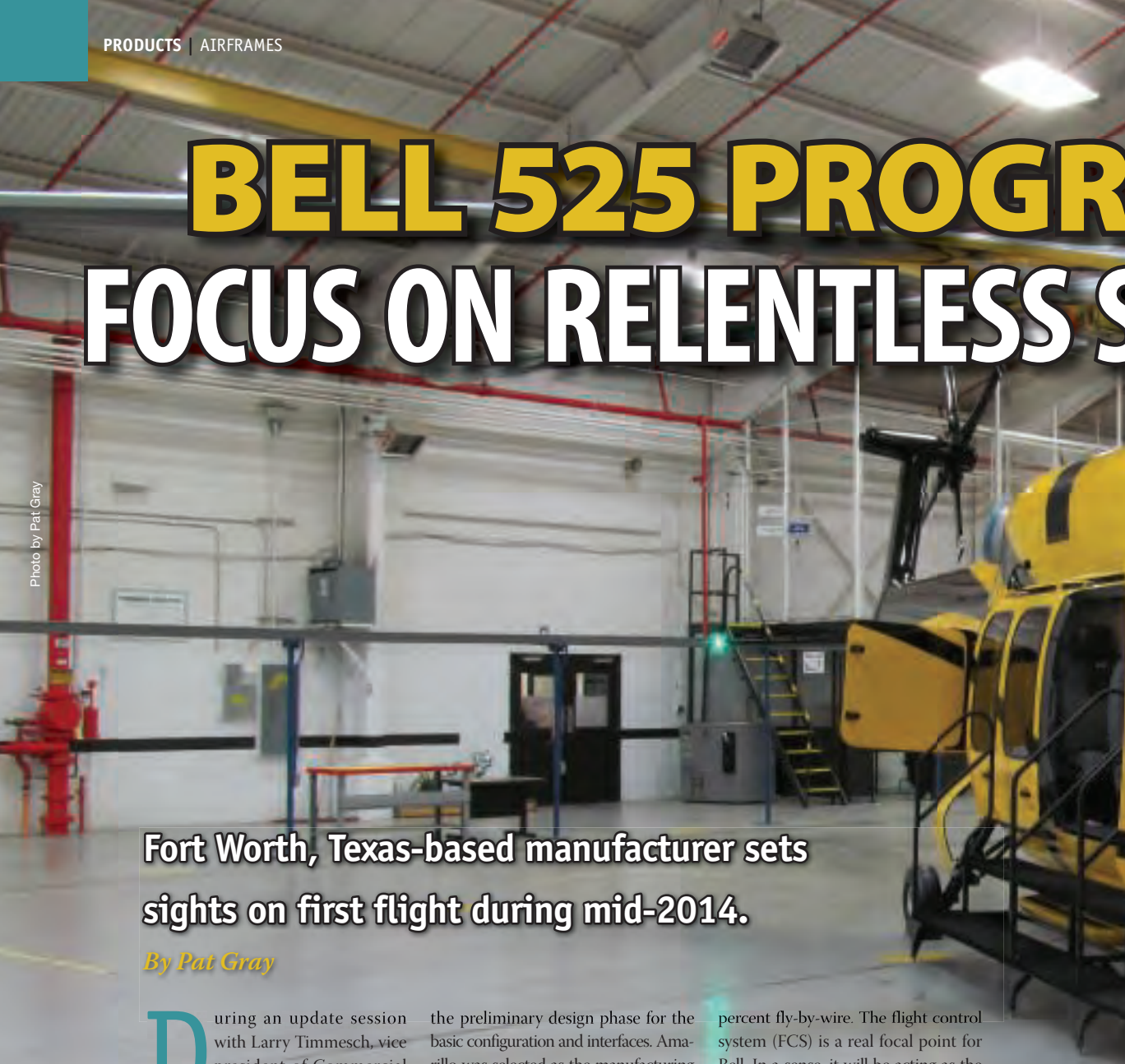


Photo by Pat Gray

Fort Worth, Texas-based manufacturer sets sights on first flight during mid-2014.

By Pat Gray

During an update session with Larry Timmesch, vice president of Commercial Programs at Bell Helicopter, along with David King, chief engineer on the Bell 525 Relentless, it became apparent that the company is committed to bringing the Relentless into the "super-medium" twin market. The first helicopter build is set to take place during second quarter 2013 in Amarillo, Texas. The first flight is scheduled for mid-2014. Timmesch states that Bell has a yet-unspecified first delivery date and that orders will be taken after the first flight.

As of June, the 525 is locked into the preliminary design phase for the basic configuration and interfaces. Amarillo was selected as the manufacturing site, with Fort Worth designated as the flight test facility. The manufacturer has assembled modular build teams for defined areas of construction such as rotor systems, control systems, engine selection/installation, landing gear, cabin layout and cockpit configuration. Weight has also been set, though Bell doesn't plan to release those figures for a while. All major suppliers are on board and some parts are already being built within the supply chain and at the factory.

Relentless will be the first commercial production helicopter that is 100 percent fly-by-wire. The flight control system (FCS) is a real focal point for Bell. In a sense, it will be acting as the "brain" of the helicopter by using its three computer control modules to sense and direct all control inputs, resulting in a highly stabilized flight in all axes. This is referred to as translational rate control (TRC) and is not to be confused with an autopilot. Perhaps a highly refined SAS would more aptly describe it.

Works in Progress

The FCS has completed initial development and is undergoing link up configuration with the 525 input controls.

RESS CONTINUES: SYSTEMS & SIMULATORS

Bell 525 Relentless in the hangar at the manufacturer's facility in Amarillo, Texas.

The avionics suite is the Garmin G5000H that uses touchscreen technology similar to smart phones. The menu selections are accessed through icons that look like Aps. There are three multifunction display (MFD) screens and the Garmin system is already set up in the mockup and in the simulator for testing purposes.

Bell has chosen the General Electric CT7 engine (1800 shp) and there are no plans for substitute engines.

All design and structural plans are digital using 3D virtual screens at every manufacturing and assembly point in the factory. There are no paper drawings. The helicopter is now in the detailed design phase and many of the digital drawings have been approved and released.

A systems integration lab (SIL) is up and running. This engineering unit integrates all the systems that will be a part of the production aircraft and

David King (left) and Larry Timmesch in front of the Bell 525 display in PHI colors.

is now functioning doing preliminary testing of the flight controls, the avionics system and the tail rotor system.

A simulator cabin (SimCab) is also up and running for control law and math model development. This differs from the SIL. The SimCab reproduces most of the research done in the SIL. This cabin is a cockpit mockup with a 358-degree field of vision that is programmed for several scenarios such as offshore and HEMS and is flown just like any other simulator. At present it is used to validate SIL programs concerned with the fly-by-wire control modules and the Garmin Avionics suite and how they will relate to actual flight through the TRC process. As development progresses, the SimCab will become more sophisticated to the point where the initial test pilots will have considerable experience with

Cyclic in the Bell 525 Relentless along with Garmin display panel.

flight performance prior to the first test aircraft leaving the ground.

The engineers allowed me to take a brief flight in the simulator and I chose the offshore configuration. It was an interesting experience. One example: while completing an approach to an offshore helideck, the simulator engineer, Nick Walton, said to note when my forward motion stopped over the deck. He then had me release all the controls and the simulator remained motionless over the deck at hover height. Using the collective beep button, I gently lowered the simulator to the deck and by reversing the input, raised it back to hover height. This was an early example of what Bell refers to as translational rate control. The demonstration model is still being refined but it will be an integral part of the production aircraft. The standard cockpit configuration will have a side-mounted cyclic control (as does the simulator) that allows for reduced stress, especially on long flights.

Prior to finalizing the design, Bell solicited input from a cross section of large operators designating them as the customer advisory panel (CAP). They have assisted in the design process by relating to their field experience with legacy helicopters, especially in the areas of easing maintenance access to components, writing of maintenance manuals and procedures and defining the necessary from the unnecessary throughout the design. Engineering groups from Bell have also gone out into the field to monitor some of the problems and solutions the operators deal with every day. Timmesch feels that the two-way feedback should result in a better product and better aftermarket communication.

