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EDITORIAL

Andrew Parker Editor-in-Chief, aparker@accessintel.com
Chris Sheppard Associate Editor, csheppard@accessintel.com
Ernie Stephens Editor-at-Large, estephens@accessintel.com
Andrew Drwiega Military Editor, adrwiega@accessintel.com
Claudio Agostini Latin America Bureau Chief
Joe West United Kingdom Correspondent
Contributing Writers: Chris Baur; Lee Benson; Shannon Bower; Igor Bozinovski; Keith Brown; Tony Capozzi; Keith Cianfrani; Steve Colby; Frank Colucci; Dan Deutermann; Ian Frain; Pat Gray; Emma Kelly; Frank Lombardi; Vicki McConnell; Robert Moorman; Douglas Nelms; Mark Robins; Dale Smith; Terry Terrell; Todd Vorenkamp; Richard Whittle.

ADVERTISING/BUSINESS

Joe Rosone Senior Vice President, Aerospace Group, jrosone@accessintel.com
Randy Jones Publisher, 1-972-713-9612, rjones@accessintel.com

Eastern United States & Canada
Carol Mata, 1-512-607-6361, cmata@accessintel.com

International Sales, Europe/Pac Rim/Asia
James McAuley +34 952 118 018, jmcauley@accessintel.com

DESIGN/PRODUCTION

Gretchen Saval Graphic Designer
Tony Campana Production Manager, 1-301-354-1689 tcampana@accessintel.com

AUDIENCE DEVELOPMENT

George Severine Fulfillment Manager, gseverine@accessintel.com
Customer Service/Back Issues 1-847-559-7314 rw@omeda.com

LIST SALES

Statlistics
Jen Felling ,1-203-778-8700, j.felling@statlistics.com

REPRINTS

Wright's Media, 1-877-652-5295
sales@wrightsmedia.com

ACCESS INTELLIGENCE, LLC

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Access Intelligence

Access Intelligence, LLC
4 Choke Cherry Rd., 2nd Floor
Rockville, Md. 20850 - USA
Phone: 1-301-354-2000, Fax: 1-301-354-1809
E-mail: rotorandwing@accessintel.com

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Editor's Notebook

Married with Children

By Andrew Parker

aparker@accessintel.com

This month's issue marks the formal launch of an increased focus within the pages of *Rotor & Wing* on vertical lift R&D and science and technology (S&T) efforts to develop rotorcraft into the future. In addition to a special *R&D Report: Target 2030* that's part of our *Military Insider* publication (starting on page M1), the July issue features Keith Brown's exclusive interview with U.S. Army Aviation Maj. Gen. William "Tim" Crosby, program executive officer of U.S. Army Aviation (see story on page 54).

Crosby told a crowd of engineers at the AHS Forum in May that expanded collaboration between S&T and military program management needs to occur, describing a "marriage" of the groups, in order to develop and fund a family of Future Vertical Lift (FVL) aircraft. "We can ill-afford to be pursuing things that don't either support Future Vertical Lift or where we need to go in modernizing the platforms that we have," he noted. That's "the kind of communication and collaboration we're going to need in budget-tight environments. ... We've got to collaborate, we've got to coordinate, we've got to discuss."

Crosby pointed out the importance of working toward the future, describing it as a "number one priority" for all interested parties.

"Sometimes it's easy to focus on the right now, the current budget year, and thinking to yourself that you're supporting the soldier. That's the easy way out," he said, adding that if leadership doesn't think about long-term, "we'll feel real good about ourselves today, but in a few years we'll look back and say we screwed up and it's our fault. If we accept that short-term answer today, then we have no one to blame but ourselves down the road when our kids are out there trying to fight these battles for us, if we don't stand our ground and have a vision. And that vision's got to translate into execution."

S&T and program management "have got to pull closer together, and this collaboration has got to be tighter to prevent us from using the small amount of resources we've got." Crosby added that when only about $100 million of a total $6-8 billion budget is dedicated to S&T, "that's budget dust. ... If we waste one of those dollars pursuing something that doesn't tie into our vision for the future, then we're wasting that, and we can ill-afford to let that happen."

He concluded that he "never met an engineer that couldn't design what we asked him to do. What makes your blood boil is when I come in halfway through and keep changing it. So again, that communication flow and that marriage has to happen so that we have a clear vision. You all have the greatest concepts, the ideas—what you need is prioritization of resources."

Bill Lewis, director for aviation development at the U.S. Army Aviation and Missile Research, Development, and Engineering Center (who hosted an S&T briefings panel at AHS), told *Rotor & Wing* in an exclusive interview (see story on page M12) that the organization's funding "has remained relatively level since the mid-'80s. The problem with aviation is that our commodities are expensive. The development of our commodities is expensive." Given all that, he continued, "we very deliberately have industry partners who cost-share with us [and] who try to help us along the path of coming up with the developments. In the case of some companies, they go out on their own and do some developments. So, could we use more? Absolutely." Lewis pointed out the need to keep FVL operating costs low, noting that "70 percent of the cost of our systems is after we buy the system. So a huge focus of the new aircraft is going to be how to build a zero-maintenance aircraft. But, in order to do that, there must be a lot of embedded technologies." The collaborative nature of designing an aircraft that can be used across all services is another hurdle, Lewis continued.

"The organizations building these aircraft have to be able to understand cross-discipline approaches. That's the beauty of the S&T organization—it's small enough and agile enough to understand and work hand-in-glove with our counterparts functionally to be able to come up with air vehicles that have those kinds of capabilities embedded in them. Remember too, all of these aircraft that we're building for 2030 are going to be optionally manned. So they will fundamentally fly themselves. It's a different way of thinking about the fight."

Working together across the spectrum is one of the most important elements to the success of the FVL program. The U.S. Senate Armed Services committee issued a June 4 report in the National Defense Authorization Act for FY2013 that notes despite the link between the Under Secretary of Defense for Acquisition, Technology and Logistics (USD AT&L) and the civil industry-led Vertical Lift Consortium (VLC), not enough headway is being made (see story on page M9).

To take Crosby's analogy further, the S&T and program management communities not only need to get hitched, but they need to have children, in order to "start a family" of FVL aircraft. Without that close-knit cooperation, FVL could potentially turn into the RAH-66 Comanche program, Part 2—and that's something nobody can afford.

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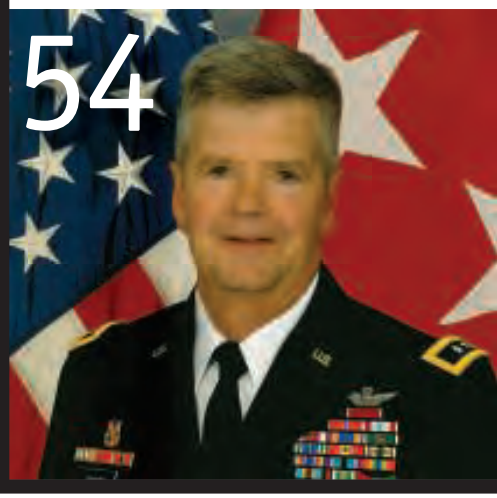
(Above) Heli-Union's newest full flight simulator (FFS) for the Eurocopter Dauphin AS365 N3/N3+ is now in operation. (Bottom) U.S. Army Aviation Maj. Gen. William "Tim" Crosby. (Right) Explosive Ordnance Disposal Mobile Unit sailors board a Sikorsky MH-60S Seahawk in the Arabian Gulf during a training operation.

FEATURES

On the Cover: U.S. Park Police Bell 412. *Photo by Ernie Stephens*

DEPARTMENTS

COLUMNS



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ONLINE

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U.S. PARK POLICE VIDEO

- Visit **www.rotorandwing.com** to watch a video and view additional photos from Ernie Stephens' feature article on the U.S. Park Police.

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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

JULY 1

- Digital edition of *Rotor & Wing* July 2012. Electronic version with enhanced web links makes navigating through the pages of *Rotor & Wing* easier than ever.

WEEK OF JULY 23:

- *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 JULY 23

- 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

R&W's Terry Terrell Receives HEMS Recognition

Air Methods recently recognized Robert "Terry" Terrell, longtime helicopter EMS pilot and *Rotor & Wing* "Safety Watch" columnist, for a 20-year milestone. Terrell previously worked for Omniflight, which Englewood, Colo.-based Air Methods acquired in August 2011.

Air Methods CEO Aaron Todd told Terrell that he is "deeply impressed by you and the other pioneers who have served and innovated within our industry over multiple decades."

Terrell, who began writing for *Rotor & Wing* while serving in the U.S. Coast Guard in 1976, was also recognized in 2009 for 25 years of HEMS service in the Atlanta metro area. He has served as chief pilot and director of safety for Avstat, Life Flight and Air Rescue 1, conducting more than 6,000 missions. Georgia Baptist Medical Center's Life Flight credits Terrell with saving "thousands" of lives. "Wherever lives are saved with helicopters in our community, his legacy will endure." *See Terry's latest Safety Watch column, "Cat Skinning, Part 2" on page 62.*

Terrell received a lifetime achievement award in 2009 for more than 25 years of service to the Atlanta metro area.

R&W's Question of the Month

What do you think helicopter designs will look like in the future, for both commercial and military applications, in 2030 and beyond?

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

From Facebook

The following comments appeared at: **facebook.com/rotorandwing**

(Responding to the photo of the new Russian Helicopters Kamov Ka-62.) Twin-bladed only! I have serious reservations about the landing gear. Do they expect a three point landing on a chopper always?

Arun Jyoti

Contrary to the optical illusion in the photo, this is a five-bladed aircraft. As far as a three-point landing, helicopters almost never touch down level (all three wheels touching at the same time). A helicopter will touch down "tail low" when empty and with a more level attitude when loaded to max gross weight. A helicopter also touches down with one side low, which is caused by tail rotor thrust countered by pilot input.

Davis Newman

It looks like a cross between a Sikorsky UH-60 Sea Hawk and an Eurocopter AS365 Dauphin.

Ed Roo

Horizontal stabilizer above vertical fin, possibly for better leverage to keep it level. This can also be the reason for the tailboom being short.

Vinay Kapoor

Looks like its mother might have been Sikorsky and the father is of a new Bell design. Both related to Eurocopter and adopted by Kamov.

David Daly

Correction

The last name of CHC's Greg Wyght was misspelled in *"CHC Safety Quality Summit,"* on page 40 of the May 2012 issue. *We regret the error.*

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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Rotorcraft Report

NEWS

■ COMMERCIAL | AIRFRAMES

X3 Travels Around U.S. to Conduct Operator Demos

The Eurocopter X3 landed in Texas to begin its U.S. tour.

Eurocopter's X3 (X-cube) taxies at Fort Worth Alliance Airport in Texas as it begins its U.S. tour. Editor-at-Large Ernie Stephens test flew the aircraft on June 18, and American Eurocopter hosted a June 20 event at its headquarters in Grand Prairie as the July issue went to press. Read Ernie's flight review in the August issue, and check for updates about the X3 at **www.rotorandwing.com**

■ PUBLIC SERVICE | SEARCH & RESCUE

UK Royal Prince William Qualifies as SAR Pilot

Prince William, now a qualified SAR Operational Captain.

Second in line to the throne after his father, Prince William recently qualified as a search and rescue (SAR) pilot in the UK's Royal Air Force. He is now an Operational Captain. It may be as well that his duties as part of the Royal household in the UK will steadily increase, as the military involvement in conducting SAR missions around the UK is set to stop in the next few years. Military SAR will be replaced by a completely civilian service, a move much resented by the RAF who considered their involvement not only as a valuable break from front-line service, but also a chance to refresh a wide range of other operational and crew resource management skills.

Ironically, training to be a SAR pilot at RAF Valley on the Isle of Anglesy in north Wales gave the Prince much needed privacy. One national newspaper was said to have contemplated calling the emergency services to rescue a "damsel in distress"—likely to have been a model in a swimsuit with photographers standing by. As far as its known, the event never took place. The SAR Operational Captain qualification means Flight Lt. Wales (as he has been called throughout the course) is now able to lead rescues in a Royal Air Force Sea King helicopter in all weather, day or night.

Being awarded Operational Captaincy represents the culmination of nearly two years of flying experience and study. Soon after the completion of his final flying tests, the Prince and his crew were called to a real-life rescue operation where a rig worker with chest pains was transferred from 30 miles (48km) off the Lancashire coast to Blackpool Hospital. *—By Andrew Drwiega, Military Editor*

■ MILITARY | COMPLETIONS

A2D Deliveries Start as Army Deals with OH-58 Shortage

Bell has handed over the first Bell OH-58 Kiowa Warrior under the "A2D" conversion program to the U.S. Army. The helicopter, which joined the 1-6 Air Cavalry Squadron in Fort Riley, Kan., represents the first to receive a conversion from the existing OH-58A model to the rebuilt "D" variant under the wartime replacement aircraft (WRA) program, which seeks to replenish the Army's Kiowa Warrior fleet lost to attrition.

According to Lt. Col. Matthew Hannah, Kiowa Warrior product manager, the Army "fell below our required Kiowa Warrior strength of 386 [helicopters] in 2004." Combat losses during conflicts in Afghanistan and Iraq accounted for most of the fleet reduction. At the moment, the Army is 42 helicopters short of the required 368 airframes, with another seven Kiowas "pending attrition," Hannah said. "We have to do analysis determining the best course of action to replace those," he added.

Chief Warrant Officer 3 Aaron Posey test flew the OH-58D for Fort Riley and reported that the helicopter was "very, very smooth," adding that he thought it was in "the top five percent, if not the smoothest aircraft I've ever flown."

Lt. Col. Paul Cravey, commander of the 1-6 Air Cavalry Squadron, is one the units that is feeling the pinch from the Kiowa shortage, as he is currently at "two-thirds of authorized strength." The Air Cavalry Squadron returned from Iraq in March 2011, leaving part of its fleet behind for the unit that replaced them. This new addition brings Cravey's fleet up to 20 helicopters, still short of the full complement of 30 helicopters needed for Fort Riley, despite Cravey having the aircrew and staff to support 30.

Photos by Sofia Bledsoe

CW3 Aaron Posey (right), checks out the upgrades on the OH-58D with squadron commander Lt. Col. Paul Cravey.

Cravey related that during a recent aerial gunnery training exercise, Fort Riley only had nine available Kiowas to train 39 aircrews within three weeks. "It was tough to turn everybody through in the amount of range time that we available to actually go out and do the live-fire gunnery," Cravey said. "That is some extreme strain on my maintenance crew to be able to launch and recover those aircraft."

Pilots from the 1-6 Air Cavalry Squadron in Fort Riley, Kan. prepare to take the first A2D Kiowa Warrior on an acceptance test flight.

With these types of shortages in mind, the WRA is working toward filling the Kiowa gap. "Currently we are planning on 23 'A2D' conversions to replace the WRAs and ... 26 'new metal' WRA for a total of 49 aircraft," Hannah said. *—By Chris Sheppard, Associate Editor*

■ COMMERCIAL | AIRFRAMES

Multi-Role Kamov Ka-62 Debuts at HeliRussia

Russian Helicopters took the wraps off a new variant—the medium-category, multi-role Kamov Ka-62—during HeliRussia 2012 in May. Intended for the cargo transport, EMS, offshore, SAR and corporate sectors, the helicopter will feature a five-bladed rotor, secondary hydraulics unit, shock-absorbing seats and airframe/propellers made up of 50 percent polymetric composite materials. Power will come from two Turbomeca Ardiden 3G engines supplying 1,680 hp, with first flight targeted for August 2013. Russian Helicopters anticipates Interstate Aviation Committee (as well as EASA) certification and initial deliveries to begin in 2015.

Russian Helicopters

The multi-role Kamov Ka-62 is intended for the cargo, corporate transport, EMS, offshore and SAR markets.

PUBLIC SERVICE | SAR

Norway Launches Team NORDSAR

Eurocopter will provide a SAR-modified EC225 for Nordic Search and Rescue.

Norway has formed a new SAR venture with Eurocopter and Heli-One in Team NORDSAR (Nordic Search and Rescue). Eurocopter will provide a custom-built EC225, with special modifications for Nordic region SAR missions. Heli-One will provide maintenance and logistics support for the helicopter. The EC225 NORDSAR is also entering into the Norwegian All Weather Search and Rescue Helicopter (NAWSARH) competition. NAWSARH seeks a helicopter fleet that can service both coastal and mountain regions, as well as long-distance missions to the Barents Sea. A military-qualified EC725 will offer Norway anti-terrorism abilities. Norway currently has an EC225 servicing Hammerfest and the North Sea in a SAR capacity.

PRODUCTS | AVIONICS

KAI Contracts Sandel for HeliTAWS

Sandel Avionics has agreed to provide Korea Aerospace Industries (KAI) with HeliTAWS for the Korean Utility Helicopter (KUH) program. Under the agreement, Sandel will equip the KUH with the Mil 810-G qualified HeliTAWS ST3453H. The Korean National Police's Surions will see the initial installation of the avionics package. The Surion, currently under production, is a law enforcement-modified version of the KUH.

SERVICES | CERTIFICATION

Summit Aviation Receives AS9100C Certification

Greenwich AeroGroup company, Summit Aviation, has earned AS9100C aerospace quality standard system certification. Summit obtained the certification for its facilities in Middletown, Del., and Somerset, Ky. The maintenance and modification provider offers services for Boeing, Eurocopter, MD and Sikorsky variants, and is gold-certified for the Bell 204/205, 206B/L, 407, 412, 427 and 429.

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Horizon Helicopters' MD900 will receive Transport Canada-approved NVG modifications from ASU.

PRODUCTS | NIGHT VISION

ASU Gains Canadian MD900 Approval

Aviation Specialties Unlimited (ASU) of Boise, Idaho has received Transport Canada approval to carry out night vision cockpit modifications on the MD900. The certification comes after ASU modified an MD900 in operation with Horizon Helicopters based in the Yukon Territory. The helicopter is intended for medical and SAR operations. ASU's Kip McDermott points out that Horizon operates in remote areas with few light sources.

ASU has also completed an order for the Pasadena Police Department's Air Operations Section for four night vision goggle (NVG) systems, modifications and training. ASU customized the interiors of two Bell OH-58 Kiowas and provided initial training for seven pilots. The Pasadena Air Operations Section fleet also includes an MD500E.

An inside look at the Pasadena Police Department's newly customized Bell OH-58 Kiowa.


ASU

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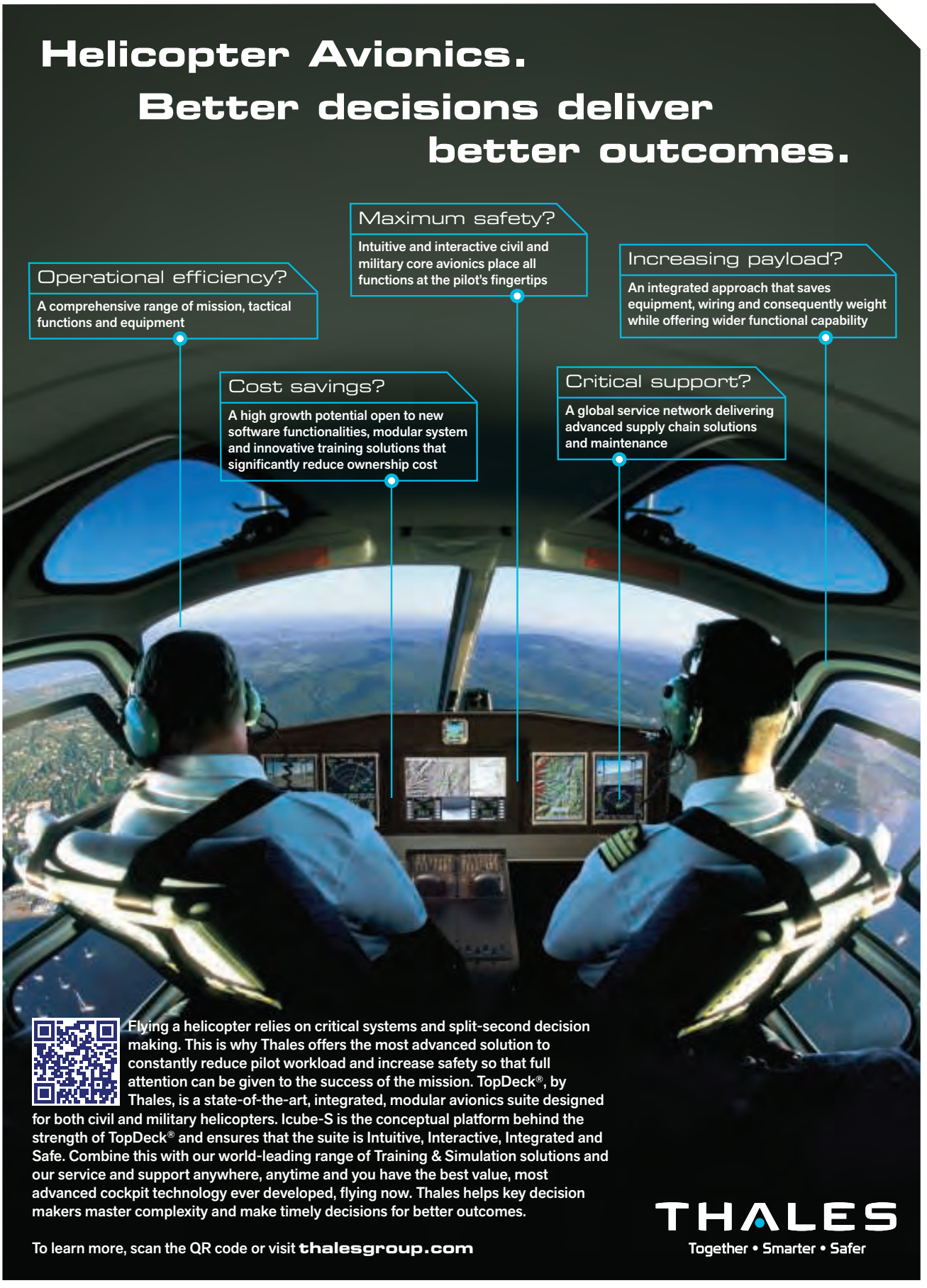

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■ COMMERCIAL | AIRFRAMES

Eurocopter Readies for First Upgraded EC130 Handover

The EC130T2 features improved air conditioning, doors and seats, among other enhancements. At maximum cruise speed, it flies at 127 kts.

EASA certification of the Eurocopter EC130T2 light single—a major upgrade from the EC130B4—is imminent. The first example is scheduled to go to sightseeing operator Maverick Helicopters by the end of the year. FAA certification is expected in time for this U.S. delivery.

The Marignane, France-based manufacturer says it has listened to operators to improve the original EC130. The EC130T2 is being offered at a time when some operators are considering EC130 fleet renewal. When 12 years old, an EC130 needs a major overhaul. It is so expensive and time-consuming that replacement is a strong option.

Improving "details" such as air conditioning, doors, hook, seats, fuel tank, engine, etc. has involved modifying 70 percent of the airframe. The T2, however, looks like the B4. It has the same number of passenger seats—up to seven. So why not take advantage of the airframe changes to enhance aerodynamics or capacity?

"Keeping the aircraft's shape is a way to keep its flight qualities unchanged," answers Benoit Terral, operational marketing manager for aerial work customers. Therefore, the certification effort remains minimal and affordable. "It is just an additional line on the type certificate," says Janick Blanc, vice president of light helicopter programs.

Moreover, for an EC130B4 pilot, type rating remains the same. Eurocopter recommends two days of training but they are not mandatory. Pilots and maintenance technicians can just read the manuals.

Externally, the only details that distinguish the T2 from the older version are three air intakes. Two of them, on the engine cowling, have triangular shapes. The third one is located just below the fuselage, on the right side, next to a landing light.

Although these changes look small, they speak volumes about one focus of the upgrade—ventilation and air conditioning. Sightseeing operators, for example, complained it was too weak for those temperatures found in the Grand Canyon area. Now, "we want to offer automotive standards," Terral says. In the T2, more air outlets combine with an easier setting of cabin temperature. Air conditioning power has been boosted from 4.5 to 7.5 kilowatts.

Engine power has increased, too—from 847 to 952 shp. It can be used at full power, thanks to the Fenestron tailrotor, Terral explains. On the AS350 B3e, the same engine has to be derated because its conventional tailrotor can't accommodate full power. The Turbomeca Arriel 2D turboshaft also has a 2 percent lower specific fuel consumption than the EC130 B4's Arriel 2B1. This may allow Grand Canyon operators to avoid one refueling stop on their round trip from Las Vegas, Blanc estimates.

The Arriel 2D's initial time between overhaul (TBO) will be 4,000 flight hours—up from 3,500 on the B1. Turbomeca hopes to bring this to 6,000 hours eventually.

The 2D features a "creep damage counter" to better predict maintenance. Some operators heavily use the full power setting; therefore, they have to replace the combustor and high-pressure turbine more often than the nominal TBO. The creep damage counter determines, in real time, creep deterioration of the blades. This can be read on an additional "usage" line on the engine health display. It indicates, for instance, the blades have reached 50 percent of their design life at 1,000 flight hours. "You no longer need in-depth inspections for this," Terral says.

The rear seats can now be easily removed, as opposed to earlier designs that had the seats mounted on a "box" for crashworthiness. Thanks to the airframe changes, the seats are now mounted directly on the floor. Removal, along with the front passenger seats, now takes 10 to 15 minutes, freeing up a flat floor area. In countries that allow emergency medical services (EMS) with single-engine helicopters, the EC130T2 becomes a quick-change passenger/EMS/utility rotorcraft. Another improvement is metallic doors with

Under the engine cowling, a Turbomeca Arriel 2D provides 952 shp, up from 847 shp on the EC130B4's Arriel 2B1.

robust hinges, a response to operator complaints about reliability. Even with the changes, the new doors are lighter, Eurocopter says. The right-hand rear door is now a sliding door, just like the left-hand one. Now available as an option are hinged rear doors.

An active vibration control system, supplied by Lord Corp., has been adapted from the Super Puma family. It uses five accelerometers, feeding into a dedicated computer that also receives rotor input. The response is sent to magnetic actuators that counter vibration. Terral stated that the system couldn't hide abnormal vibration.

In a demonstration flight for the media, test pilot Olivier Gensse turned the system on and off. It appeared effective, although a helicopter ride can't be as smooth as that of an airliner.

The fuel tank has been made crashworthy with an aluminum fairing added around the flexible bladder. Now, it can resist a 50-foot drop when filled with 80 percent water.

Eurocopter anticipates cargo swing hook certification late next year, beefing up the EC130's external load capability to 1.5 metric tons (3,300 lbs), from 1.16 metric tons (2,550 lbs) originally—even higher than that of the AS350B3 Ecureuil/AStar at 1.4 metric tons (3,080 lbs). Design engineers are currently devising a way to fold the hook when not in use.

The T2's price is said to be only four percent higher than the B4. Eurocopter would not disclose any more numbers, but a source familiar with light helicopter prices said this would bring the T2 to about $3.1 million. Meanwhile, Eurocopter claims that direct maintenance costs are lowered by $10, resulting in a per-flight-hour cost of $324.

Eurocopter sees the T2's main competitors to be the Bell 407 and the in-development Marenco SKYe SH-09 .—*By Thierry Dubois*

EC130T2 By The Numbers

MTOW	5,512 lbs
MTOW with external load	6,724 lbs
Max Cruise Speed	127 kts
Endurance (without reserve)	4 hours

PEOPLE

National Transportation Safety Board Chairman **Deborah Hersman** has selected **John DeLisi** as director of the Office of Aviation Safety (OAS). DeLisi replaces the retiring Tom Haueter. DeLisi has been with NTSB for 20 years and served as the OAS deputy director since 2007.

Brad Pedersen has succeeded **Donald Harlan** as president and CEO of Breeze-Eastern. Pedersen was formerly the president of Airborne Systems Group in New Jersey, and prior to that served as the Canadian maritime helicopter project program manager, UH-60M program manager and director of advanced programs (R&D) during a six-year stint at Sikorsky Aircraft.

Canada-based CAE has appointed **Gene Colabatistto** as group president for military simulation products, training and services. Colabatistto replaces retiring 16-year veteran **Martin Gagne**, who will stay on as a consultant for CAE. Colabatistto, a former Marine who served in Operation Desert Storm, was previously the senior vice president for the intelligence, surveillance and reconnaissance (ISR) group at Science Applications International Corporation (SAIC).

Brig. Gen. **Timothy Edens** has assumed responsibilities as the director of Army safety and commander of the U.S. Army Combat Readiness/Safety Center in Fort Rucker, Ala. Edens, who joined the Army in 1981, assumed command from Brig. Gen. **William Wolf**. During his three-decade tenure, he led the 6th Squadron, 6th Cavalry, 11th Regiment (Attack), V Corps through a Boeing AH-64D Apache Longbow Unit fielding and training program in preparation to be the first Apache Longbow unit stationed in Europe.

Latitude Technologies has named

Peter Parrish as vice president of operations. Parrish will oversee corporate communications, marketing and production, as well as customer service and other corporate responsibilities. Prior to this new position, Parrish had consulted with Latitude and served as interim general manager.