The Bell 525 Relentless is on schedule and appears to on track toward the Bell Helicopter's goal to provide a user friendly, safe, comfortable long-range helicopter for the 21st century.

Q&A WITH M

In an exclusive interview covering a number of topics including Armed Aerial Scout, R&D and improvements in safety, American Eurocopter CEO predicts that the commercial helicopter market will bounce back by late 2014.

By Andrew Parker, Editor-in-Chief

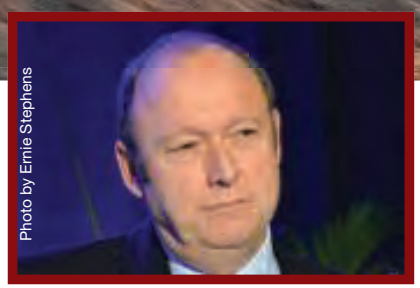


Photo by Ernie Stephens

American Eurocopter CEO Marc Paganini at the company's Heli-Expo 2012 press conference.

As part of our ongoing series of interviews with the top executives of the major helicopter manufacturers, *Rotor & Wing* conducted an exclusive interview with American Eurocopter President & CEO Marc Paganini that covered a wide range of topics, including the company's entry in the U.S. Army's Armed Aerial Scout (AAS) program, the 2012 U.S. summer tour of the X³ (X-cubed) and the outlook for 2013 and beyond.

Rotor & Wing: How was business for the company in 2012 and what does the picture look like for 2013 and beyond?

Paganini: This year we're going to produce about 100 aircraft in Mississippi. Half of them are for the UH-72A Lakota program, the light utility helicopter (LUH) for the U.S. Army, while the remaining [AS350] AStar B3s and B2s are for the U.S. public service sector—representing a small increase over last year. The market has been a little better on the commercial side in the U.S. in 2012 compared to 2011. The prediction is about the same overall.

Rotor & Wing: What is the outlook for the commercial market?

Paganini: We expect the market to continue to grow on the commercial side. It started to rebound at the end of 2011 and this continued through 2012. We expect to get back on track by 2014 to the levels pre-financial crisis. Strong markets like EMS are driving the recovery. EMS is a market that's usually slow to grow, but there's a lot of fleet renewal [possibilities].

Replacing old BK-117s, old BO-105s, old Dauphins—this is driven by replacement and a little growth, but not strong growth.

The oil and gas market is very promising in the Gulf of Mexico. This year the activity has grown significantly, and this is a market that will require large aircraft.

Police and law enforcement is slowly coming back. It's been one of the most

ARC PAGANINI

American Eurocopter

American Eurocopter displayed a Lewis Energy-operated EC145 in Orlando to showcase the corporate/VIP market during the NBAA Convention from Oct. 30 to Nov. 1, 2012.

important markets after the economic crisis because of the financial situations of the municipalities. Now the overall situation is improving a little bit, and we're starting to see some good opportunities in law enforcement, mainly for light-single engine aircraft but also a few for twin-engine helicopters.

For corporate/VIP, the year has not been too bad. It follows the economy and the profit of the companies, so hopefully the economy will continue to grow. It's not obvious yet but it's coming back slowly and we expect it to be active during 2013.

Rotor & Wing: What market sectors will experience the most demand in the next two to three years?

Paganini: In the U.S. market, we expect the oil and gas sector to be very strong, and EMS to remain quite solid. We expect the law enforcement market to come back. We already started to see that this year, and think that over the next two years we should see a strong rebound from law enforcement. Business has picked up with the tour operators—places like Las Vegas and Hawaii are doing well. We've sold a lot of EC130T2s to tour operators. In corporate/VIP, if the economy continues to recover and corporate profits hold, we should see this market start to bounce back. Another market that we're looking at is the utility market, which at this point has a lot of very old helicopters set to retire because of safety reasons and operational/maintenance costs, so there will be a need soon for new aircraft. Then there's firefighting, disaster relief and other sectors like wind farm support that can be counted among the utility missions that are very interesting and developing.

Overall, that is why our objective of getting back to the levels of pre-crisis by late 2014 should be achievable.

Rotor & Wing: How does American Eurocopter work with operators to improve safety?

Paganini: The number one priority for us is safety. We've worked very hard to improve safety not only in the design and operation of the aircraft, but also the equipment and the training. We work with customers on their SMS [safety management system] programs to increase the level of safety. For example, we have developed a full-motion flight simulator in order to have the pilot train in any flight condition

that would happen—many of which you don't want to involve an actual helicopter, but can accomplish in a flight simulator. We have also invested a lot in maintenance training, both in real helicopters and we're also starting to offer web-based training.

We have also launched Vision 1000, which is an image recall and flight data monitoring system [developed with Appareo Systems]. It's a simple, inexpensive device that is good for collecting information about what happens in the cockpit. We made it standard on the AS350 line, the EC130 and we plan to on the EC120. We're looking at putting it on the EC135 and EC145 as well. It's a very useful tool. When you have an issue during a flight, Vision 1000 allows you to come back afterward and figure out what happened.

In 2007, we created a safety award, Vision Zero, to promote a higher level of safety within the air medical industry. So we're spreading our core message that American Eurocopter is serious about safety.

Rotor & Wing: What is the latest from the Eurocopter Training Center?

Paganini: We've invested in simulators for the AS350, as well as for the EC135/145. On the AS350, we decided to do something that has never been done before. It's the first full flight simulator for a light single-engine aircraft, and also, instead of just having the cockpit, we included the full cabin. So we can train the crew and the observers at the same time as the pilot, which is unique.

Annually, we train upwards of 1,900 to 2,000 pilots and about 900 maintenance personnel.

Rotor & Wing: What improvements are being made in aftermarket support?

Paganini: Support and services account for about 30 percent of our overall activity. It's an important part of the business, and a part that we're seeking to grow. We want more activity in that area and we're looking at what kinds of services that customers are looking for, such as maintenance planning, spares, training, and so on. This is also an activity where we're examining possible acquisitions in the U.S.

Rotor & Wing: How much does American Eurocopter plan to invest in R&D, outside of the parent company Eurocopter?

Paganini: At American Eurocopter our R&D is mainly going to the development of the prototype for [the U.S. Army] Armed Aerial Scout (AAS) program [with EADS North America]. All the development of this prototype and this partnership with Lockheed Martin was handled here in Grand Prairie.

We have also developed a new version of the LUH [UH-72A light utility helicopter] in the Security & Support (S&S) Battalion configuration for the U.S. Army National Guard. We are also doing STCs [supplemental type certificates]—that's what we do here in the U.S. More and more, we are building up the capability to not only develop STCs but to do some design work, major aircraft modifications, of for the first time we were given responsibility to do a prototype for Eurocopter.

The main R&D work in terms of development of new technology and programs, demonstrators, larger aircraft, is of course done in Europe, both in Germany and France. Today we remain in a plan that started in 2010 stretching out to 2014 where we are investing $1.7 billion to do what I just said—we have launched the EC130 T2, the EC145 T2, and the EC175.

We are working on the X4 successor to the Dauphin, and we have this technology demonstrator, the X³ (X-cubed) testing composite, new blades. We're also working on a diesel engine-powered helicopter.

Rotor & Wing: What was the feedback like from the U.S. tour of the X³ in summer 2012?

Paganini: Of course the operators like the speed, but what they also liked is that the speed was not a tradeoff against cost, because we say we're going to get 50 percent more speed but with an increase in life cycle costs of 20 to 25 percent. This is important because speed must be affordable, and this is why we decided to go to a speed in the range of 230 knots. We do not believe that going to higher speeds is what the market needs or is willing to pay for.

The second thing that was very important is that it's still a helicopter, and then if you want to go fast, you go fast. You don't lose any of the attributes of the helicopter, such as hovering, which are needed in many of the helicopter markets. Otherwise you go to

Air medical provider MedFlight of Ohio received the 2012 Eurocopter Vision Zero award.

American Eurocopter

October 2012 handover of the first EC130T2 to Maverick Helicopters, including Maverick's John Buch and John Mandernach (center L-R), and Marc Paganini (second from right).

fixed-wing. The combination of speed and classic capabilities of a helicopter were very well received, and the military pilots were impressed as well.

We decided to do something that had never been done in the past, to actually put some representatives of different market segments in the aircraft—let them take the controls, fly in it, and tell us if we're going in the right direction. Is this what you want to have in 7 or 10 years, to fulfill your mission, to get some business, and so on.

We felt comfortable doing that because it's a game changer, it's a hybrid high-speed, but using so much already developed known technology. The response of the operators who flew it has been amazing. They were all really impressed by the simplicity of the concept.

Rotor & Wing: What role do you see unmanned aircraft playing in the future?

Paganini: Unmanned isn't going to just be military, it will have commercial applications as well. The military is looking at unmanned aircraft for cargo. For example, they need to transport cargo from one place to another—that can be done by an unmanned helicopter. Cargo in civil aviation could be the same.

It's not going to take away [from manned pilot operation]—in fact, it's going to help with missions that would have otherwise been too dangerous for pilots to fly, especially on the military side. Let's be practical, it's going to take some time before we see a large application of unmanned aircraft. It's going to be really focused on specific missions in the beginning.

HAI'S HELI-EXPO HEADS TO

More than 20,000 expected at 2013 version of the world's largest helicopter tradeshow.

By Ernie Stephens, Editor-at-Large

The Las Vegas Convention Center is the venue for Heli-Expo 2013, the annual gathering of the worldwide helicopter industry, hosted by Alexandria, Va.-based Helicopter Association International (HAI). Thousands of attendees, hundreds of vendors, and dozens of helicopters will converge in Nevada from March 4-7.

HAI President Matt Zuccaro says that Heli-Expo, the world's largest helicopter tradeshow, is "the one thing that brings the entire international helicopter community together in one place, offering an opportunity to meet with peers, potential customers, regulators and lawmakers."

Photo by Ernie Stephens

The exhibit hall is a virtual shopping mall of helicopters, components, avionics, services and supplies. Equipment, such as this FTD from Elite, can be compared before making purchase decisions.

As of two months prior to event, the planners of Heli-Expo were expecting at least 700 exhibitors, who will display all varieties of rotorcraft parts, crew supplies and services. This includes 47 exhibitors who plan to display aircraft within the cavernous convention center.

"Last year in Dallas, we had 60 helicopters on display on the exhibit floor," reports Zuccaro, an experienced helicopter pilot himself. "We expect a similar number this year."

AgustaWestland, Bell, Enstrom, Eurocopter, Kaman, MD Helicopters, Robinson, Russian Helicopters, and Sikorsky will have large displays, complete with models and production versions of their aircraft for visitor inspection, as well as engineering, support and sales personnel ready to answer questions. Each manufacturer will also host a technical briefing, where operators can get the latest information on the aircraft they fly, and seek solutions for even the most complicated issues.

In addition, the Helicopter Foundation International will once again host a display of historical aircraft, confirms Zuccaro. Last year in Dallas, the foundation's exhibit area included a pristine Army OH-13—the military version of the Bell 47 "fish bowl" helicopter—in Korean War-era medevac livery; a Russian Mil Mi-24 "Hind" gunship; and an Army Bell UH-1 Huey from the Vietnam era.

Engine manufacturers including Pratt & Whitney Canada, Rolls-Royce

LAS VEGAS

The show floor gives visitors the chance to examine various helicopter models, including this Sikorsky S-92 at the 2012 show.

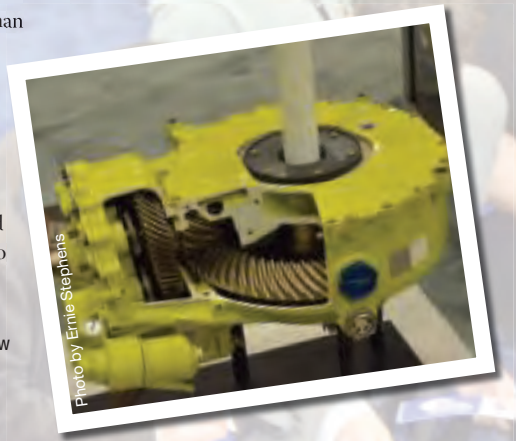
and Turbomeca will have examples of their powerplants on display, as well as technical data. Engineers will be onsite to answer questions, as will the designers of many other components, avionics and diagnostic equipment.

Heli-Expo is frequently used as the backdrop for the introduction of cutting-edge products. In 2012, Bell unveiled the prototype of its new 525 "Relentless" super-medium helicopter. A few hundred feet away in the Eurocopter display area, attendees were also treated to their first look at the Eurocopter EC130T2, the company's latest variation of its successful single-engine EC130 platform.

As usual, Heli-Expo will be preceded by a week of training sessions at or near the convention center. Beginning Feb. 28 and running through March 4, helicopter-industry professionals—both novice and veteran—will be able to attend courses covering a variety of subjects. Some of the topics in the area of maintenance include flight data monitoring, troubleshooting and FAA Part 21 certification. Management courses will include leadership in aviation, project management and helicopter fleet financing. Some of the safety courses offered will be accident investigation, safety management systems and SMS manual development. Pilot-specific courses will delve into human factors, powerline avoidance, inadvertent IMC, and the heavily attended flight instructor refresher course.

New this year is the Rotor Safety Challenge, adds Zuccaro. "[It will be] a series of short courses offered during the show itself that are free to all attendees."

The entire course schedule is posted on HAI's website at www.rotor.com.



Heli-Expo attendees can expect to see new aircraft and products for the first time.

Photo by Ernie Stephens

AgustaWestland booth at Heli-Expo 2012. The majority of aircraft on display at Heli-Expo are open for close inspection. And it is not uncommon to find the company CEO nearby and available to anyone who wishes to ask a question or share a comment.

Forums and committees that address important issues in the rotorcraft community are held during the convention. Subjects include government regulations, heliport design and flight safety. According to Zuccaro, this year's keynote speakers will be from "the halls of Congress and the executive offices of the FAA and the National Transportation Safety Board."

The annual Salute to Excellence dinner will be held on the evening of March 6, at which time HAI will recognize those individuals—and often groups—who have made noteworthy contributions to the helicopter community. The eight honors are the AgustaWestland Safety award, the Bell Helicopter Lifetime Achievement award, the Eurocopter Golden Hour award, the MD Helicopters Law Enforcement award, the Rolls-Royce Excellence in Helicopter Maintenance award, the Sikorsky Humanitarian Service award, the Excellence in Communications award, and the Pilot of the Year award.

On the last day of the event, a crowd always gathers outside of the venue to watch the fly-out. The air show-like atmosphere centers around the departure of the display aircraft as they liftoff one by one from the adjacent parking lot to return to their home bases.

The common denominator of Heli-Expo remains its ability to bring all facets of the rotorcraft world together for several days of exposure to the latest news, lessons and products the industry has to offer, as well as to network with colleagues whom attendees might not otherwise get to exchange ideas and experiences with. Each day, breakfasts and afterhours events are held in and around the venue that allow everyone from CEOs to student pilots to get to know each other and establish relationships that benefit the rotorcraft universe.

HAI anticipates that more than 20,000 people will attend Heli-Expo this year. The admission price for three days of the convention and exposition varies.

"We offer professional development courses and other educational opportunities you're just not going to find anywhere else," says Zuccaro. "As I hear in my travels, 'Heli-Expo is the one event you cannot miss if you are in the helicopter industry.'"