San Diego, Calif.-based Helicopter Links, an online helicopter directory, has appointed a six-member advisory board. The group of pilots and marketing specialists includes **Eric Post**, an attorney with commercial/CFI helicopter experience and **Mike Muenich**, a pilot and owner of Florida-based Rotor and Plane Aircraft Appraisals. Both Muenich and Post are A&P mechanics. The board also consists of **Tom Interval**, writer, editor and marketing specialist; **Jennifer Schumaker**, journalist and editor; **Tim Hughes**, president of eMerchant Marketing and graphic designer/social media professional **John Evangelista**.

Ornge has named **Wayne Howard** vice president of finance and appointed **Robert Giguere** as an aviation special advisor. Giguere previously worked with Air Canada and Skyservice Airlines. Prior to joining Ornge, Giguere worked as an independent aviation consultant. Ornge also brought **Bruce Farr** on board as special advisor for operations. Farr formerly was with Toronto Emergency Medical Services in various roles before retiring 2011.

coming events

2012:

July 11–14: 42nd Annual ALEA Conference & Exhibition, Reno, Nev. Contact Airborne Law Enforcement Association, phone 1-301-631-2406 or visit www.alea.org

July 23–25: 7th Annual Night Vision Systems Summit, Washington, D.C. Contact Institute for Defense and Government Advancement, phone 1-800-882-8684 or visit www.nightvisionevent.com

Sept. 4–7: European Rotorcraft Forum 2012, Amsterdam, The Netherlands. Contact National Aerospace Laboratory NLR, phone +31 88 511 3165 or visit www.erf2012.nlr.nl/index.html

Oct. 22–23: Police Aviation, Kuala Lumpur, Malaysia. Contact Tangent Link, phone +44 (0) 1628 660400 or visit www.tangentlink.com/events

Oct. 22–24: 2012 Air Medical Transport Conference, Seattle, Wash. Contact AAMS, phone 1-703-836-8732 or visit www.aams.org

Oct. 30–Nov.1: Helicopter Military Operations Technology Specialists' Meeting (HELMOT XV), Williamsburg, Va. Contact AHS Intl, phone 1-703-684-6777 or visit www.vtol.org

Nov. 6: High-Rise Aerial Firefighting & Rescue, Dubai, UAE. Contact Tangent Link, phone +44 (0) 1628 660400 or visit www.tangentlink.com/events

Nov. 6–8: Dubai Helishow 2012, Dubai, United Arab Emirates. Contact Mediac Communications and Exhibitions, phone +44 (0)1293 823 779 or visit www.dubaihelishow.com

2013:

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

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

■ MILITARY | UNMANNED

Marines Conduct 'Hot Hook-Ups' with K-Max in Afghanistan

The U.S. Marine Corps has successfully completed a procedure known as a "hot hook-up" using an unmanned Kaman K-Max at Camp Dwyer in Afghanistan. Developed with Lockheed Martin, the unmanned K-Max performs the hot hook-up by hovering and deploying a long sling, which Marines with the Combat Logistics Battalion 5, 1st Marine Logistics Group (Forward) then load with cargo.

According to Lance Cpl. Vihn Vu, landing support specialist, CLB-5, 1st MLG (Forward), the onboard computer factors in wind speed to reduce "the hook swing" making it safer for Marines to attach the cargo. Another factor that increases safety is that the K-Max's rotors are made out of wood, eliminating the risk of static electricity.

Prior to the deliveries at Camp Dwyer, the K-Max was only servicing Forward Operating Bases Payne and Geronimo.

Photos by By Sgt. Michele Watson

Marines with the Combat Logistics Battalion 5, 1st Marine Logistics Group (Forward) perform a "hot hook-up" with a hovering K-Max.

■ **TRAINING** | RATINGS

Bell Opens Flight School in China

Guanchen Aviation and Bell Helicopter have signed an agreement to establish the first official Bell flight training school in China. The certified training facility will be based in Anyang, offering initial and recurrent training on the Bell 206L and 407. Bell hopes to expand the offerings to other variants in the future.

■ SERVICES | CERTIFICATION

FAA OK's North Flight EC145 LARS

Arlington, Texas-based North Flight Data Systems has obtained an FAA supplemental type certificate (STC) for its lightweight aircraft recording system (LARS) on the Eurocopter EC145. In partnership with Metro Aviation of Shreveport, La., North Flight incorporated LARS into the EC145 airframe. North Flight also recently received approval for the EC155 and is pursuing STCs on the Bell 206L and 407.

■ **MILITARY** | VIP

Sikorsky Modifies State Dept S-61Ts

Stratford, Conn.-based Sikorsky Aircraft has finished upgrades to the first S-61T airframe for the U.S. Department of State. In 2010, the State Department purchased more than 100 S-61s, which Sikorsky is modernizing as part of its S-61T program. Sikorsky Aerospace Services is managing the upgrades, which include force protection enhancements, glass cockpits, main rotor blades, modular wiring harnesses, and modern survivability equipment. The helicopters are intended for diplomatic service in Afghanistan. Carson Helicopters will complete the S-61Ts in Perkasie, Pa.

PUBLIC SERVICE | FIREFIGHTING

Erickson Supports Greece Fire Efforts

NATO's Maintenance and Supply Agency (NAMSA) has contracted Erickson Air-Crane to provide aerial firefighting services to Greece's Hellenic Fire Brigade. The three-year contract is valued at $44 million with a two-year extension option. Three Erickson S-64s, which are currently deployed in Europe, will serve Greece during the 2012-2014 firefighting seasons.

PUBLIC SERVICE | EMS

Metro Delivers EC145s to Sanford, Duke

Shreveport, La.-based Metro Aviation has handed over its third and final Eurocopter EC145 to Sanford Health LifeFlight. Duke Life Fight also received its second and last EC145 from Metro. Both helicopters were equipped with Metro's GPS wide area augmentation system (WAAS), which was recently certified for integration with EC145 single/dual pilot IFR.

COMMERCIAL | OPERATORS

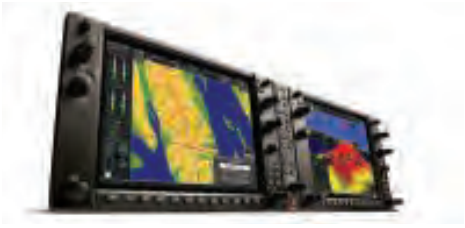
Det'on Cho Sells Trinity Helicopters

Northwest Territories, Canada-based Det'on Cho has sold its 51 percent equity in Trinity Helicopters to Donnie and Joan Robinson. Trinity flies a fleet of 19 helicopters that includes Bell 206 LongRanger L/R-2s, 206 LongRanger L-1s, L-4s, 206 JetRangers, Eurocopter AS350 B3s and AS355 F2 Twinstars. The Robinsons are the former owners of RTL Enterprises and Arctic Sunwest Charters, and came out of a six-year retirement to make the Trinity purchase.

HOT PRODUCTS

for Helicopter Operators

Garmin G1000H and NVG Modifications from Aero Dynamix



Aero Dynamix, Inc. is an industry leader and principle innovator of integrated Night Vision Imaging System (NVIS) solutions for commercial and military aircraft. ADI is a full-line distributor and certified repair station for Garmin Avionics and offers internal NVG instrument modifications for Garmin products that do not compromise on the Garmin factory warranty. Featured here is the G1000H, an all-glass avionics suite for OEM aircraft. It is a seamlessly integrated package that makes flight information easier to scan and process. G1000H's revolutionary design brings new levels of situational awareness, simplicity and safety to the cockpit and puts a wealth of flight-critical data at your fingertips. Its glass flight deck presents flight instrumentation, navigation, weather, terrain, traffic and engine data on large-format, high-resolution displays. Contact Aero Dynamix today at **sales@aerodynamix.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. More details are available at **www.aerodynamix.com**

Becker Delivers 1,000th DVCS

Becker Avionics is a privately owned hi-tech avionics company. For more than 50 years, Becker has been an industry pioneer, manufacturing affordable, sophisticated digital intercom systems, communication & navigation radios, transponders, personal locator beacons and air traffic control radios. Becker is recognized by savvy customers for their leading-edge design and quality products made for a variety of market segments including general aviation and rotorcraft (air medical services & airborne law enforcement), along with special mission and military customers. Becker's flagship product is the highly successful Digital Voice Communication System (DVCS). The DVCS was the first commercially certified digital intercom system in the marketplace (ETSO & TSO'd). This current generation DVCS6100 has incorporated a variety of unique and popular 'customer-centric' features. Recently, Becker reached a significant milestone by delivering its 1,000th DVCS since introducing its Digital Audio System family. For more information, contact Brett Gardner, Director of Sales, at **brett@beckerusa.com** or visit **www.beckerusa.com/dvcs**

Tech-Tool Plastics Provides Cabin Comfort Clear View Windows for Eurocopter AS350/355s

Thanks to Tech-Tool Plastics Cabin Comfort windows, Eurocopter AS350 AStar and AS355 TwinStar operators can enjoy clear views essential for safe flying. Tech-Tool's wedge-style Cabin Comfort windows provide increased crew and passenger shoulder and elbow room throughout the AStar's cabin. In addition to added visibility and comfort, Tech-Tool's Cabin Comfort windows add a customized appearance at an affordable price. Windows are available in standard clear or custom gray tinted acrylic. Vibration-free slide camera windows are available for aerial photography. The company fills most orders within 24 hours. Tech-Tool offers standard and customized windows for the most popular models from Bell, Eurocopter, MD Helicopters, Robinson and Schweizer. Tech-Tool Plastics has manufactured and supported helicopter replacement windows for nearly 50 years. Tech-Tool's affordable, high-quality windows are FAA, EASA, ANAC and Transport Canada approved. They meet or exceed OEM standards, are easy to install, and fit every time. For more information, please visit **www.tech-tool.com**

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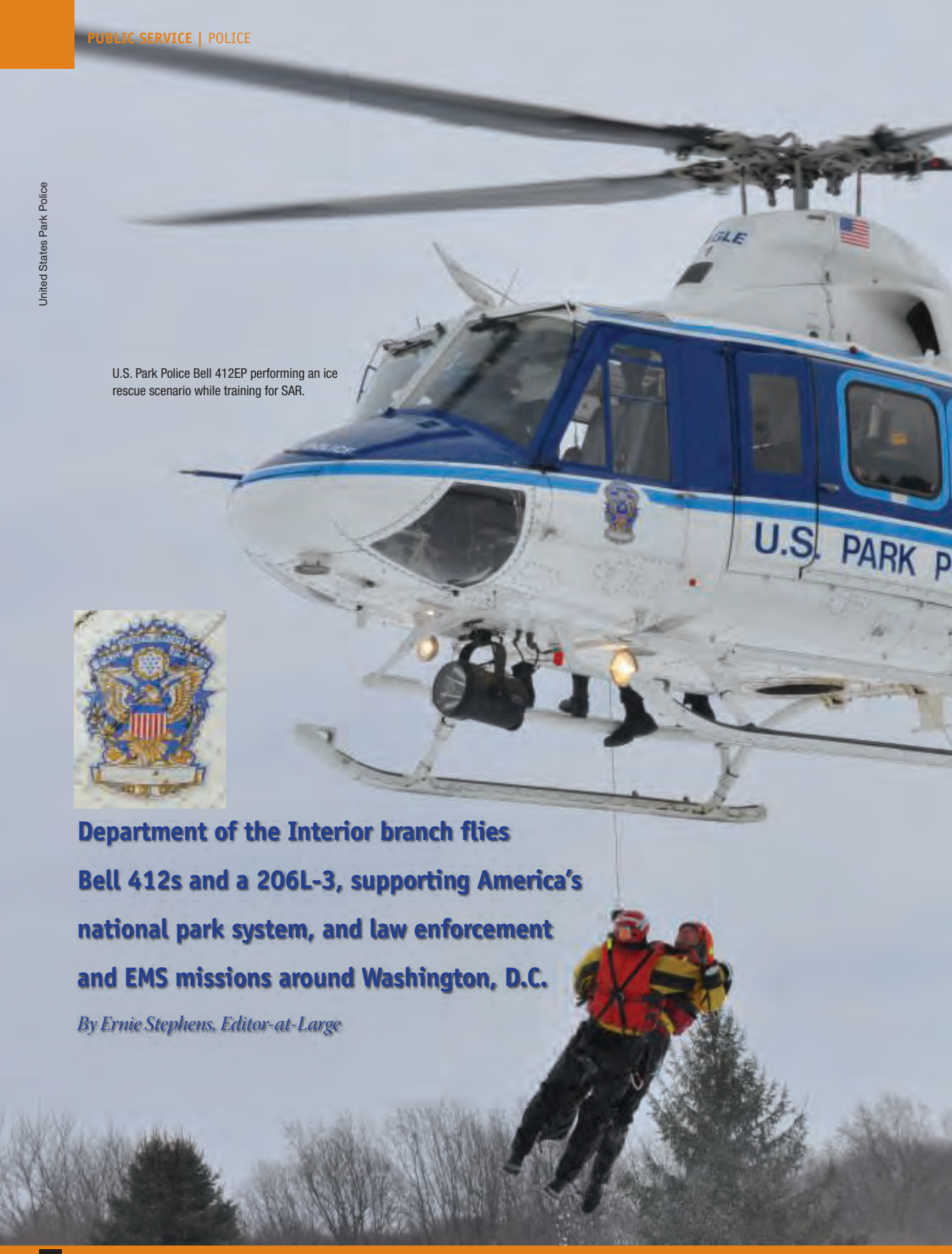
United States Park Police



U.S. Park Police Bell 412EP performing an ice rescue scenario while training for SAR.

Department of the Interior branch flies Bell 412s and a 206L-3, supporting America's national park system, and law enforcement and EMS missions around Washington, D.C.

By Ernie Stephens, Editor-at-Large

SOARING EAGLES

US PARK POLICE AVIATION DIVISION

When asked to list some U.S. government law enforcement agencies, outfits such as the FBI and Secret Service come to mind. But it's the rare person who will think of the oldest uniformed, federal law enforcement organization in the country; a proud agency that was established in 1791 by order of President George Washington. It is the United States Park Police (USPP).

USPP, a branch of the Department of the Interior's National Park Service, has jurisdiction over all National Park Service areas, and certain other Federal and State lands. It has physical stations in San Francisco, New York City, and Washington, D.C.—the latter of which serves as the agency's headquarters and largest component. The District is also home to the USPP's Aviation Division.

Chief Teresa Chambers was kind enough to grant *Rotor & Wing* permission to visit the USPP hangar, which is located just 1.6 nm southeast of the U.S. Capitol. I was met there by the unit's commander, Lt. Michael Libby, and given the executive tour by 27-year veteran Sgt. Kenneth Burchell, one of several officers there whom I have known for years.