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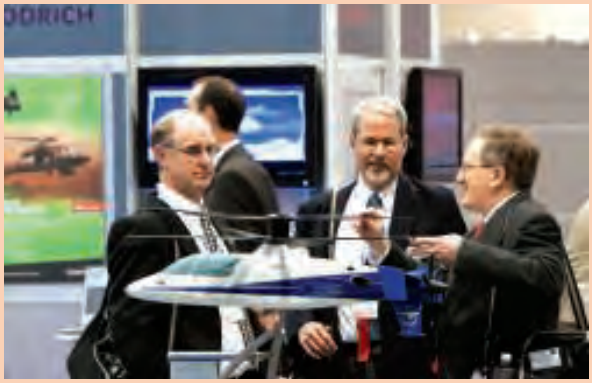

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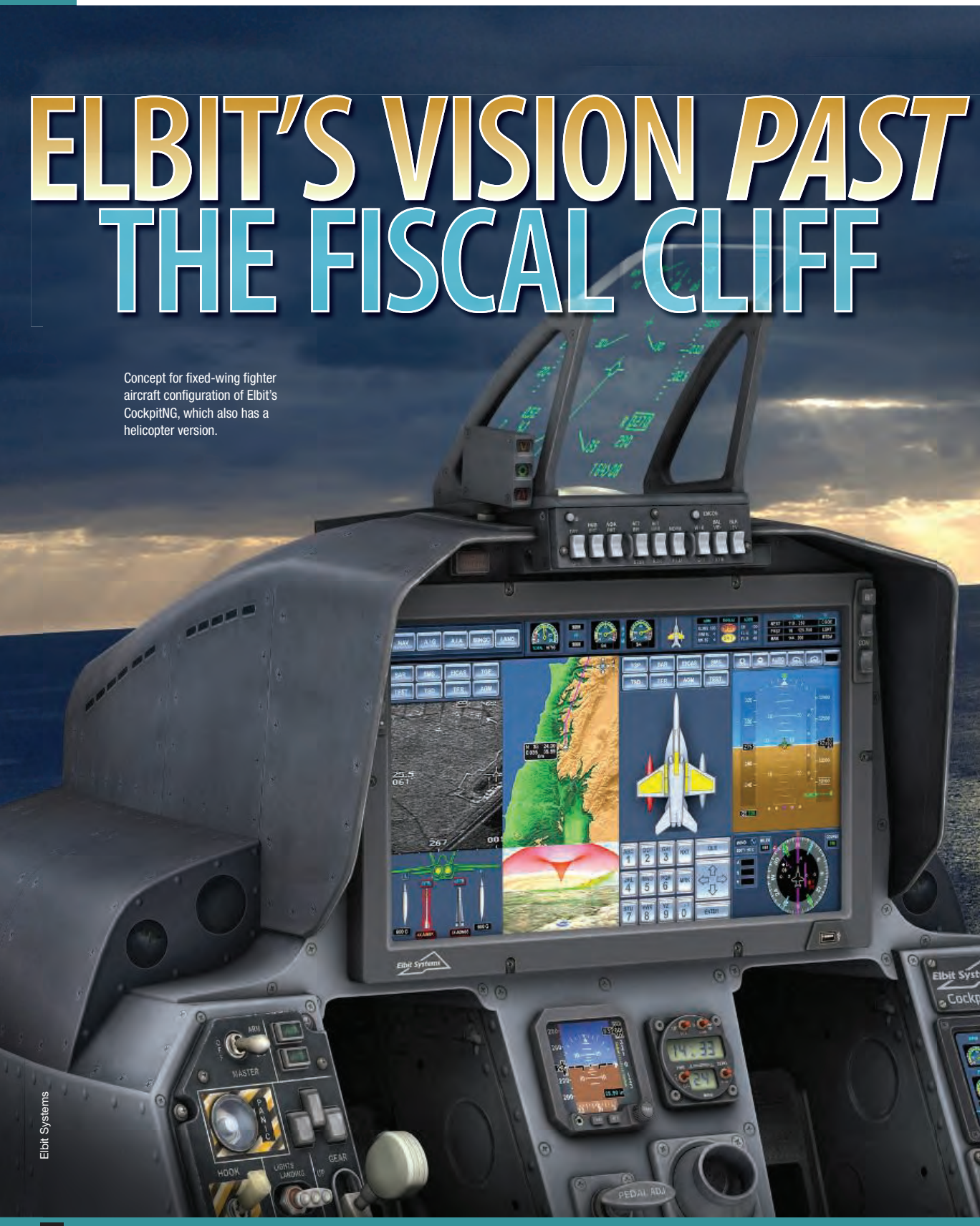
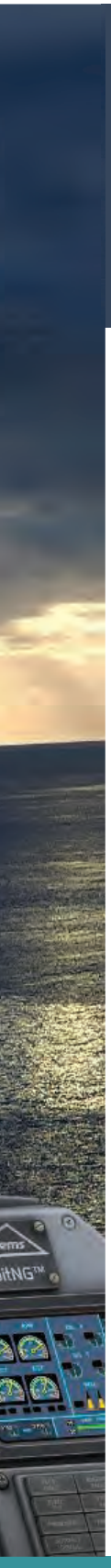
ELBIT'S VISION *PAST* THE FISCAL CLIFF



Concept for fixed-wing fighter aircraft configuration of Elbit's CockpitNG, which also has a helicopter version.

Elbit Systems



Elbit Systems has carved a niche for itself in the military aviation market through some shrewd acquisitions and joint ventures. But will these specialist skills be enough to take it forward at a similar pace? *By Andrew Drwiega, Military Editor*

Software, sensors and iPads. Raanan Horowitz, president and chief executive officer of Elbit Systems of America (ESA), covers all three in the first five minutes of our conversation during last year's annual Army exposition, AUSA, in Washington, D.C. The way ahead for rotorcraft innovation, he confirms, is the simplification of technology with the integration of systems in a user-friendly way.

Horowitz believes that avionics systems, particularly button driven digital displays, need to adapt to how the civil market has developed products such as the iPad, and how ease of use has led to a large market surge for them.

"When you look at the technology around iPhone/iPad you see the convergence into one device of what you used to do with multiple devices—phone, computer, even your daily newspaper. What we said was that for a fighter aircraft or helicopter, let's do the same thing. The issue is the convergence and fusion of all these things. You take all the sensor information and implications and you bring it to a screen and present it with a man-machine interface that is very intuitive—as that is what young, new, upcoming pilots expect. It is time to take advantage of the fact that everybody now uses these devices so why not bring them to the screen in the helicopter cockpit." Touchscreen displays such as those in the latest CockpitNG offering are part of his company's answer.

Finding Solutions Beyond the Fiscal Crisis

As the defense industry in the United States exhales following the government's temporary step-back from the "fiscal cliff" edge, it is more like a few gasps in preparation for what may be yet to come. Although it is the American global corporations that may be better prepared to weather the storm through their diverse market offering, what of those with foreign heritage that become established within the U.S. defense sector with the prime reason of gaining market share?

Elbit Systems of America (ESA) helmet-mounted display (HMD).

Elbit Systems


Elbit

Panoramic HD large area display from Elbit Systems.

Horowitz' ESA is one such organization with strong links to the helicopter market, although not exclusively by a good measure. ESA was established in 1980 as a subsidiary of Elbit Systems Ltd, (listed on the U.S. NASDAQ and Israeli TASE stock exchanges). Elbit has grown into a $1 billion company of which around $300 million derives from its airborne business, of which ESA plays a significant role.

The relationship with Elbit in Israel is governed by the same rules that apply to other companies that can trace a foreign heritage. "If we have an Israeli teammate come over to us, we have to put a visit request in seven days ahead of time stating what we want to talk about. BAE Systems have the same systems," said Robert Waage, ESA's director of business development for Airborne Solutions. There is a legal separation that is designed to provide assurances of sensitive information.

Waage makes no secret of the importance of the U.S. market to the entire Elbit organization: "Thirty percent of our business is dependent on the U.S. defense sector, even more than the 21 percent represented by the Israeli market." The Europe market accounts for 25 percent "with the rest of the world is slightly behind that figure at 24 percent."

As with the rest of the defense industry, those responsible for the future development of Elbit have been watching developing markets with opportunities identified in South America and Asia; Brazil and India, respectively although there is also promise in others including Australia and Korea (where the company won a $62-million contract last year to upgrade the military's C-130 fleet including its own glass cockpit digital flight displays).