The unit's hangar, affectionately known to both the department and air traffic controllers as the "Eagle's Nest," is the USPP's only aviation base. Its 11,400 square feet of hangar floor space houses the division's three helicopters: a 1998 Bell 412EP (N22PP), a 1990 Bell 412 (N412PP) and a 1983 Bell 206L-3 (N33PP). It is also where the unit's sworn complement of one commander, one executive officer, five pilots, seven certified paramedics (rescue technicians), and one contract civilian maintenance director report for work.

"The primary mission of the Aviation Division is to provide aerial support to the law enforcement mission of the United States Park Police," said Burchell, who spent the first five years of his 22-year stint in the unit as a rescue tech before becoming a pilot. "Our other functions are search and rescue, medevac and dignitary protection."

To help USPP aircrews perform their duties, the Bell 412s are equipped with a FLIR 8500 thermal imaging/video system, Spectrolab SX16 Nightsun searchlight, Sierra Wireless digital downlink and Goodrich rescue hoist. The aft cabin is fully equipped for rescue missions, as well as priority one-level trauma care for two patients in the aircrafts' normal configurations.

Due to the wide variety of police, fire, EMS and hospital personnel USPP communicates with, each aircraft boasts a mixed suite of radios, consisting of Wulfsberg, Motorola and Bendix/King transceivers. To help crews

Both U.S. Park Police Bell 412s are equipped for multiple missions. The left side of the cabin is setup for medical services, while the right side holds a variety of gear for hoist rescues. Forward-looking infrared, moving map and search light systems round out the helicopter's mission tools.

find their way to an incident, each ship is equipped with an AeroComputers moving map system, and either a Garmin MX20, Garmin 400, or Universal US-1 GPS.

Burchell explained that USPP crews have an immediate launch requirement within a 50-nm radius of the White House. But as a Department of the Interior asset, they go wherever they are sent, which included Louisiana during Hurricane Katrina disaster relief in 2005. Sgt. Burchell's description of the unit's responsibilities, while both succinct and accurate, belies the size of its area of responsibility, and the particularly critical nature of its missions.

Because the USPP is not only a true police agency tasked with protecting the 28 million people who visit National Park Service property in the Washington area, it is "first due" for all medevac missions in the District of Columbia, all national parks as far away as West Virginia, and any neighboring jurisdiction in need of backup for their police or medevac services. It is also reasonable to assume that the USPP Aviation Division shares homeland security duties with other government agencies, though the unit's personnel would not comment on that subject in even the slightest way.

Rough numbers indicate that USPP aircrews conduct an average

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By Andrew Drwiega

Cutting the Suit to Fit the Cloth

For the moment at least, while traditional high-spending military customers from Europe and North America are being put to the sword by their financial masters (motto: fear naught—apart from accountants), industry is having to radically rethink its global military business strategy. The markets for high-price ticketed items such as attack helicopters and those designed specifically for military missions are already decreasing. Yes, there are the BRIC countries (Brazil, Russia, India and China), but Russia and China are not open to companies selling highly specified military equipment from the western countries. Both India and Brazil are, but India is now naturally keen to increase the development its own indigenous industry at a rapid pace and Brazil is progressing steadily in the expansion of its own defense industry sectors.

The "lion's share" of military orders over the next 10 years, outside of the traditional markets (and largely existing programs of record), will be from countries with growing ambitions yet still without the financial muscle to acquire volume. Their requirements will depend largely on their perceived regional threat, and how they can meet it without incurring a huge step change in their own defense budgets.

The killer for systems such as Eurocopter's Tiger, Boeing's AH-64D and the Bell-Boeing V-22, is the high price of purchase and ownership and, in the case of the attack helicopters, the increasing availability of more simple weapons platforms that can deliver good-enough lethality downrange without the need for all the complexity, connectivity and ISTAR systems.

Manufacturers need to keep selling helicopters, of that there is no doubt. But declining military sales have to be made up elsewhere in the business model. There are, it appears, at least two solutions to this. The first is to change the product offering—but without requiring any new investments in research and development (R&D) or technology. The second course of action is to develop one of the other business sectors. Eurocopter is one manufacturer that appears to be doing both.

"We are offering derivatives of our civil helicopters which are less expensive and easier to optimize," said Eurocopter's Dominique Maudet, speaking at the French defense industry gathering in mid-June at the Eurosatory event in Paris. "Now is not the time for brand new military programs—it is the time for painting civil helicopters in green [militarizing them]." The main work required with this option is the systems integration and the level of capability the platform will need to provide individually and as part of customer's defense network.

EC625 T2 at the EADS stand at Eurosatory.

While Eurocopter's Tiger and NH-90 helicopters were being displayed on the French Army stand, the company preferred to show its EC645 T2 (the militarized EC145) and well-established Ecureuil/Squirrel at the front of the EADS pavilion outdoors. Eurocopter's delight at the good things the U.S. Army has said about its utility Lakota UH-72 is already well documented, but the flexible and relative simplicity of the AS550 Fennec (the military version of the AS350) is being seen as a good selling point. This is not a new policy to Eurocopter, which has long believed in offering military versions of its civil products.

To support the second course of action, developing new business, Eurocopter recently acquired Canadian-owned MRO specialist Vector Aerospace. At the time, Eurocopter CEO Lutz Bertling revealed that the purchase was intended to strengthen the company's global position in the aviation support and services industry. Said Bertling, "While Vector will continue to operate as an autonomous company, keeping its successful brand name, the complementary nature of our respective worldwide networks will enable us to develop our activities, both faster and more efficiently...." In other words, buying into a new revenue stream that is already firmly established. Vector Aerospace in the UK of course has provided the UK's Ministry of Defence with MRO services for its Boeing Chinook, Westland Sea King and Lynx fleets for the Royal Air Force, Royal Navy and Army. This is one of the opening moves in a battle that will see all of the OEMs knocking each other out of the way to offer an even more comprehensive service than before—from platform provision to the maintenance of any type of helicopter (subject to the usual military system caveats).

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R&D Report: Target 2030

Cassidian's Tanan 300 vertical takeoff and landing tactical UAS (VTOL Tactical UAS). See story on page M7 and look for more R&D news at www.avaitiontoday.com/rw

DEPARTMENTS

FEATURES

On the Cover: Rotorcraft wind tunnel testing at the National Full-Scale Aerodynamics Complex (NFAC) at Moffett Field in California. *Graphic design by Gretchen Saval*

The editors welcome new product information and other industry news. All editorial inquiries should be directed to *Rotor & Wing* magazine, 4 Choke Cherry Rd., 2nd Floor, Rockville, Md. 20850, USA; 1-301-354-1839; fax 1-301-762-8965. E-mail: rotorandwing@accessintel.com. *Rotor & Wing* (ISSN-1066-8098) is published monthly by Access Intelligence, 4 Choke Cherry Rd., 2nd Floor, Rockville, Md. 20850, USA. Periodical postage paid at Rockville, Md. and additional mailing offices. Subscriptions: Free to qualified individuals directly involved in the helicopter industry. All other subscriptions, U.S.: one year $89; two years $178. Canada: one year $99; two years $198; Foreign: one year $129; two years $258.
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EDITORIAL
Andrew Parker Editor-in-Chief, aparker@accessintel.com
Chris Sheppard Associate Editor, csheppard@accessintel.com
Ernie Stephens Editor-at-Large, estephens@accessintel.com
Andrew Drwiega Military Editor, adrwiega@accessintel.com
Claudio Agostini Latin America Bureau Chief
Joe West United Kingdom Correspondent
Contributing Writers: Chris Baur; Lee Benson; Shannon Bower; Igor Bozinovski; Keith Brown; Tony Capozzi; Keith Cianfrani; Steve Colby; Frank Colucci; Dan Deutermann; Ian Frain; Pat Gray; Emma Kelly; Frank Lombardi; Vicki McConnell; Robert Moorman; Douglas Nelms; Mark Robins; Dale Smith; Terry Terrell; Todd Vorenkamp; Richard Whittle.

ADVERTISING/BUSINESS
Joe Rosone Senior Vice President, Aerospace Group, jrosone@accessintel.com
Randy Jones Publisher, 1-972-713-9612, rjones@accessintel.com

Eastern United States & Canada
Carol Mata, 1-512-607-6361, cmata@accessintel.com

International Sales, Europe/Pac Rim/Asia
James McAuley +34 952 118 018, jmcauley@accessintel.com

DESIGN/PRODUCTION
Gretchen Saval Graphic Designer
Tony Campana Production Manager, 1-301-354-1689 tcampana@accessintel.com
Tesha Blett Web Production Manager

AUDIENCE DEVELOPMENT
George Severine Fulfillment Manager, gseverine@accessintel.com
Customer Service/Back Issues 1-847-559-7314 rw@omeda.com

LIST SALES
Statlistics
Jen Felling ,1-203-778-8700, j.felling@statlistics.com

REPRINTS
Wright's Media, 1-877-652-5295
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ACCESS INTELLIGENCE, LLC
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Access Intelligence

Access Intelligence, LLC
4 Choke Cherry Rd., 2nd Floor
Rockville, Md. 20850 - USA
Phone: 1-301-354-2000, Fax: 1-301-354-1809
E-mail: rotorandwing@accessintel.com

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R&D Report

NEWS

■ MILITARY | TRANSPORT

Grizzy Eats NH90s, EC725s to Meet Military IOC

An EC725 being loaded onboard the Airbus A400M military transport in Toulouse, France.

Current and potential operators of NH Industries NH90 and Eurocopter EC725 helicopters will be interested to note that Airbus Military has recently been demonstrating the loading of both types of helicopter onto its new A400M airlifter.

Tests took place at Holzdorf air base in Germany and at Toulouse, France respectively. The NH90 and EC725 were loaded onto, and unloaded from, the Grizzly 4 development aircraft in line with meeting its military Initial Operating Capability (IOC) certification. The tests were the first demonstrations of the A400M's capability using real helicopters. *—By Andrew Drwiega, Military Editor*

■ SERVICES | ENGINEERING

Navy Grants MH-60R Extension to Sikorsky

Sikorsky Aircraft has received a $19.1-million extension from the U.S. Navy for non-recurring engineering efforts related to the handover of 24 baseline MH-60Rs to the government of Australia. The services are part of Australia's Future Naval Aviation Combat System effort, which falls under a foreign military sales (FMS) program. Sikorsky will conduct the work in Stratford, Conn., with a completion date targeted for September 2017.

■ MILITARY | UNMANNED

Cassidian's Tanon UAS Developed Without Eurocopter

The Tanan 300 vertical takeoff and landing tactical unmanned aerial system (VTOL Tactical UAS) from Cassidian was shown at recently at Eurosatory in Paris. The Tanan rotary UAS has been in development for around four years, which includes work conducted on the original program. Perhaps unusually, despite Cassidian being an EADS company, there was no involvement by Eurocopter in the design process.

It uses a diesel engine with a mission endurance of between eight and ten hours. It is designed to take a 50kg of payload out to around 180km. It will operate in temperatures between -20 degrees C and +50 degrees C.

Said Cassidian's Alain Dupiech: "Although still in the testing phase, we are aiming for certification in 2013. We see this UAS in both the land and maritime environments and have been conducting trials with the French Navy for mission at sea." Depiech added that the UAS was potentially scalable in size and that it had stealth characteristics due to its design and use of special paint coating. Missions would include ISTAR, anti-piracy, maritime reconnaissance and special forces use. The Tanan's most obvious competitor would be Schiebel's Camcopter S-100. *—By Andrew Drwiega, Military Editor*

Tanan 300 vertical takeoff and landing tactical unmanned aerial system (VTOL Tactical UAS) from Cassidian.

■ PRODUCTS | AVIONICS

Rockwell Collins to Develop MFRF Avionics

The U.S. Defense Advanced Research Projects Agency (DARPA) has contracted Rockwell Collins for avionics development on the multifunction radio frequency (MFRF) program. The $5.1-million agreement will see Rockwell Collins merging terrain and obstacle data with radar data to create a 3D operational environment view. BAE Systems—which received a $34-million contract in March to develop MFRF along with a team that includes Honeywell, Applied Signal Intelligence, Mustang Technology Group and the University of Michigan—will join Rockwell Collins during the first two phases of the contract. According to a company spokesperson, Rockwell Collins has conducted flight tests for the U.S. Army with a version of synthetic vision technology on Sikorsky UH-60 Black Hawks as part of the Cooperative Research and Development Agreement with the U.S. Army's Aviation Applied Technology Directorate. As part of that agreement, Rockwell Collins provides a CAAS cockpit for use as a testbed, which allows the Army to develop warfighting technology.

Rockwell Collins demonstrated its synthetic vision technology in a Black Hawk simulator during Quad-A in April 2012.

FUTURE VERTICAL LIFT: HAVE PLAN, NEED MONEY

By Andrew Parker, Editor-in-Chief

AVX

Rendering of a AVX Aircraft Joint Multi-Role (now Future Vertical Lift) aircraft dropping troops into the battlefield.

DoD Stresses Need for Previously Unseen Cooperation if Future Vertical Lift Ambition is to Take Off

Leaders within—and outside—the Future Vertical Lift initiative stress the need to find funding sources in tough economic times, while pushing ahead with design and implementation plans for the next generation of rotorcraft.

By Andrew Drwiega, Military Editor

During the AHS Forum in May, U.S. Army Aviation and other helicopter industry leadership from the science and technology (S&T) community noted that the Future Vertical Lift (FVL) initiative is on track, but emphasized the need to secure funding sources in order for the program to succeed, despite the global economic situation and financial shortfalls in the U.S.

A collaborative effort involving a number of parties, including Special Operations Command (SOCOM), the U.S. Coast Guard, NASA, the Office of the Secretary of Defense (OSD) and the Vertical Lift Consortium (VLC), FVL will

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The question concerning the development of a new generation of Future Vertical Lift (FVL) rotorcraft for 2030 and beyond is a simple one. How radical and how rapid can the development of a new class of aircraft be, given the poor state of research and development funding and the unlikely change in those circumstances over the next few years—exactly the time when the ground-breaking R&D needs to happen?

The concept of FVL (ex-Joint Multi Role, or JMR) revolves around the development of four classes of rotorcraft: light, medium, heavy and ultra-heavy. The proposal is for the family of platforms to be taken up across the services to reduce the cost of ownership over the long term. The decision has already been made to focus on the medium requirement, for that is where the largest market is—beginning with replacements for all the Sikorsky Black Hawks and Bell UH-1Ys of the U.S. Marine Corps.