Kelly Dameron is vice president of Airborne Solutions and sees the current challenges over defense budgeting reflecting in the new attitudes to business strategies, particularly the pressure to continue corporate growth: "It is tough to integrate acquisitions. Resources in companies are thinner than before. To survive and flourish, organizations need to be more agile and flexible than ever before and become more generalist to execute opportunities arise."

He comments on the progressive expansion of ESA in Fort Worth. "The company has grown quickly: we learned engineering in the 1980s and business development in the 90s. Without doubt having a partner company in Israel has been of significant benefit to ESA, especially with their military forces operating similar weapons systems, such as the Apache and Cobra helicopters." Both he and Waage independently point to a change of direction not only in ESA's business structure but also how the rest of the industry is viewing them.

"We carved ourselves a place on the block with the Apache IHADSS HMD-EM Tracker and Central Mission Processor. ESA moved from supplier to strategic partner," stated Waage. The M142 integrated helmet and display sight system (IHDSS) has been an integral part of the Boeing Apache's systems since the U.S. Army introduced the attack helicopter in 1984. The IHADSS integrates the flight crew with the aircraft's systems through a monocular eyepiece. By using electromagnetic tracker technology in conjunction with weapon sensors in the aircraft's nose the flight crew is able to utilize head movements for increased tactical situational awareness (Heads up, eyes out).

Dameron observes that in completing the acquisition from Honeywell for helmet display products, although ESA didn't have a large workforce initially it focused on spreading best practice and blending an understanding of operational requirements with technical development.

Another important step for ESA came in 1996, when Elbit and Rockwell Collins created a joint venture company called Vision Systems International (VSI). Together with Helmet Integrated Systems, they produced the helmet-mounted display system (HMDS) for the F-35 Joint Strike Fighter delivering to the pilot day/night and the Joint Helmet Mounted Cueing System (JHMCS) for the U.S. tactical jet fleets. In 2012, VSI was awarded $32 million to supply Boeing with its joint helmet mounted cueing system (JHMCS) for foreign military sales (FMS) to countries that included Finland, Australia, Belgium, Canada and Switzerland.

Elbit is also ambitious about its day/night degraded visual environment (DVE) solution, JedEyes wide field-of-view helmet system and QuadEye night vision cueing and display (NVCD). Horowitz said that the U.S. Army recently flew with the prototype JedEye helmet: "The Army funded their part and Boeing brought in their helicopter and we gave feedback to both—that is what we like to do." With brownout still an ever-present danger to helicopter aviators, and with aircraft being lost on a regular basis, a solution to the problem is high on the Army's priorities.

Rotary Opportunities

Waage believes that the Armed Aerial Scout (AAS) competition will be a keen one with America Eurocopter pushing hard. "We have the entire cockpit on the EC configuration, and on the MD540F we have the helmet display. But we supply across many of the competitive OEMs."

ESA also has a keen interest in another Army program, one that focuses on


ESA
Raanan Horowitz.

the UH-60L Black Hawk cockpit digitization update. "The U.S. Army is looking at a UH-60L cockpit digitization upgrade for part of their fleet. While the eventual aim is to have 800 UH-60 Mike models, the M-like L models will be more digitally equipped aircraft in the field quicker and cut down transition costs in terms of crew training."

What many people don't realize is that a Mike UH-60 is marginally slower than a Lima Black Hawk. While newly designed blades mean the aircraft can carry more, on average it is around 10 knots slower. The Mike-like configuration would probably be slightly faster due to the replacement of analogue systems with digital. A discussion within the ESA team, several ex-military pilots such as Dennis MacIntire, director of business development for Airborne Solutions—an ex CW-5—regarding the merits of getting to the action with more time-on-target, while the Dustoff supporters emphasized the need for speed to get to and extract back to base injured servicemen as quickly as possible.

Last year Boeing's new Apache E (previously Block III) began rolling out to U.S. Army aviation with the promise of a new ESA developed mission processor. The $17.5-million contract over five years will help to future-proof its networking and on-board computing capabilities during the new model's lifecycle. Holding the responsibility for the ongoing upgrade of the nerve center in the middle of arguably the world's most effective and proven attack helicopter is one that all take pride in.

"The Service and Support business unit has also grown to be a major factor in company turnover," adds MacIntire. "Service and Support is one of our shining stars. We take a look at systems abandoned by manufacturers and through reverse engineering we can breathe new life into them." Waage explained the ESA's business outside of the US Defense department. "Commercial Aviation Business Unit runs out of Merrimack, New Hampshire and their primary market driver is the Enhanced Vision Systems for business jets-airline transport platforms allowing them to fly to lower minimum altitudes when approaching to land.

Another area in which Elbit is expanding, highlighted by Horowitz, is that of Homeland Security. It has submitted a significant proposal to the U.S. Border Patrol.

Although the company's involvement in supplying equipment for Israel's own border protection, particularly recently, has attracted international criticism, its lessons learned are fed back into suggested methods and technologies that might adopted on the southern borders of the U.S. "Our proposal to the Border Patrol for a large installation of towers, sensors and command and control and capabilities that will help monitor that border," he said.

"What is the initial cost to put those systems together? It is costly but not cost prohibitive. But what is the cost of operation over many years. That is where I believe we have an advantage due to the operational concepts we have developed and capabilities and I believe we have ways to reduce the long-term operating costs."

In conclusion, Horowitz said that the major challenge facing everyone in defense was to keep research and development (R&D) alive, together with military-industry dialogue that has resulted in the closer cooperation between the two while supporting the wars in Iraq and Afghanistan. He suggested the danger of pullback in both areas if budget limitations really took hold—something that would be very negative from all sides.

TRAINING NEWS

INDUSTRY STRUGGLES WITH 2016 SAFETY GOAL

The target of cutting helicopter accidents by 80 percent in 2016 will be missed but the industry keeps striving to improve safety with new rules, designs and equipment.

By Thierry Dubois, on Twitter: @aerodub

Recently released numbers show that the global helicopter industry will be far short of its self-assigned, highly ambitious goal of cutting the number of accidents by 80 percent over the 2006-2016 period, if current safety trends continue. Therefore, civil aviation authorities are striving to find new ways to reach out to pilots and operators, as well as manufacturers, to improve a relatively worrying situation. Means include new rules but also easy-to-read leaflets. Meanwhile, manufacturers are introducing new design processes and equipment to do their share of the effort, it appeared at the annual Rotorcraft Symposium the European Aviation Safety Agency (EASA) organized in December in Cologne, Germany.

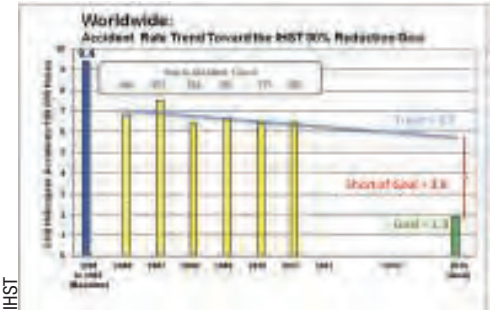
A common pilot error, according to U.S. statistics, is "insufficient power available." This does not mean helicopters are underpowered. Rather, "the pilot is unaware of the power required in the situation," an FAA analyst said.

Bob Sheffield, a member of the International Helicopter Safety Team (IHST) and AgustaWestland's senior advisor for safety and fleet operational improvement, said that some regions are going the wrong way in terms of helicopter accident statistics. The global trend is a slightly declining number of accidents per 100,000 flight hours. At 5.7, it is still too high to leave room for reaching the target of 1.9 (accidents per 100,000 hours) in 2016 set by the IHST. These numbers are badly influenced by three regions—South America, Asia and Oceania. There, the trends are upward.