U.S. Government investment in rotorcraft R&D has been widely acknowledged as lacking over the past couple of decades. On June 4, the Senate Armed Services committee reported in the National Defense Authorization Act for FY2013:

"One area of the defense industrial base that has not seen significant new innovations is rotorcraft. Over the last decade, rotorcraft have been crucial in our war fighting operations. The committee believes that among the various defense industrial base sectors, the preservation of integrated platform design teams and the use of agile prototyping is most needed in this sector. The committee observes that it has been over two decades since the last completely new DoD rotorcraft, the V-22 Osprey, was developed."

The committee further went on to state that the their findings revealed that the DoD believes and understands "that increasing prototyping of advanced technology capabilities is a potential approach to be able to keep the technical expertise of the defense industrial base

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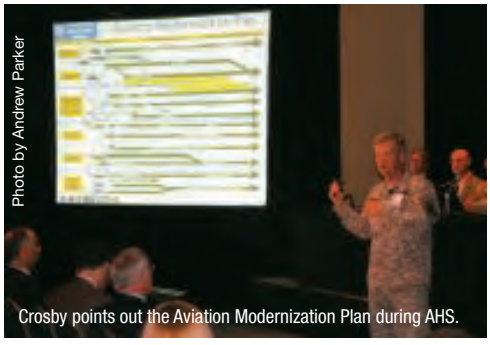
Aeroflightdynamics Directorate (AFDD) Bell OH-58F drag study.

design, develop and deliver the next generation of DoD vertical lift aircraft, according to Lt. Col. David Bristol, U.S. Army Aviation PEO for Future Vertical Lift activities. Bristol explained that the military, the U.S. Congress, DoD and the industry have defined the need for FVL, adding that interest and support from Congress is building since the program was launched in 2008. "It really focuses on capabilities-based assessment as a foundation for looking at Future Vertical Lift as far as performance shortfalls," he said.

One of the primary goals of the FVL initiative is to provide options for decision makers, and keep design and operating costs affordable. The "FVL Vision" calls for a joint aircraft from inception with common systems and subsystems across the fleet. A higher-speed aircraft with more range, payload and endurance, the FVL fleet will be safer and less expensive to operate, according to Bristol. He also highlighted some of the mission types that FVL will undertake, including counter-terrorism and irregular warfare as the U.S. pulls out of Afghanistan; deterring and defeating aggression in support of ground-based troops; and conducting humanitarian, disaster relief and other rescue missions.



Crosby points out the Aviation Modernization Plan during AHS.

Bristol described an "FVL Strategic Plan" where all the services are "looking at a family of Future Vertical Lift platforms—the light, the medium, the heavy and the ultra. And we're looking for commonality as we examine the gaps, in line with our capabilities assessment."

He explained why the program needs to move forward, noting that the "current fleet has done an excellent job," but saying that "DoD does not have a follow-up program of record to replace the current fleet. [We're] looking at production lines stopping from 2022, with the end of the [current fleet's] useful lives at around 2035. So this strategic plan's also going to address some of the capability gaps we have."

Those gaps include speed, range and weight. "When we look at, for instance, airspeed—aside from the V-22, airspeed limitations because of technology are at around 160 knots, 4,000 feet at 95 degrees at mission gross weight, and our fleet can't reach out—they don't have the legs that future needs will require. Those are some of the things we need to address."

Bristol's comments came after a presentation from U.S. Army Aviation PEO Maj. Gen. Tim Crosby, who called for a "marriage" of the S&T community and military program management is needed (for more see "*Married with Children*" on page 4 and "*Q&A with Tim Crosby*" on page 54).

"We can ill-afford to be pursuing things that don't either support the Future Vertical Lift or where we need to go in modernizing the platforms that we have," he said. That partnership is "the kind of communication and collaboration we're going to need in budget-tight environments. ... We've got to collaborate, we've got to coordinate, we've got to discuss."

Crosby pointed out the importance of keeping an eye on the future. "This is the number one priority, and sometimes it's easy to focus on the right now, the current budget year, and thinking to yourself that you're supporting that soldier. That's the easy way out. But if I don't think about long range, if every one of us in this room don't think about the long-range support for that solider, we'll feel real good about ourselves today, but in a few years we'll look back and say we screwed up and it's our fault."

If everyone accepts the short-term answer today, "then we have no one to blame but ourselves down the road when our kids are out there trying to fight these battles for us, if we don't stand our ground and have a vision. And that vision's got to translate into execution," Crosby said.

FVL: Target 2030

The FVL initiative seeks increased efficiency in the following areas, while focusing on affordability in design and operating costs:

- **Speed**
- **Range**
- **Payload**
- **Endurance**
- **Reliability**
- **Survivability**
- **Situational Awareness**
- **Sustainability**
- **Common Systems (Open Architecture)**

exercised in a reduced budgetary environment."

However, one of the most worrying statements in the committee's report was the continuing lack of engagement with industry by the services. It specifically cites that in spite of link between the Under Secretary of Defense for Acquisition, Technology and Logistics—or USD (AT&L)—and the civil industry-led Vertical Lift Consortium (VLC), not enough headway is being made (the VLC comprises manufacturers, academia, suppliers and others involved in the rotorcraft industry).

As the report defines: "The VLC is an open and competitive forum that leverages all sectors of the vertical lift community to encourage teaming of innovative small business and non-traditional contractors with major defense firms and academia. The VLC is contracted with the DoD through the establishment of an Other Transaction Authority (OTA). The OTA allows the formation of competitive teams to rapidly develop and flight demonstrate innovative vertical lift technologies that address capability gaps identified in the DoD FVL Strategic Plan such as performance, survivability, and affordability. The committee understands the DoD is completing an overdue report on the VLC that was called for by the Committee on Armed Services of the House of Representatives last year that was due April 1, 2012."

The report also draws attention to the fact that it is only the U.S. Army that is currently putting funds, albeit limited, behind the FVL initiative and that it has called for industry to participate in technology demonstration flights, which are not likely to happen until the late summer or fall. The committee voices concern that the lack of further funding will, in effect, lead to a fait accompli regarding the result of the technology demonstrator in that it could lead the way into the program of record.

Seemingly in parallel, the Defense Advanced Research Projects Agency (DARPA) has launched its own X-Plane Rotorcraft program in fiscal year 2013 with a budget of $9.6 million. The intention is to develop revolutionary vertical takeoff and landing (VTOL) system that will result in a "full-scale flight demonstration of key technologies."

The goals of this development include some already being worked on by industry OEMs: "to include flight speeds of greater than 250 knots, enhanced high/hot hover performance, improved edgewise rotor cruise performance, prop-rotor cruise efficiencies approaching propellers, hover-power loading at a minimum of 11 pounds thrust per horsepower, and a 20 percent improvement in empty weight fraction."

DARPA states that it will be following four technology courses: performance, safety and survivability, supportability and availability, and collaboration and autonomy.

"The successful VTOL X-Plane would demonstrate the potential and mission utility of new technologies, and be a significant step toward closing current capability gaps in this class of air vehicles." All branches of the military are planned to be included.

The National Defense Authorization Act for FY2013 report hints at concern that already meager resources are being divided among programs working unconnected but in parallel and urges DARPA "to structure its X-Plane Rotorcraft program to develop specific performance steps beyond the Army's desired attributes for platforms under the JMR program. DARPA should also consider expanding its X-Plane Rotorcraft program to provide for at least two competing teams. In addition, the committee urges DARPA to "investigate how advances that it is making in advanced manufacturing can be applicable to the rotorcraft sector."

While it is strongly suggested that USD (AT&L) and DARPA develop a rotorcraft strategy to extract the most from the research being undertaken, there is also a suggestion that the Army's foundation technology demonstration could be expanded with the challenge of "significant reductions in cost and time to flight" being the priorities. Competitive prize awards should also be offered:

"The committee found it disappointing that in a report by the Office of Science and Technology Policy, dated March 2012, 'Implementation of Federal Prize Authority: Progress Report,' there was only one example of DoD using this prize authority. The strategy should address how prizes could be potentially used to address some challenge problems, primarily for unmanned rotorcraft, such as: nap-of-earth automated flight, urban operation near buildings, slope landings, automated autorotation or power-off recovery, and automated selection of landing areas."

The potential of unmanned rotorcraft taking an even bigger role in future developments is increasing. However, the overwhelming requirement seems to be for the greater engagement of all of the services toward finding a FVL platform. That must be matched with a cohesive effort, a common direction and the sharing of information if true progress is to be made and a new, revolutionary platform is to emerge during the early 2030s.

SCIENCE & TECHN Q&A WITH

Dr. William Lewis talks about the future of science and technology and the U.S. Army Aviation and Missile Research, Development, and Engineering Center's aviation S&T vision. "Anything we do in S&T has ripple effects that go through the [aviation] enterprise. That's why it's very important to keep the enterprise communication flowing. ... The ripple effect is more than just S&T. It will change how we do business."

OLOGY ROADMAP: BILL LEWIS

By Keith Brown

Lewis currently serves as the director for aviation development at the U.S. Army Aviation and Missile Research, Development, and Engineering Center. He manages and directs the execution of the Army Aviation Science and Technology portfolio, including basic and applied research, and advanced technology development. A career Army Aviator and experimental test pilot, his duties now include serving as the Office of the Secretary of Defense lead for rotorcraft technology, and as director of the National Rotorcraft Technology Center.

Rotor & Wing: What are your roles and responsibilities as the director for Aviation Development?

Lewis: The primary mission of the aviation development group is to formulate the technology advances that we're going to implement in the future. And that is both for current fleet and future fleet. This includes development of new air vehicles, both manned and unmanned, as we progress toward Aim Point 2030.

Rotor & Wing: You have a geographically dispersed organization. What are your major subordinate teams and their contribution to your overall efforts?

Lewis: My organization consists of three groups: one here at Redstone Arsenal which does a lot of the planning and preliminary work, the Aeroflightdynamics Directorate at Moffett Field (Calif.) that concentrates on

During an interview, Lewis holds a model of a potential future rotorcraft conceptual design.

early 6.1 research, and the Aviation Applied Technology Directorate at Fort Eustis (Va.) that works applied research—6.2, 6.3 and bridging into 6.4. While these organizations are geographically diverse, we're working very deliberately to make sure everyone understands it's one organization working toward a common goal of seamless transition of our developed products into the fleet.

Rotor & Wing: Are you test facilities available to industry?

Lewis: Almost all of our facilities are broadly available to industry, academia and other government agencies through either through joint agreements or CRADAs (cooperative research and development agreements). There are wind tunnels that exist as a part of the NASA infrastructure. They could not be duplicated today. I'm talking billion-dollar infrastructure. As an example, we have a 40-by-80 wind tunnel. And we have an 80-by-120 wind tunnel that's probably big enough to put your house in. We do full immersion of test vehicles—F35, F22, and Black Hawk. At Langley we have a 14-by-22 wind tunnel. We're doing work there for the Kiowa PM-looking at the effects of drag on the fuselage in the current configuration and in potential future configurations. We also have structures labs, ballistics facilities, prototyping facilities and a countermeasures lab.

Rotor & Wing: What does the Army Aviation S&T Roadmap look like over the next 5-10 years, and what are the focus areas?

Lewis: The S&T Roadmap is a two-part roadmap. One concentrates on the current fleet—Black Hawks, Apaches, OH-58s, fixed-wing. The second concentrates on the future aircraft—the Future Vertical Lift family of aircraft—that we're looking at developing. We break our focus groups into propulsion and drives, avionics and mission equipment, the platform pieces and operations support and sustainment.

Rotor & Wing: With an aging aircraft fleet and the demanding operations tempo overseas accelerating aircraft age, how does S&T address aircraft sustainment and managing some of the associated challenges and risks?

Lewis: [AMRDEC] initiated a lot of what we call condition-based maintenance (CBM) many years ago. In conjunction with the Navy, we did a lot of health usage monitoring. That has evolved into an implementation of the fundamentals that we learned from that early work. Now it's being populated across the fleet with digital source collectors to allow us to apply condition-based maintenance concepts that we started back in the '80s and '90s.

There's two ways to get condition-based maintenance. One is on a legacy platform as an add-on system. The second is—if you have a new start—you develop those CBM processes into the aircraft as you design and build it. You then leverage off of certainty, where there used to be uncertainty, to augment your maintenance processes so that you really design a different maintenance and support process for that new vehicle ... Anything we do in S&T has ripple effects that go through the [aviation] enterprise. That's why it's very important to keep the enterprise communication flowing.

Rotor & Wing: What are some of the operational challenges and strategic drivers pushing us toward Future Vertical Lift?

Lewis: One of the big things, I think we're going to fight a different fight in the future. Our area of operations is going to expand from 75-by-75 kilometers to 300-by-300—maybe bigger. That's the ground piece. Depending upon the scenarios that you talk about, we also have a sea-based piece that says we need to go from ship to shore. In the future, the standoff distance from shore is going to be extended. So the aircraft are going to have to be able to go from those ships—across that extended sea space into a war fight, do something and then get back.

We always talk about the things for Future Vertical Lift, the performance issues—the 'high-hot hover,' the range, the endurance. But the secondary piece is the O&S cost of operating the system. Seventy percent of the cost of our

systems is after we buy the system. So a huge focus of the new aircraft is going to be how to build a zero-maintenance aircraft. But, in order to do that, there must be a lot of embedded technologies. Problems with rotating components and fatigue [must be] overcome. And all of these aircraft are going to have to be fly-by-wire. So, we're going to have to incorporate algorithms that keep the soldier from going into pieces of the envelope that do damage to the vehicle. If you can keep soldiers from encountering those damaging regimes—the one or two maneuvers that really damage the aircraft—you can increase the life of components dramatically. That's part of a holistic solution—automate some of the controls [to extend] structural life.

The interdisciplinary nature of the design problem becomes a huge issue. And the organizations building these aircraft have to be able to understand cross-discipline approaches. That's the beauty of the S&T organization—it's small enough and agile enough to understand and work hand-in-glove with our counterparts functionally to be able to come up with air vehicles that have those kinds of capabilities embedded in them. Remember too, all of these aircraft that we're building for 2030 are going to be optionally manned. So they will fundamentally fly themselves. It's a different way of thinking about the fight.

Rotor & Wing: What's your organization's role in Future Vertical Lift?

Lewis: We produce design tools. Analytical codes that help predict what a new design will look like. A lot of that's based on our wind tunnel testing. That's our first phase. There are a lot of issues with any design with scaling. We've got some ways to go to do some initial testing to understand the effects of scaling and how we can accommodate those scaling issues in a design.

I have a design team right now that's leading all of the design efforts for Future Vertical Lift. We have four contracts currently ongoing for Future Vertical Lift concepts. And there's a government team that's designing three configurations in a government facility to look at the same kinds of issues. So today we're involved in very early preliminary design of the air vehicle. As we progress and get a flying vehicle, we will be involved more with the safety aspects, data collection, analysis of the vehicle, the application of the configurations, and how it fits in an operational environment.

When a PM is stood up the same team that helped design the technology demonstrators will migrate to that PM—to help [with] their prototype effort, mitigate risk and assist the PEO (program executive officer) in transitioning the technology to the field. One of my focuses is transitioning technology as early as possible into the fleet. Maybe that's just because I'm an old soldier. When I come to work, I very deliberately think about how to transition technology as rapidly and as safely as possible into the hands of soldiers.

Rotor & Wing: The technology demonstration phase of Future Vertical Lift will require a significant investment in demonstrators. What do you expect to learn and how will this impact future efforts?

Lewis: You learn a lot about the applicability of the different configurations that are selected. Scalability is one of those things. Can you scale something from small to large, or to very large? Or is there a bound in there on a configuration? What's within the art of the possible? You have to look at that. If today's art of the possible is a mark on the wall, then hopefully in five years we'll be able to move that mark a little bit farther to the right to have more enhanced capability. But those are the kinds of things that you have to deliberately manage as you look at S&T. And, we're looking at a lot of active rotors, variable size rotors, different kinds of engines, propulsion drive train systems, and lifting wings. The more that we learn through these technical demonstrators, the more risk that we mitigate for that Program of Record and the better off we are in the transition—for the workforce, the products, the companies.

Rotor & Wing: How do we leverage commonality?

Lewis: Commonality is going to be a big opportunity. Theoretically, we could come up with an air vehicle, the same airframe that is both a utility aircraft and an attack aircraft. In order to obtain the speeds that we need, 225 and up, you're not going to be able to have a whole bunch of guns, rockets, sensors, sticking out in the air. It's going to have to be a very sleek, smooth, aerodynamically graceful airplane to fly at those speeds. Consequently, all of the armament will probably have to be inside the vehicle, somehow, and then come out for operation. So, at that point, you pretty much have a common platform and commonality throughout. The whole logistic support system is going to have to gear up for this common approach. It helps immeasurably.

I mean, think about it, if we have the same transmissions, the same engines, the same rotors, the same vehicle, my training workload goes down. Commonality is a great opportunity, and I think you can get great dividends from approaching these vehicles from a good commonality perspective. The ripple effect is more than just S&T. It will change how we do business.

Rotor & Wing: Do you have sufficient S&T funds to address all of your needs?

Lewis: Our funding has remained relatively level since the mid 80's. The problem with aviation is that our commodities are expensive. The development of our commodities is expensive.

Given all that, we very deliberately have industry partners who cost share with us who try to help us along the path of coming up with the developments, in the case of some companies, they go out on their own an do some developments. So, could we use more? Absolutely.

Photo courtesy U.S. Air Force Senior Airman Christina D. Ponte

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GOODRICH

Pilot Sgt. Ken Burchell slides closer to Old Rag Mountain as rescue technicians Sgt. Mark Varanelli (in doorway) and Sgt. Dave Tolson prepare to transfer a severely injured hiker from the care of two park rangers to Eagle-2. SAR missions are not uncommon for the unit.

of 400-600 police sorties, 200-400 medevac missions, and around 200 search and rescue operations per year. This means that the Aviation Division's blue and white ships—callsign "Eagle"—are no strangers to residents of the national capital region. They are frequently seen patrolling the highly restricted airspace above the National Mall, lighting up search areas for ground officers, and airlifting accident victims to trauma centers. And on many occasions, they are caught on camera doing what they do best: serving the public in very heroic ways.

Jan. 14, 1982

Shortly after 4 p.m., Air Florida Flight 90 took off from National Airport during a snow event that had crippling the Washington Metropolitan area. As the airline pilots climbed their Boeing 737 to the north, ice on its wings caused it to lose lift. As it dropped, it clipped the traffic-packed 14th Street Bridge before taking its 74 occupants into the icy waters of the Potomac River.

Less than three miles away at the Eagle's Nest, USPP pilot Officer Don Usher and rescue technician Officer Gene Windsor received word of the crash. With low ceilings and only a few miles of visibility, they launched in their Bell Long Ranger—the only model aircraft in their fleet at the time—and made their way to the scene.

They arrived to find only a small portion of the green and blue airliner's frame protruding above the surface. Looking closer, they also saw several passengers fighting to stay alive in the mix of freezing water, floating ice, and jagged aircraft aluminum.

Usher pulled into a hover above the wreckage as Windsor lowered a hand line (the aircraft had no hoist) to Air Florida flight attendant Kelly Duncan. With time being of the essence, Windsor didn't bother to pull her aboard. Instead, he left her dangling below the aircraft as Usher flew them to shore.

In Dec. 2008, a water main in Potomac, Md. broke, quickly turning a popular commuter route into a swift-water nightmare. USPP pilot Sgt. Kevin Chittick and rescue technician Officer Jeff Hertel were called, and hoisted several trapped motorists to safety.

After leaving Duncan on the river bank, Eagle-1 returned to a group of two women and a man, who were clinging to a piece of floating wreckage.

Windsor lowered a line with a life ring to Joseph Stiley, who placed it around himself, then clutched Priscilla Tirado and Patricia Felch, so they could be rescued as a group. But just before reaching the safety or the river bank, Felch fell back into the water. Acting quickly, Windsor released the others close enough to the shoreline to be grabbed by other responders, then went back for Felch. Seeing that she was too numb from the cold to grab a line or rescue device, Windsor had Usher lower the skids of Eagle-1 into the water, so that Windsor, who was still standing on the skids in the aft cabin doorway, could reach down and hold her for the trip back to the river's edge.

Only five people survived the crash that day. And all but one of them was saved through the gallant efforts of the USPP Aviation Division.

Sept. 11, 2001

On the morning of 9/11, Sgt. Burchell was at the hangar training with DoD health services personnel when other members of the unit summoned him inside to watch breaking television news coverage of the terrorist attack in New York. When Burchell and fellow pilot Sgt. Ron Galey stepped back outside, they heard a thud, and saw a plume of black smoke a few miles west of their hangar. The two officers would soon learn that what they saw was the aftermath of an American Airlines Boeing 757 slamming into the Pentagon in Arlington, Va. It went without saying that their services in the medical transport role would be desperately needed, so they prepared to launch.

As luck would have it, several off-duty members of the Aviation Division were at the facility helping to clean the hangar floor. This allowed the unit to launch the duty aircraft, as well as a second Bell 412.

Within five minutes, Galey, along with rescue technicians Sgt. John Marsh and Officer John Dillon, were making the 5-nm dash to the Pentagon in Eagle-1. Burchell, along with Lt. Philip Cholak, Sgt. Keith Bohn, Sgt. Bernie Stasulli, and two Dept. of Defense medics from the group that was there training, quickly configured Eagle-2 for mass casualty transports, and headed to the scene a few minutes later.

Upon their arrival, a portion of Eagle-2's crew assisted military medics with triage, while the others used their now-reconfigured Bell 412 to transport up to four patients at a time to area hospitals in multiple flights.

Meanwhile, a cloud of thick, black smoke had engulfed the control tower at Reagan National Airport a little over a mile south of the scene. In an unprecedented move, FAA personnel abandoned the tower, and enlisted Galey aboard Eagle-1 to take over local

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United States Park Police

Based in Washington, D.C., the U.S. Park Police patrols an area that includes a number of national parks and iconic monuments. It is a regular feature in the skies above the White House (left foreground), Executive Office Building (right foreground), Washington Monument, and Jefferson Memorial (background).

air traffic control from a position aloft. While airborne, air defense authorities gave Eagle-1 an additional mission: to be on the lookout for another hijacked airliner that might be en route to Washington, D.C. That plane was United Airlines Flight 93, which crashed in Pennsylvania before reaching its target.

At the end of the day, the USPP Aviation Division had helped transport dozens of critically injured people to area trauma centers; centers which ambulances could not have reached in a timely manner due to the gridlock caused by frightened people fleeing the area.

Dec. 24, 2008

From time to time, the USPP Aviation Division conducts river rescues from the swift, turbulent waters of the Potomac River, which makes up the western border of Washington, D.C. But on Christmas Eve in 2008, the term "river rescue" took on a whole new meaning. On that day, river rescues took place on a suburban street!

During the morning commuter rush, a 66-inch water main burst just north of the District of Columbia, sending a torrent of water resembling white-water rapids down (ironically) River Road in Potomac, Md. Between the volume of water, the amount of dangerous debris in it, and the velocity with which gravity was pulling it all downhill, drivers who were traveling on dry pavement one minute were literally surrounded by fast-moving water the next. With their doors being held shut by the rushing waters, frightened motorists found themselves trapped inside of their cars; sometimes floating, and sometimes pinned against obstacles in the roadway.

Swift-water rescue specialists from the Montgomery County Fire Department were able to use boats and ropes to reach some of the people trapped in their automobiles, but on-scene commanders quickly recognized the need for air support, and summoned Eagle, as well as Trooper-2, a Maryland State Police helicopter stationed at Andrews Air Force Base.

Local and national news organizations broadcasted the action live as Eagle-1 rescue technician Jeff Hertell (now a pilot) and pilot Sgt. Kevin Chittick used a rescue basket to hoist citizens from cars that were quickly filling with ice-cold water. Operating in close proximity to Eagle-1 were pilot Jim MacKay and paramedic Sgt. Nate Wheelock, who were pulling others aboard their state police Eurocopter AS365 Dauphin.

The operation was a grueling, hour-long affair that resulted in the rescue of nine citizens. Ground personnel called the efforts of both crews "extraordinary."

April 1, 2012

It was March 31 when things went very wrong for Art Webb, a hiker and rock climber who had spent the day exploring Old Rag Mountain in Virginia's Shenandoah National Park. A fall, which left Webb with a shattered ankle, forced him to spend a long, cold, painful night on the mountain with park rangers, who could not safely extract him from the rugged terrain without air support.

Burchell and rescue techs Sgt. Dave Tolson and Sgt. Mark Varanelli drew the mission, and headed for the scene 65 nm west-southwest of the Eagle's Nest. Little did they know that getting there would be the only portion of the mission that would go smoothly.

At an elevation of approximately 3,000 feet MSL, Old Rag is part of a mountain range that is notorious for unkind weather patterns.

That particular Sunday, it was solid IFR just a few miles east of and directly above the pick-up zone; a zone that was totally unsuitable for landing, thanks to its tall rock face. And the nasty weather was pushing in towards Eagle-2's position.

As Burchell kept the Bell 412 parked in a precarious hover a few feet out from the rock face, Varanelli lowered the line from the aircraft's hoist to the rangers on the outcropping below. After getting the Stokes basket containing Webb onto the helicopter's cable, Varanelli immediately began reeling him aboard. But neither the aircrew nor Webb were out of the woods just yet.

The park rangers had inadvertently attached the Stokes basket in a manner that had Webb's head facing aft once arriving at the threshold of the helicopter door. This orientation would make caring for Webb difficult, since

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Alice Davenport
Email: Alice.davenport@aarcorp.com
Telephone: 321-837-2369

Program Information:
Ashley Turner
Email: Ashley.turner@aarcorp.com
Telephone: 256-830-7123

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the cabin is set up to work on patients whose heads are facing forward. Up front, Burchell was getting nervous, because his gages were telling him that he was four minutes into his helicopter's five-minute torque limit. And knowing that the clouds were creeping ever closer to the aircraft, he was more than ready to get going.

Tolson and Varanelli abandoned the idea of reorienting the basket for the time being, and went about disconnecting the two tag lines—the ropes used by ground rescuers to keep the basket from spinning while it's being lifted—so they could get underway. But as if from a bad dream, Tolson and Varanelli were having trouble disconnecting the lines. Fully aware that Burchell had just seconds left to fly in that power range, the sergeants cut the tag lines so that he could break away from the mountain and reduce his power demand.

Before heading back, Eagle-2 landed at the nearby ranger base, correctly positioned Webb in the aircraft, and safely circumnavigated the clouds for the trip home.

But Murphy's Law was not done with them, yet. The rescue had cost the crew more fuel than they had originally counted on, which might have caused Burchell to dip into his emergency fuel reserve to complete the trip to the hospital. Rather than create a safety issue, the crew took the prudent route, and arranged to have a Fairfax County (Va.) Police medevac helicopter meet them at Manassas Regional Airport (HEF), the halfway point between the rescue scene and the trauma center.

Once there, Tolson and his patient quickly transferred to Fairfax-1 for the rest of the trip, while Eagle-2 took on enough fuel to guarantee a safe flight back to the base.

Safety Culture

The Aviation Division of the USPP has had an accident-free flight record since its inception in 1973. When asked what the unit attributes this record to, the answer came without hesitation. "One is literally Tom Greer," said Burchell, referring to the unit's maintenance person, who is contracted to USPP from Sikorsky Aerospace Services' MRO division. Sgt. Burchell also identified Bell Helicopter's factory training, and a "safety-minded culture" within USPP as playing very significant roles, too.

To see more images and videos of the United States Park Police Aviation Division, visit **www.rotorandwing.com**

Bell-Boeing MV-22 Osprey flying over Westminster Abbey and the Thames river in London, UK. The aircraft is from USMC Squadron VMX-22 based in New River, N.C.

Bell-Boeing

By Andrew Drwiega

FARNBOROUGH 2012: FLYING THROUGH EUROPE'S WOES

This year's Farnborough International Airshow could be one of the quietest for military and civil rotorcraft sales, given the uncertain economic situation in Europe. But there are still a few bright spots.

This year's Farnborough International Airshow could potentially be one of the quietest for military rotorcraft sales given the hugely uncertain economic situation in Europe. The civil market too is under pressure with corporate profits down, pressure on governments to cut back across all departments (including parapublic) and less liquidity in the private sector. Perhaps oil and gas and other energy sectors (windfarms—both on and offshore) may still offer the best potential, although at time of writing the oil price was comparatively low compared to recent months. For exhibitors, the success or failure of participating may still rest on how many far-flung international visitors the event can attract.

The 2010 event's official figures included 70 delegations from 44 countries and around 120,000 trade visitors, who mainly attend during the working week leaving the weekend free for the enthusiasts and general public.

This biennial event, which alternates with Le Bourget in Paris, France, is being staged from Monday, July 9th through Sunday the 15th.

One sector that does keep Europe at the forefront of technology is innovation. The private sector will be the one to watch, as government investment in R&D falls and those large companies who rely on government grants slow their spending. If the economic situation worsens to the point where there is a "brain drain" from western countries to those in Asia, then the pulling power of large European events such as Farnborough could be seriously damaged.