Those regions where the accident trends are downward are Europe, North America (but both are still short of the reduction goal) and Africa. So was the 80 percent goal over-ambitious? "It was rather a federating aspiration, coinciding with the creation of the IHST," Michel Masson, EASA safety action coordinator, secretary of the European Helicopter Safety Team (EHEST) and co-chair of the European Helicopter Safety Analysis Team (EHSAT), told *Rotor & Wing*. He insisted the effort is likely to be carried on after 2016, especially if the goal is not attained.

The EHSAT and the European Helicopter Safety Implementation Team (EHSIT) are part of the EHEST, itself the European chapter of the IHST. The causes of these not-so-good safety trends are hard to find. "Is the economic downturn an explanation for the hiccup we see on the graph from 2008?" asked John Steel, a representative of the Irish Aviation Authority and co-chair of the EHSIT. His team is still analyzing this possibility. Another possible explanation is a discrepancy between training and technology—a Robinson R66 is equipped with a glass cockpit and a Fadec, Steel underscored.

"Helicopters are safe but some are not operated as safely as they could be; and we know how to make flying on a helicopter much safer," Sheffield stated. Some passengers may disagree with the first part of the statement. "Over the 1992-2009 period, 31 percent of offshore accident causes were technical," according to Olivier Claeys, head of aviation at Total. The oil company simply wants helicopter transport to be as safe as airlines.



IHST

Global statistics show the helicopter industry is short of its accident reduction goal.

Not all types of operations appear the same way in safety statistics. For example, in the U.S., private, training and crop-dusting flights are the top three numbers of accidents. Several speakers, however, noted that collecting data is challenging. It has been impossible, for instance, for the EHEST to correlate crashes to numbers of landings.

Dave Howson, a research project manager at the UK civil aviation administration (UK CAA), pointed at a cruel lack of contextual information. He was referring to annual flying hours by type of operation and aircraft type, flight time distribution by flight phase, as well as pilot flying experience and age. "If we had started collecting when the EHEST was launched in 2006, we would have five-plus years of good data by now!" he complained. Most accidents involve Part 27 (lighter) helicopters, Howson noted. Yet, Part 29 (heavier) helicopters are included in the statistics. "Do they cloud the picture?" Howson asked. Not a lot, it appears from his work. He studied Part 27-only accidents over the 2000-2010 period. The same two causes keep the top spots—pilot judgment and action, and safety management. The main difference is maintenance—as a cause, it appears five ranks higher in the Part 27 focus.

Looking for a clear picture of causes, too, Lee Roskop, an operations research analyst with the U.S. FAA, studied 2001-2010 U.S. data. He noted that loss of control took the top spot in the "occurrence categories." The most common error was "insufficient power available." Roskop clarified that this does not mean helicopters are underpowered. Rather, "the pilot is unaware of the power required in the situation," he said.

Also from U.S. data, some misperceptions emerged. Personal and private flights have seven times worse statistics than helicopter emergency medical services (HEMS), which have been highly scrutinized over recent years. Moreover, common perception that most U.S. helicopter accidents occur either at night or in bad weather is not

Some countries, such as Spain and Sweden, are to regulate search and rescue operations.

supported by data. A very high proportion (95 percent) of them occur in visual meteorological conditions (VMC).

To help curb accidents, the IHST now has a revised strategy, Sheffield said. At stake is reaching "those who haven't heard or heeded the IHST's recommendations." IHST thus wants to leverage contacts with license holders—regulators, insurers, manufacturers and "best" operators. EHSIT's Steel identified general aviation as a major target.

Moreover, the IHST wants to focus on the training sector. "It is currently the highest source of accidents," Sheffield insisted. He sees an opportunity to create a "safety mindset in new pilots."

He emphasized the cultural aspect. "The stories you tell can overtime change the culture so let's spread success stories," he said. Steel put it almost the same way: "Monkey see, monkey do." He also urged operators to give more feedback to the authorities.

EHSIT has released a number of safety promotion materials and tools for the operators, especially small ones. The safety management system (SMS) toolkit, released in July, consists of a safety management manual, an emergency response plan and a safety management database user guide. "It is ready to use and it is the first product that was built around the recently published European rules," Masson said. It is targeted at "complex" operators—a category that depends on criteria like the type of operations (hoist, HEMS etc.) and the environment (mountain, offshore etc.). "For non-complex operators, we'll issue a lighter toolkit in 2013," Masson added. Another tool is a pre-departure risk assessment checklist. Its purpose is "to make pilots and technicians aware that small simple situations, when combined, can raise the total risk significantly." The pilot first scores the initial pre-flight situation. If an item is scored "red," mitigating action must be taken.

EHSIT has published the top training-related recommendations in leaflets. "We have released videos on degraded visual conditions, loss of control and passenger management—seen from the pilot and seen from the passenger," added Gilles Bruniaux, EHEST co-chair and a Eurocopter's vice president of fleet safety. Some documents have been translated into other languages than English, Spanish and Italian, for instance. "We want to reach everybody," Bruniaux said. All these tools are provided free of charge.

What about improving aircraft certification processes? This is what EASA is endeavoring to do with its "level of involvement" project. As the agency's deputy certification director, Frédéric Copigneaux, highlighted, the role of the EASA is to check the validity of demonstrations by the applicant. "We don't check 100 percent but the present rule does not say how much," he said. So the project is about defining the principles to be used to determine the agency's level of involvement. EASA will take into account the novelty (for the manufacturer and/or the agency) of the domain. It will also factor in its criticality. A manufacturer is already rated as a design organization and its performance level will be heeded, too.

For example, let's take a top-level design organization that is submitting a demonstration for a non-critical item it has experience with. The EASA will not verify the demonstration. If the domain is novel and critical, a verification will take place. Should the item be rejected, the manufacturer may be downgraded as a lower-performance design organization. In turn, this will increase EASA's level of involvement the next time the manufacturer applies for certification.

Copigneaux is trying to gather industry support for the "level of involvement" project. Depending on the response, it could take the fast track through rulemaking, he said. He made it clear it is not only about rotorcraft.

Meanwhile, the Swedish transport agency is to issue a regulation for some operations that were simply not regulated—SAR. "We had several accidents over the last 10 years, we heard requests from the Swedish pilots association and we listened to our investigation board's recommendations," project manager Annika Wallengren said. Search and rescue is outside the EASA's remit so it is up to the nations to regulate. Spain is to publish a regulation in April.

SAR is a risky business, as Wallengren put it. Low altitude, hostile environment, bad weather and demanding maneuvers are often combined risk factors. "We want to create a tool to assist crews in not stretching a flight," Wallengren said. The project is at the draft stage. There are a lot of stakeholders—the country's maritime organization, police, coast guard, armed forces and HEMS, as well as neighboring countries, the EASA and operators interested in performing search and rescue. The plan is to have the new regulation entering into force next autumn.

Requirements at the helicopter level may include a flight management system, radar, terrain warning system and night vision equipment. The required navigation performance may be a precision of one nautical mile (RNP1). Operational minima will be set for transition down over the water. There will be requirements at the crew level, too.

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Safety Watch

By Terry Terrell

Multiple Levels of Safety

The conscientious helicopter pilot is almost always engaged in active accommodation of at least two completely separate sets of safety challenges. The first, of course, is the actual accomplishment of physical safety. The licensing and qualification mechanisms conventionally observed in U.S. helicopter operations ensure that legitimately experienced pilots are expected to be technically competent to safely command assigned aircraft within intended aviation settings. But an additional set of safety considerations exists as a function of the way helicopters are actually used in accomplishing real missions, very often placing them, and their pilots, in situations which can best be described as existing outside the parameters of aviation itself, and often directly involving human participation not formally standardized by the system.

Most helicopter activities, certainly to include EMS operations, involve active participation by human talent not governed by the above mentioned aviation standardization conventions. Whether participants are ground assistance crews, or on-board medical professionals, these individuals have to be convinced from the outset that what they're doing is safe, and it falls on pilots, who may or may not have been trained to provide the kind of leadership required, to accomplish the convincing.

I remember a particular phase of preflight training at Navy Pensacola which had us—the humble flight students—located in a cold, windowless Naval Aerospace Medical Institute classroom, submitting to a long series of psychoanalytical written exams. It was intended that we would be made physically uncomfortable in order to maximize stress levels during rapid-fire forced answering of literally hundreds of oddball questions, most of which seemed to us to be totally unrelated to aviation. Being ambitious flight candidates, though, we were convinced that certain very critical questions were randomly buried in the many pages of queries, waiting to identify and disqualify those not worthy of aspiring to aviation leadership. We identified one particular question as highly suspect, and it went something like: "Would you, if you had to choose, prefer to vomit on a crowded bus, or smash your thumb with a hammer?" Though we could not have explained why, we were absolutely certain that answering this question correctly, as judged from the Navy perspective, was essential to our continuing success, and it turns out that we were right, but for reasons more meaningful than we could have ever suspected.

Civilian EMS helicopter programs usually employ professional nurses and medics as regular helicopter crews, but are not necessarily required to train these "air crew" personnel to certified FAA standards. The result is that these crews are often only partially trained with regard to aviation disciplines, and it is a well-proven axiom that partial knowledge can sometimes be less than completely useful. I once experienced a night bird strike over mountainous terrain, detected as a light thump, seemingly to the lower nose section of my AStar. I was able to determine right away that we had no obvious structural damage and that flight controls were functioning normally, and I carefully confirmed no oil temperature rise, concluding that our oil cooler radiators had not been fouled by bird debris. Our flight nurse, however, probably having been told somewhere in her limited training that precautionary landings were the central cornerstone of safety, was not convinced that all was well, and began enthusiastically suggesting that we land immediately. So I had to add calming and educating the crew to my response checklist, which already included further flight testing, improvising navigation to a safe location for a correctly prioritized PEL, communicating circumstances and intentions to my dispatch authority, and ensuring that program service responsibilities were minimally compromised. Having experienced scores of bird strikes over the years, I knew that this one was not a real safety problem, so I found myself describing to the crew that more airmen had historically come to harm overreacting to prematurely declared emergencies than by responding calmly, and that we certainly would not be well served at that point by rushing to a landing in unsuitable terrain. We ended up flying several minutes to a lighted airport, and I was able to show the crew a bird smudge on the underside of the nose of our aircraft, ultimately returning everyone to satisfactory happiness.

This scenario depicts the multilevel safety responsibility which must routinely be accommodated by most helicopter pilots, flying typical missions outside the military. Real safety absolutely must be delivered, but safe operations, as perceived by all participants throughout associated environments, must also be reassured. The Navy, it turns out, did not want thumb smashers. They wanted pilots who would take care of themselves regardless of perceptions by others, always bringing their aircraft home safely. But in the civilian sector we go a step further, making sure that the pilot is not alone in returning home safe and happy.

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Leading Edge

By Frank Lombardi

New Era of Human Factors

We live in amazing times. As I compose this month's column on my laptop, I've got my tablet to the left of me, and my smartphone to my right. Poised and ready to provide the answers to all my questions, they are the ultimate reference. Well, almost. I've been "googling" around for a while now, looking for a human factors term I learned in graduate school, yet I simply cannot find anything that sounds like what I remember.

After conceding, I grabbed my human factors textbook off the shelf, skimmed the index, and found the term I was looking for. I was able to rely on recognition, instead of the "free recall" necessary to use a search engine. Turning to the page, the surrounding paragraphs put that term into context. At the same time, it created a perfect example for the basis of this month's column.

"Smart" devices and associated software bring new benefits to our aviation profession every day. They have revolutionized the way we learn in the classroom, the way we plan a flight, and how we operate in the cockpit. There's no debating they are an indispensable tool and hold enormous potential. But as aviation is so intolerant of error, we must also examine the downside of our planned advances. After all, we are only human, and much of what we don't understand still lies within ourselves.

Emerging technology always brings a new batch of human factors for engineers to deal with. Smart devices rely on a specific input method (touch/multi-touch), which constrains the way we can interact with the software. This demands a re-thinking of the user-interface so the interaction is efficient and productive, lest we become "cognitively lost." It's the term I searched out in my textbook earlier—and something we cannot afford in the cockpit. You probably already have a list of applications that are user-friendly and those that are not.

I have begun to notice some other potential pitfalls of our favorite technologies. I can still rattle off phone numbers of every neighbor on the block I grew up on, yet, I couldn't tell you the numbers of most of my current coworkers. They're all just names on a contact list, and only good to me when my smartphone is within arms-reach. Do you remember the phone number to the Flight Service Station, automated weather service of your local airports, or other important numbers? Or do you just have them programmed into your device?

As a teenager, I could look up at the night sky and "star-hop" from one side of the horizon to the other, naming stars and constellations based on their proximity to others. Now I have an expensive GoTo telescope, which can point right to an object with a push of a button, allowing me to look at thousands of objects in its database. Take it away from me, however, and I am again cognitively lost, barely able to point you toward any of them. I'm left only with all the objects I remembered as a teen. When helicopter vibration has finally put your moving map system out of commission, do you reach for your paper map or your smartphone? There are arguments for both. But how does the situational awareness of those who reach for the phone or map differ? Remember, your GPS can tell you where you stand, but that doesn't mean you know where you are.

These examples highlight a shift in the way technology is shaping the way we learn and use information. The fact that we are more inclined to grab the nearest web-based search engine to find an answer and then quickly move on, rather than learn something and store it in our brain's "hard drive" has been termed the "google effect."

When we talk about good crew resource management (CRM) as the ability to use all information available as a tool, today's technology opens us up to a world of help. But don't let total reliance on technology become a "single-point failure" in your plan. Engineers do not like single-point failures, as they cause the whole system to stop working.

Wisdom in aviation is built slowly, over time. As we mature in our profession, we amass knowledge; we build an internal database that grows over the years. From this, we develop our aviation wisdom. This process is short-circuited by instant access to information in today's world. We no longer remember all things, we just remember where to find an answer. How will this philosophy impact the wisdom of future aviators? I'm not sure. As for now, I don't know about you, but if I am in an extreme situation, and left to choose between relying on the knowledge in my device or what's in my head, I'll choose me.

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Law Enforcement Notebook

By Ernie Stephens

Officers Halford and Smiley: Men of Honor

As you may have heard, we recently lost a crew of fellow police aviators. Officers Richard J. Halford and Shawn A. Smiley of the Atlanta Police Department went down in their OH-6 on Nov. 3 at approximately 2230 hours while searching for a missing nine-year-old. Wires were involved, but as of this writing it's unclear if those lines caused the accident, or if they were struck because their already-crippled aircraft came down upon them. Regardless of the cause, I'm sure you all join me in saluting their service, and wishing their survivors, fellow officers and friends comfort.

As I watched the news accounts and read some of the articles about the accident, two things struck me—one of them in a good way, and the other in a very annoying way. What struck me in a good way were the comments made by the mother of the nine-year old just a couple of hours after the crash, and shortly after her son had been located by ground units.

"This is not fair," said Amire Shakir-Fulford, who came to the crash scene. "[Those officers] were trying to help another family find their child. There's nothing I can say to these people. They probably have little children at home."

And Ms. Shakir-Fulford was correct. Halford, the 48-year old pilot, left behind a 21-year old daughter. Smiley, the 40-year old tactical flight officer, was a husband and father of children ages five, seven and nine.

"All I could do was cry because somebody lost their life," said Shakir-Fulford as she held back even more tears. "They can't go home and hug their children, their wives—nobody." It seems like the police don't hear those kinds of words enough, sometimes. And though she shouldn't feel responsible for the tragedy, I could see in her face that she had already begun to.

As for the annoying thing I saw, it was the suggestion from citizens that police aviation creates a hazard in and of itself, especially in an urban environment. And that the best way to prevent any future accidents—saving a few million dollars in the process—is to simply disband Atlanta's aviation unit. If a helicopter is needed, simply wave one in from a neighboring county.

It seems like no matter how many fleeing felons police helicopter crews find, how many lost children we locate, how many rescues are made, and how much order is restored, the knee-jerk reaction to a crash—regardless of the severity—is to call for the disbandment of the involved aviation operation.