On a lighter and more optimistic note, one organization that has committed to the Farnborough Airshow is Italy's Finmeccanica. The aerospace, defense and security player confirmed in March its participation in the Airshow until 2014, with an option to extend to 2016 after the gates have closed for the final time this year. It has secured its regular spot, "Finmeccanica Corner" near to the site's main entrance. This followed an earlier agreement from European giant EADS to participate in the next three Airshows up to 2016.

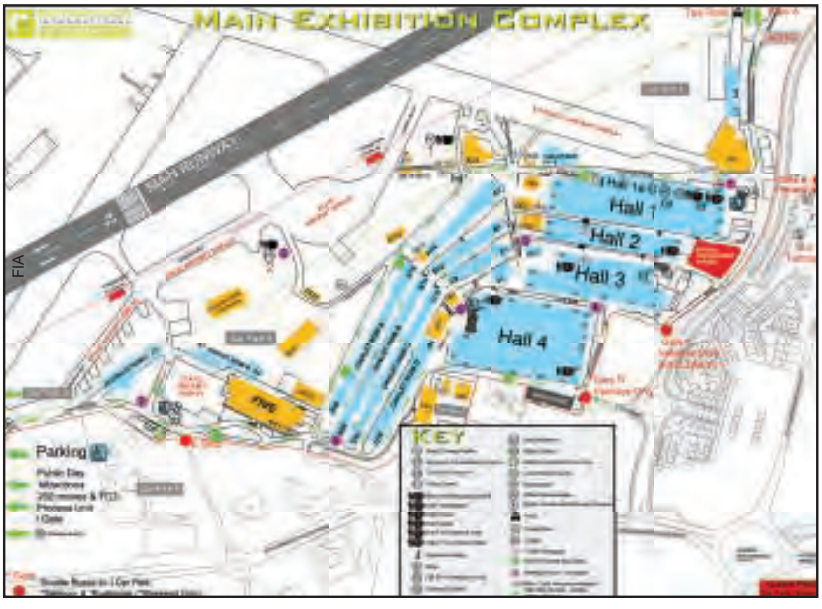
Marco Conte, senior vice president of communications and image for Finmeccanica, said of the decision: "FIA continues to be one of the leading aerospace events with the sheer number of companies and countries involved, civil and military authorities, visitor numbers and above all the number and range of transactions concluded."

While many manufacturers are turning their eyes toward the markets in the Middle East, Far East and perhaps South America, it would perhaps be a good time for those exhibitors who view Farnborough as a mainstay of their marketing strategy to negotiate, or renegotiate, their participation in a long-term deal. All European-based aerospace and defense events will be looking to secure participation over the next few years and could well be open to deals for commitment.

While at time of writing most helicopter OEM exhibitors were still to declare their final line-up of aircraft that would be taken to the airshow, the Bell/Boeing partnership was promising to bring a number of U.S. Marine Corps MV-22B Osprey tiltrotors for display on the ground and going through their paces in the air, both at Farnborough itself and the Royal International Air Tattoo (RIAT) at Fairdford, Gloucestershire, which takes place the preceding weekend (July 6-8, 2012).

Although the Osprey has flown before at the Farnborough, this is one rotorcraft that Bell/Boeing are still working hard to sell to international operators. Interest is thought to be high in some Middle Eastern countries,

Map of the main exhibition complex at Farnborough International Airshow.



including Saudi Arabia. The aircraft may also have an outside chance of at least being looked at by the British Ministry of Defence for service in the logistical support aircraft to the new Queen Elizabeth-class aircraft carriers, HMS Queen Elizabeth and HMS Prince of Wales.

The V-22s could operate in the role usually provided to the U.S. Navy by the Grumman C-2 Greyhound, but could augment that with additional capabilities from anti-submarine warfare, to cross-decking supplies, and even as a littoral combat maneuver asset. As a vertical/short takeoff and landing (V/STOL) aircraft it would have no problem operating from the UK's carriers, which will not operate the "cat and trap" system due to their fleet of Joint Strike Fighter F-35Bs.

Farnborough has announced a series of themed mini-conferences to run over the business days of the airshow. The conferences addressing themes across the aerospace sector will draw together informed views on the factors affecting key markets and sustainability issues. These are:

• Tuesday, July 10: AEROSPACE, Enabling Growth—the Role for Aerospace;

• Tuesday, July 10: Space Conference;

• Wednesday, July 11: DEFENSE, Future Defense Technologies; and

• Wednesday, July 11: SECURITY, Aviation Security.

Specialist Lectures

GKN Aerospace has announced that it will be giving six individual lectures on different aspects of its research and development activities during Farnborough. Space is limited and anyone interested should contact the company quickly to reserve a seat. The lectures will be on the following:

• Monday, July 9: 1) Additive Manufacturing—a process with the potential to revolutionize industrial manufacturing ; 2) Composite Repair Technologies–Laser ablation for the preparation of repairs.

• Tuesday, July 10: 3) Advanced fiber placement (AFP) in the manufacture of all-composite aircraft wing spars; 4) Transparencies and coatings—their evolution and potential future developments of intelligent coatings.

• Wednesday, July 11: 5) Composite engine fan systems, their benefits, progress made and evolving automated manufacturing technologies; 6) Advances in metallic manufacture—how linear friction welding and friction stir welding will reduce waste and improve performance.

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Q&A WITH AR PEO TIM

Photo by Keith Brown

Photo by Andrew Parker

Left: Crosby during an exclusive *Rotor & Wing* interview. Below: At Quad-A in April, Crosby at a press conference with other Army leaders, including Maj. Gen. Anthony Crutchfield (sitting next to Crosby).

U.S. Army Aviation PEO Tim Crosby talks about Future Vertical Lift, the aging military helicopter fleet, the importance of funding S&T and Aim Point 2030.

U.S. Army Aviation Maj. Gen. William "Tim" Crosby, the Program Executive Officer (PEO) since 2008, leads an organization with seven unique Project offices, more than 2,250 military, government civilians and contractors, and a 2013 budget of $7.76 billion. *Rotor & Wing* recently had an opportunity to sit down with Crosby to discuss the state of Army Aviation, including impacts of declining budgets, Future Vertical Lift, and the Armed Aerial Scout program.

Rotor & Wing: Within the Army Aviation Enterprise, there are many senior leaders contributing to the success of day-to-day and strategic efforts. What's your role as the PEO-Aviation compared with others in the "six-pack?"

Crosby: Well as you know the six-pack brings us together, looking at not just the material enterprise, but within the entire enterprise of the Aviation branch and how it contributes to the Army. We don't think in terms of just Army Aviation, we think about what Army Aviation brings to the Army's role. My particular role is the lifecycle manager

MY AVIATION CROSBY

By Keith Brown

"It takes a vision. It takes a vision of where you're going. Our industry partnership is very strong. We're not going to get all those science and technology funds that we need to do this; industry gets a certain amount of IR&D (independent R&D) that they will use, but we can ill-afford for them to be pursuing something that's not our highest priorities."

of the systems of that equipment we provide to our user. What we focus on is that material, and those needs may be a new piece of equipment, but all of it doesn't change what the soldier does; it changes how the soldier does it. My focus within PEO Aviation has always been to reduce the burden on the solider of the mission he is trying to accomplish. That's my passion.

Rotor & Wing: How have budget cuts impacted the PEO Aviation portfolio?

Crosby: We took a cut last year that was not proportional to many of my brothers and sisters in the other development activities. So we have fared pretty well overall. We've had to take some appetite suppressants, we've had to slow down a few things with the cuts that we've received, but we were able to maintain the vitality of Army Aviation and all of its development programs. Having said all of that, the forecast maybe is not quite as bright. We're running a lot of drills right now looking to the future. Because Army Aviation is in excess of 20 percent of the Army's budget, we are pretty good size target right now as things get tight, and we'll have to step up to the plate and pay our fair share. Everybody is going to have to give up something.

Rotor & Wing: Given these current (and likely future) budget challenges, how do you take a balanced approach to managing and sustaining programs?

Crosby: To me, it's all about maintaining or managing your buying power. So if we manage year to year instead of our multi-years [contracts], you're losing a significant amount of buying power. We're saving in excess of 10 percent with each of these multi-years across the life of that multi-year. When you are buying Aviation platforms, and you've got a $3.7-billion contract, that's $370 million that is saved to our taxpayers and soldiers. So what I've been preaching to the world is a balanced approach. You've got to maintain your balanced investments, you've got to maintain your current modernization strategy

Photo by Andrew Parker

Crosby makes a point about life cycle management during the AHS Forum in May.

and you've got to maintain your S&T, and then on the back end, your sustainment. It would be very short-sighted if we just tried to balance the book today without a future vision.

Rotor & Wing: What does Aim Point 2030 mean to you and what's the role of Future Vertical Lift?

Crosby: I think we looked at the life of our aircraft, we looked at the remanufacture programs that we have now, we looked at the op tempo that we are flying, we looked at the maintenance burden on the soldier and you put that into the sausage-making machine and you come out needing a new capability in 2030. And why was that picked? It wasn't picked across the fleet. We looked objectively—the area that we have not done anything with since before we started Comanche is the Kiowa. So I'm about to tell you that's my number one need, but I'm about to tell you that's not what we're pursuing in Future Vertical Lift. We're pursuing the attack-utility variant and going to accept some risk in the scout area because 75 percent of our fleet is in the attack-utility [range]. So if I only have a minimum investment to make, the return on our investment will be better if we invest in that medium variant. So we'll accept risk in the scout area by either doing a service life extension program (SLEP) or the Armed Aerial Scout demo that we're doing.

Rotor & Wing: What will it take to bring the engineering, S&T, military and commercial helicopter communities together on the same page to develop Future Vertical Lift technologies?

Crosby: It takes a vision. It takes a vision of where you're going. Our industry partnership is very strong. We're not going to get all those science and technology funds that we need to do this; industry gets a certain amount of IR&D (independent R&D) that they will use, but we can ill-afford for them to be pursuing something that's not our highest priorities. So somehow we've got to communicate all of that and maintain us all on the same sheet of music, so that we're complementing each other, not competing with each other. The Future Vertical Lift Consortium is one avenue to do that.

Rotor & Wing: What's PEO Aviation's role over the next few years in Future Vertical Lift?

Crosby: We are in the process now, in the team we've identified, what the programmatic timeline is. It's basically a reverse planning sequence, which we all know well. We looked at 2030, we looked at the timelines we needed to start working backward from that, when we needed to involve each of the different aspects. S&T is doing two demonstrators right now that will identify and codify those gaps and what the S&T areas are that we need to focus on. I've already taken out of hiding and double-dutied one of my PMs to start doing the planning for how you would transition this to a program of record and when all of that would start with what the resource requirements are to do it, both personnel and dollars, and what we think that split should be if this is going to be a joint program going forward.

Rotor & Wing: What are your top S&T priorities?

Crosby: The demonstrators that we're trying to resource. We will have to compete very, very well to get both of those resourced. And the Improved Turbine Engine Program (an Army Aviation Applied Technology Directorate project that involves both General Electric and ATEC, a joint venture of Honeywell and Pratt & Whitney Canada) and then I would say the current obsolescence effort. Those would probably be my top three.

Rotor & Wing: The Armed Aerial Scout analysis of alternatives (AoA) is complete, the Defense Acquisition Board (DAB) met recently, and the long-awaited RFI regarding flight demonstrations and evaluation of new technologies is published. How will the results of the demonstrations affect the DAB decision on a new start program vs. sustaining Kiowa?

Crosby: The sufficiency memo has been signed now by OSD, accepted it, and said it was a good AoA. And as you know it said two things, it validated manned and unmanned teaming. And the other was that the only way to get to the firm, complete Armed Aerial Scout requirement is a new start. We know in this environment there is no way we can afford it, so we're looking. That's what took us down the path of

just doing the SLEP, and then we came up with the idea of many other companies that think they can get to an 80 percent solution, so that's what has got us looking to see what's out there, to make that decision. What we want to make is an informed business case decision. So, if you look at the CASUP program and the SLEP, it will get to about 55 percent of the Armed Aerial Scout requirement. The cost to get to 100 percent was unaffordable, that's why we're not asking for a new program, we're going to focus on Future Vertical Lift and accept risk in that area. So we want to make an informed decision across the portfolio, not just a programmatic decision.

The other aspect of it, that I've been pushing really hard on is, it's not just the procurement cost. It's the cost to procure it, it's the cost to qualify it, it's the cost to put it in to provision, put it into sustainment base, and it's the cost to train it. You have to take out the old system and put in a new one. All of those costs are part of that business case decision that we need to make.

Rotor & Wing: Software is becoming an increasingly important, complex and expensive component of our aviation and support systems. How do we effectively manage it—does the government play a role or do we leave to the OEMs to manage as a part of larger integration effort?

Crosby: If you're talking about software on your cell phone or software in your car, or whatever else, you can probably let the OEM do that. In Aviation, we can't; now these systems are becoming digital and can affect flight controls. They can affect the safety of that airplane, so we've got to be right up front and engaged with the management, with the development, and the sustainment of that software. Now, having said that, that's not free, that's something that we have to plan for in our programs and long-term management and evolution of those systems. We've managed critical safety items forever in Aviation. I think software is very rapidly becoming a critical safety item. Now, we're learning how to put up firewalls and parsers and use those things to limit their exposure, but that's going to be a continuous upgrade process, and regression testing is going to be the key as we make these changes. Software is going to be a key management area for the future.

Rotor & Wing: How is Army UAS evolving?

Crosby: Army Aviation is the proponent for our unmanned aerial vehicles and I think the focus that our users had on RSTA has been the right path that will eventually, I think, expand. I would say our next focus is in operations in national airspace. How do we train and maintain and make sure that our populace, that our American people are safe with these things flying over? So, we've got to do that right. I do believe that we will expand and see ourselves starting work in the supply and resupply area and could potentially get into doing some search and rescue. We are usually pushing the envelope within the military with things like this and we are with UAS today.

Rotor & Wing: USMC has had some great success recently with the demonstration of unmanned cargo delivery in theater. Do you see a need for this VTOL capability for utility missions in the Army?

Crosby: Absolutely, I do. We are paralleling the Marine Corps. They are part of our joint UAS office here. So they participate with us. They are pursuing that and it's a higher priority for them right now and we are certainly partnering with them and learning from them, and we certainly don't want to duplicate anything that they've already done. What we don't talk a lot about, in my mind, is optionally manned vehicles. What if you had a Chinook helicopter out there that you could fly manned or unmanned? That could be somewhere in that crystal ball of somebody's thinking down the road, to me it opened up a lot of possibility. Now on the materials side, I've got to give them a system that will do that. In order to give you that kind of capability, we need to transition our platforms to what we call fly-by-wire, a totally software-driven architecture within the aircraft.

Rotor & Wing: Where do you see opportunities for small and medium-size businesses in Army Aviation over the next few years?