In the fall of 2008, a Maryland State legislator jumped all over the Maryland State Police (MSP) Aviation Division after it suffered a fatal crash that killed two crew members, one of two patients, and an EMS technician. He told me that the police were obviously ill-equipped and improperly trained for medevac missions. In fact, it was his belief that a law enforcement body shouldn't be involved in medical transports in the first place. (Never mind that MSP was the first public safety agency in the country to offer medevac services!)

MSP's accident ended up drawing intense scrutiny from the FAA, the NTSB, and the department itself. The result was less of an indictment against the operation (as that politician was hoping), and more of an opportunity to find and fix several latent problems inherent in the air medical transport system nationwide.

MSP's operation weathered the storm. In fact, those hearings helped the agency receive approval for a fleet of brand new helicopters, and raised the safety bar for all medevac operators.

I'm not so naive to believe that every person who is against police aviation will come to see that the benefits far outweigh the costs and the risks. But I think we owe it to those who have made the ultimate sacrifice to keep police aviation effective and safe by learning from their experiences, whether successful or fatal. We can do that by looking closely at what we're doing right and what we're doing wrong. Safety standdowns, outside audits and internal reviews can be a big help.

And should a situation rise to the level of a full-blown NTSB investigation—as hard as it might be for us—we ought to look at the results with an open mind, and see what changes can be made to prevent future accidents and deaths.

I don't think I have ever met Officer Richard Halford or Officer Shawn Smiley in my travels. They may or may not have come to the various police aviation seminars that I've been to, or been able to attend any of the annual ALEA conferences. And I certainly don't know what brought their ship out of the Atlanta sky on the night of November 3. But I do know this: They served and died honorably. And for that, we owe it to them to keep flying.

Coming Up in rotor&wing

March 2013:

Commercial Markets Report—Our editors will talk with representatives of diverse market segments, including offshore, HEMS, utility, air taxi, tourism, ENG, corporate, etc., to pull together a snapshot that details how various sectors are performing and the outlook for 2013 and beyond.

Offshore Expansion—We'll place special emphasis on offshore oil and gas exploration and trends in this booming sector of the helicopter industry. Advancements in large airframes such as the AgustaWestland AW189, Bell 525, Eurocopter EC175 and Sikorsky S-92 are expanding the range and capacity for offshore operators around the world, including hotspots such as the Gulf of Mexico, the North Sea, South America and Asia.

UK Metropolitan Air Support Unit—London is protected from the air by the Metropolitan Police Air Support Unit, which flies three Eurocopter EC145s. *Rotor & Wing* got a chance to look back over nearly two decades with the retiring head of London's policemen in the sky, Inspector Phil Whitelaw.

Columns—Public Service by Lee Benson; Military Insider by Andrew Drwiega; Offshore Notebook by Pat Gray; and Law Enforcement Notebook by Ernie Stephens.

Bonus Distribution: Heli-Expo 2013, March 4-7 in Las Vegas, Nev. CHC Safety & Quality Summit, March 18-20 in Vancouver, Canada. AEA, March 25-28 in Las Vegas, Nev.

April 2013:

U.S. Army Procurement Strategy and Options—How will the uncertainty in Washington over the pending debt ceiling limits affect various acquisition options for the U.S. Army's helicopter fleet? *Rotor & Wing*'s Andrew Drwiega examines the answer to this question as part of reports from the recent AUSA ILW Army Aviation Symposium and Exposition.

CAE Flight Training in India—The simulation provider invited *Rotor & Wing* to get a first-hand look at the Helicopter Academy to Train by Simulation of Flying (HATSOFF) center, which is a joint venture with India's Hindustan Aeronautics Limited (HAL). Our visit to HATSOFF takes place during Aero India 2013, which is being held in February.

Heli-Expo Post-Show Wrap—The helicopter industry revolves around the hallmark annual event, set to take place from March 5-7 in Las Vegas, Nev. Heli-Expo 2013 bring together hundreds of operators, suppliers and vendors from around the commercial rotorcraft industry. Look for *Rotor & Wing*'s Post-Show Wrap digital edition, and visit www.rotorandwing.com for coverage of the three-day event.

Spatial Disorientation & Night Vision—AMST, an Austrian organization that specializes in aeromedical solutions, is holding an annual user conference in Saltzburg. Andrew Drwiega reports from this international user meeting on the study of spatial disorientation and the latest in training techniques. This will also include advances made in night vision training.

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

Bonus Distribution: Quad-A, April 10-13 in Fort Worth, Texas. ABACE, April 16-18 in Shanghai, China.

Military Insider

By Andrew Drwiega

When Goodwill is Not Enough; Trust Issues

After 11 years of getting to know each other on an escalating level of contact and cooperation in the theatres of war that have been Iraq and then Afghanistan, it appears that the integration of contractor with the green-suited fraternity that has been so widely praised by both parties has largely remained on the battlefield, or at least those directly involved on a daily basis.

It was depressing to hear the majority of corporate industry speakers on the first day of AUSA ILW Aviation, the annual post New Year gathering of the aviation industry and the U.S. Army at National Harbor, Md., recite the pleas that have been heard at these type of gatherings for years, namely: "Please tell us what you want." This is not to denigrate in any way the self-evident cooperation and support for existing aircraft conducting combat operations—even the new ones. The current fleet is well supported by an industry that has worked hard to get behind its warfighters, as well as an Army that genuinely recognizes and appreciates what industry has achieved, particularly in cases where an urgent need has been identified.

The problem lies between those decision-making monoliths above this daily teaming. While the fiscal budget issue did its best to introduce a Scrooge-like mentality pre-Christmas, the deeper issue is the mistrust that still exists deep within defense and industry of each other. Industry does not believe that those in defense really know what they want long term (which directly affects corporate strategic investment); conversely defense has been burned so many times by soaring industry costs and project overruns that they feel it is almost an inevitable consequence of any new procurement decision. We live in a blame culture where scapegoats must be found. Heck, the specter of the RAH-66 Comanche was raised yet again (the right time of year if slightly late). And nobody wants to create The Ghost of Christmas Yet to Come.

Maybe the answer is to take the consultation process higher up the chain—I mean to the very top. Perhaps the Captains of Industry need to face the Generals of Defense in a locked room for a little bit of straight shooting from the hip. It might go like this—Captains: "Make some procurement directional decisions soon or we will reinvest in other more profitable business areas. And remember, once we lose the experience to make what you need—relearning is a long and costly business."

Generals: "So stop loading the dice that put us into a bind on every decision we make, which all end up prohibitively costly; and be honest with your design, manufacturing and certification capabilities before you offer us something you know has no guarantee of being delivered to the original spec."

What is clear is that something does need to change—and fast.

A Joint Force for Asia Pacific; U.S. Army's Helicopter Carriers

Ok, I get it. If I had a dollar for every time I have heard about the military pivot away from Europe and toward Asia Pacific—and that nation that fills our stores with the majority of non-food items that we buy on a daily basis—I would be able to buy a lot more stuff with the label, Made in China.

What is currently unclear is how that force will be redeployed, both in long-term basing, and as a rapid reaction force, without escalating tension across the region leading to additional conflict.

We have already seen the reluctance of the Japanese military in Okinawa to accept V-22 Ospreys and of course, the withdrawal of U.S. forces from bases in the Philippines that began with the closure of Subic Bay Naval Base in 1991, may now be seen as an early contributing factor that has now encouraged China to escalate the intensity of its geographical territorial claims.

So with China's neighbors cautious about any alignment with the U.S. and the possibility of a lack of bases large enough to hold a counter-force, many are beginning to understand requests for longer endurance and the need for speed.

The U.S. Marines might not the only force with sea-basing in their repertoire. With the British having recently demonstrated the Apache's ability to operate in the maritime environment off the coast of Libya, perhaps the U.S. Army's next budget request might be for a "green" helicopter assault ship (say, how many would you need to operate a Combat Aviation Brigade from the ocean anyway?)

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