Crosby: I see it. What I worry about is we declare victory and come home; is many of our industry partners, first, second, third tier vendors have stepped up to the plate and met our needs and accommodated us in this war and have done a magnificent job of doing so. Now as we return to a normal op tempo and to a trained and ready Army philosophy, then many of our young, smaller vendors are going to struggle to stay alive. We've got to be very good and accurate at forecasting to them what our needs are which will allow them to invest in themselves and help us deal with obsolescence. Because obsolescence is going to be key in many of these areas as we slow down, how they are able to invest in themselves to meet our needs with many of these components.

We've been successful in communicating with our industry partners, users as well as our partner nations and other government agencies, through our Users' Conferences. Because budgets have declined, I'm not sure how many more of these Users' Conferences we can afford to have in the next few years, but we have to be smart about how we're going to continue to effectively communicate with all our stakeholders. The conferences have helped us immensely to plan for the short-, mid- and the long-term. Aviation currently has the best portfolio in the Army, and we're working hard to maintain that so we can continue to effectively support our soldiers.

Rotor & Wing: What are the biggest successes within Army Aviation over the last few years?

Crosby: Maintaining the op tempo with the high readiness rate that they are doing in theater while continuing to modernize and upgrade virtually every system we have. I equate it to trying to change the motor while you're driving down the highway, and what this Aviation enterprise has done is just magnificent. I'm very, very proud of all of them; I certainly don't take credit for it; the first one that gets the credit is the soldier, that's taking what we've given him and so magnificently, done all of the great things that they've done. But then I look at what our great PMs and our sustainment base and our engineering team have all done, our contracting folks to make all this happen—quite often in spite of the process, not because of it—and continue to maintain those kind of readiness rates. This has built a confidence in the ground commander and Army Aviation that I don't think we've ever had. They are just very, very proud, and what we can do now, we come home and go into a slowing down position, we can ill afford to break that trust and that bond that we've built this last 10 years.

Rotor & Wing: When you leave PEO Aviation, what will be your legacy?

Crosby: I hope it will be teamwork; of a multitude of organizations, teaming together to provide the best lifecycle management for the soldier that reduces their burden. That they have the confidence that these PM-lead teams are their go-to people to execute their mission. That's what I'd like for it to be.

Note: Since the AAS RFI release, the Army held Industry Days on Redstone on May 23 and 24. The Army anticipates about four to six of the interested vendors to have a flyable aircraft at the demonstration. The PM conducted one-on-one discussions during that time and already began coordinating plans and schedules to conduct the demo. The voluntary flight demonstrations may begin as early as the end of June, with completion anticipated in October/November 2012. The Army plans approximately two weeks with each interested vendor to conduct the demo, and that could vary depending on individual scope.

Coming Up in rotor & wing

August 2012: Training Issue

Stop the Presses! *Rotor & Wing* flies the Eurocopter X3—Editor-at-Large Ernie Stephens test flies Eurocopter's state-of-the-art technology demonstrator, the X3, and tells us all about what he finds. Hey Sikorsky … got any open seats on the X2/S-97?

NDT for Helicopters—Understanding ultrasonic nondestructive testing (NDT) for helicopters. How to detect defects without destroying your helicopter, by Mark Robins

Special Report: The Current State of Rotorcraft Training—*A multi-part editorial section with specially targeted ad packages and discounts, including*:

Training State of the Union—We provide an overview of the constantly evolving union between new training approaches and the technology and equipment that drive them.

2012 World Rotorcraft Training Reference—As elusive a goal as it is to provide a current list of rotorcraft training providers, we believe it is worth the effort. So we have commissioned a researcher to gather the most current and accurate information available, which will be compiled into a stand-alone guide that we will distribute throughout the year. Facilities will be listed geographically, with as much detail as we can provide regarding specializations at each location, such as the aircraft operated, ratings and license specializations, simulator or training device availability and any unique training offered such as maintenance, NVG, long-line, mountain-flying, etc.

Training in the Real World—We step away from the esoteric concepts of training, and send our editors to look at a selection of real world training vendors, facilities and unique agreements between governments and countries.

Plus—Each year, we pay for the services of Signet Research to perform an independent study of the entire content of a single issue—editorial as well as advertising. We want to know what you read, what you don't read, and whatever feedback you can give us as to why. If you are asked to participate in this study, please do! Your feedback is an essential part of how we constantly adjust the content we provide you each month.

As an advertiser in this issue, you will receive these results, along with a custom report specifically detailing the performance of your own ad. Is your ad getting noticed? Is it getting read? Are you delivering the right message to your customers? Whether or not you like the results, you will walk away with valuable feedback, including hundreds of confidential verbatim comments from your core customers and prospects.

September: Security & Border Protection

Border Patrol and Airborne Surveillance in the Digital Age—As the technology advances to match the threats, so do the creative airborne applications. We explore helicopter/UAV manned-unmanned teaming border patrol units, covering military, commercial and public service operators. We will also dig into the current generations of tools and accessories offered for observation, such as FLIR, night vision goggles, cameras, and other equipment.

New Solutions: Degraded Visual Environments—Keith Brown supplies an update on the lessons-learned and technology advancements in dealing with brownouts, whiteouts and other conditions that create unusually high pucker-factor and significantly increase the requirement for brown flight suits.

The Evolving Marriage: In-Flight Data Monitoring and Flight Tracking Services—As long as you have the pipeline between your base and your aircraft installed, what else can you do with it? We'll ask around and get back to you!

Safety from the Start—Keith Cianfrani visits Robinson headquarters in Torrance, Calif., and brings us his unique perspective of the company's training programs and safety management system (SMS).

Protecting the Olympic Games—Andrew Drwiega, Military Editor, reports on the helicopter units and fleets involved in the London 2012 Olympics, with an eye to the various missions assigned to them and how they were able to perform.

Public Service

By Lee Benson

Thanks Jeff Pino

I want to start this column by acknowledging the retirement of Jeff Pino as president of Sikorsky Helicopters. I met Jeff while he was with Bell Helicopter. He called from Bell one day and invited me to a customer feedback session. I attended along with several other chief pilots from Bell operators around the world. Nobody ever said that the chief pilots of PHI or CHC Helicopters et al, lack opinions or the ability to express them in a ... literal way. The first hour of each morning for the two-day meeting was set aside to allow us to express our concerns about anything to do with Bell Helicopters.

All of Bell's upper management and another couple of hundred engineers, program managers and sales folks were in attendance; it was sporty to say the least. I remember that I went on a rant about the seats in the Bell Jet Ranger at about the time that I was questioning the parentage of the designer of said seat. One of the folks in attendance jumped out of his seat and ran out of the room yelling "don't shoot!" Those of you with long days in a JetRanger seat will connect with the temptation to at least throw a rock at him on the way out. Does anyone think that if they went to a car dealer to test a car and it had a JetRanger seat in it that a transaction would occur?

Anyway this meeting was Jeff's idea and my first of several exposures to Pino that illustrated his attitude toward customer support. More importantly, as Jeff went up the corporate ladder, he always took time to say "Hi" and converse, one pilot to another. After all, how many presidents of a major helicopter company can claim a FAA aerobatics air show endorsement on their pilot's certificate? Clear skies and a good tailwind Jeff, wherever your journey takes you next.

Speaking of journeys, in May I went to Moscow to attend HeliRussia, which is—as you may know—the largest annual gathering of helicopter folks in Russia. This was the 5th time HeliRussia has been held and I have attended the last four. One observation is that four years ago some of the helicopters on display where actually in need of a bath. Since then, the state of presentation has gone from clean windows, to clean as far as you could reach from the floor, to this year where all of the helicopters on display where very well presented. I think you have to consider the way in which helicopters are used in Russia to appreciate the significance of this transition. The Russians tend to fly large utility helicopters that go out and make their living doing manly work. Not a lot of S-76 class corporate helos running around with Gucci leather and wet bars in the back. There are some, I'm sure, but nobody ever accused a Kamov Ka-32 or a Mil Mi-17 of looking like a Learjet with rotors. That said, I had the opportunity to see the new Kamov Ka-62 on display and meet with the program manager, Alexander Vagin. Think of a Ka-62 as a direct competitor to an AgustaWestland AW139. A similar cabin size, powered by Turbomeca Ardiden 3G engines, five-bladed, glass cockpit, anti-ice is standard. Although true to its Russian roots the landing gear and tires look like they belong on a seven-ton truck, not a 150-lb wheel barrel. If you read that comment and think it's intended as an insult, you haven't been paying attention, go back a couple of paragraphs and try again. If that doesn't work, then go fire up any of your wheeled modern helicopters and do some utility work for a day. Pilots of Black Hawk, S-58, Erickson Aircrane and several other helicopters need not attend this training session, they already get it. My meeting with Mr. Vagin was very interesting; he speaks excellent English and is obviously very knowledgeable about the world helicopter market. The defining comment was his first, in which he stated that a large percentage of the content of the Ka-62 is Western European or American product. Furthermore, Vagin stated that Kamov Helicopters will use those products that present the best value/cost ratio, regardless of origin. My last several years of interaction with the Russian helicopter community both in Russia and in meetings in the U.S. prompts me to only question their marketing abilities as the last barrier to success in the first-world market outside of Russia.

Safety Watch

By Terry Terrell

Cat Skinning, Part 2

Last column (see June 2012, page 46) I began recounting an adventure which unfolded in Haiti during the 1970s as part of an unusually challenging Coast Guard case which aspired to recover a number of deceased American air crash victims, and which also happened to lend itself as the perfect model illustrating that helicopter missions can be exponentially more difficult than airplane operations. I don't know why anyone would want to actually skin a cat, but this Haitian episode also put on display the reality that where helicopters are involved, multiple approaches to getting any particular job done inevitably become apparent, and some are revealed in monumentally unexpected ways.

We had found the crashed Cessna 414 upslope from a tiny native village in the forebodingly mountainous terrain of northern Haiti, but had not been able to locate a usably close landing zone for our Sikorsky HH-3F. We did find a spot downslope, but due to terrain endlessly obstructed by sharp rocks and slick mud it took us nearly an hour to make the booted foot transit from our aircraft to the location of the crash non-survivors, so we decided to prepare for hoisting the bodies aboard the helicopter, open-sea rescue fashion, one at a time.

Leaving our medical crew at the wreckage site, with enough body bags for the eight Americans, the other pilot and I, with minimum crew, returned to the helicopter and got airborne, eventually achieving a marginally acceptable hover position, nose into a steep cliff face, over the freshly packaged bodies. Hoist operations began as normally as possible, but the guys on the ground were having a terrible time, slipping and sliding in the mud, trying to manhandle heavy bodies in slippery packaging while being blown around by hundred knot rotor wash. It took nearly 45 minutes to get the first body aboard, and elementary math projected that we simply would not have enough fuel endurance, if we stayed light enough to hover in the mountains, to take care of all our casualties.

Additionally, any custom refueling would have to be accomplished by negotiating the long trip back to Port-au-Prince, and in any case we would have no engine failure recourse, or other emergency option, facing the cliff in our uncomfortably tenuous hover position.

We were back on deck at our improvised landing spot, contemplating all the above, when we noticed that a few of the natives from the village far below were beginning to appear, scurrying from one hiding place to another. We couldn't imagine how they had managed to make the climb from the village to our position in just a couple of hours on foot, so we concluded that they had been with us on the mountainside all along.

We flew back to Jean-Rabel, in order to chat with our English-speaking Catholic Missionary associate, and he attempted to help us sort out our options. In describing the village's position on circumstances, he mentioned that the native people there were very religious and at the same time very superstitious, having formulated their philosophical perspectives loosely on western religion modified by a powerful brand of localized voodoo. He said that they had seen the crash happen, but would not approach the wreckage or the bodies, fearing that the spirits of the deceased were not yet at rest. He also casually mentioned that though no one would touch any part of the wreckage or the bodies, some in the village had been up to look at the area many times, able to make the trip on foot very quickly. We were shocked and amazed that people without shoes could get up those slopes at all, much less "quickly," so we inquired further. It turned out that the fleeting figures we had seen at the crash site had followed us up there, and were transiting back and forth regularly. We asked whether there might be any way that some of the youngest and strongest of the natives might help us.

To make a long and fascinating story within a story short enough to close this column, it can be reported here that our missionary "blessed" the crash, and promised that the locals could "possess" its "treasure," if they would help us take our "loved ones." A work party was quickly assembled, and, using hand litters we had on board, all seven remaining bodies were delivered to our ridgetop landing zone by an apparently very happy dozen or so barefoot natives, covering slope and distance with truly miraculous speed, loudly chanting and casting ceremonial chicken bones onto the mud throughout the entire process.

Our helicopter mission was thus accomplished, and our assigned cat accordingly skinned, this particular challenge and resolution drawing on Catholicism, voodoo and some diverse but astonishing human talent.

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Law Enforcement Notebook

By Ernie Stephens

Searching for Pilots & Medics

Times are tough, ladies and gentlemen. With very few exceptions—none of which I can even think of at the moment—law enforcement agencies are having a hard time finding helicopter pilots and flight medics. Uh, let me rephrase that: Law enforcement agencies are having a hard time finding helicopter pilots and flight medics they want to hire.

Just about every state, county and local department with air assets that I've spoken to are having a hard time finding pilots. And for the law enforcement agencies that provide medevac services, I hear the same thing about paramedics.

On the surface, it seems strange that the police and sheriff community is having difficulty finding people, considering the current jobless rate in the U.S. But unfortunately, the pool that law enforcement entities look to for candidates isn't as well-stocked as some of the others.

Commercial flight operations are looking for many of the same things we are. They want folks who have the appropriate licenses and certifications, can be proficient in air operations, and who can play well with others. And most of all, they want aviators who will get the job done without getting anyone killed, injured, or afraid to fly again.

If a police department's policy is to hire from within its sworn ranks, the pickin's are slim to begin with. There tend to be very few officers—if any—who have the money to get a pilot's license at all, let alone have a commercial rating. In those cases, the best odds come from having a military reservist or National Guard member with wings who is already on board, and wants to come into the unit. (I'll also count retired police pilots from other departments in this category.) For the medic side, good luck finding someone already on the department who is a trained, certified and current paramedic.

If the agency's modus operandi is to train cops already in their ranks, that's great. The only risk is having the potential pilot or medic wash out of training. After all, becoming a pilot or a paramedic is as hard as it is expensive. By the way, there was a time when the U.S. Park Police and the Metropolitan Police in Washington, D.C. (the latter having once been a quasi-federal agency), were allowed to send their officers through the Army's basic helicopter flight school at Fort Rucker, Ala. There, they trained side-by-side with military pilots in military ships, except they were excused from activities and lectures that were specific to soldiering. (How cool was that for the average beat-cop-turned-pilot?!)

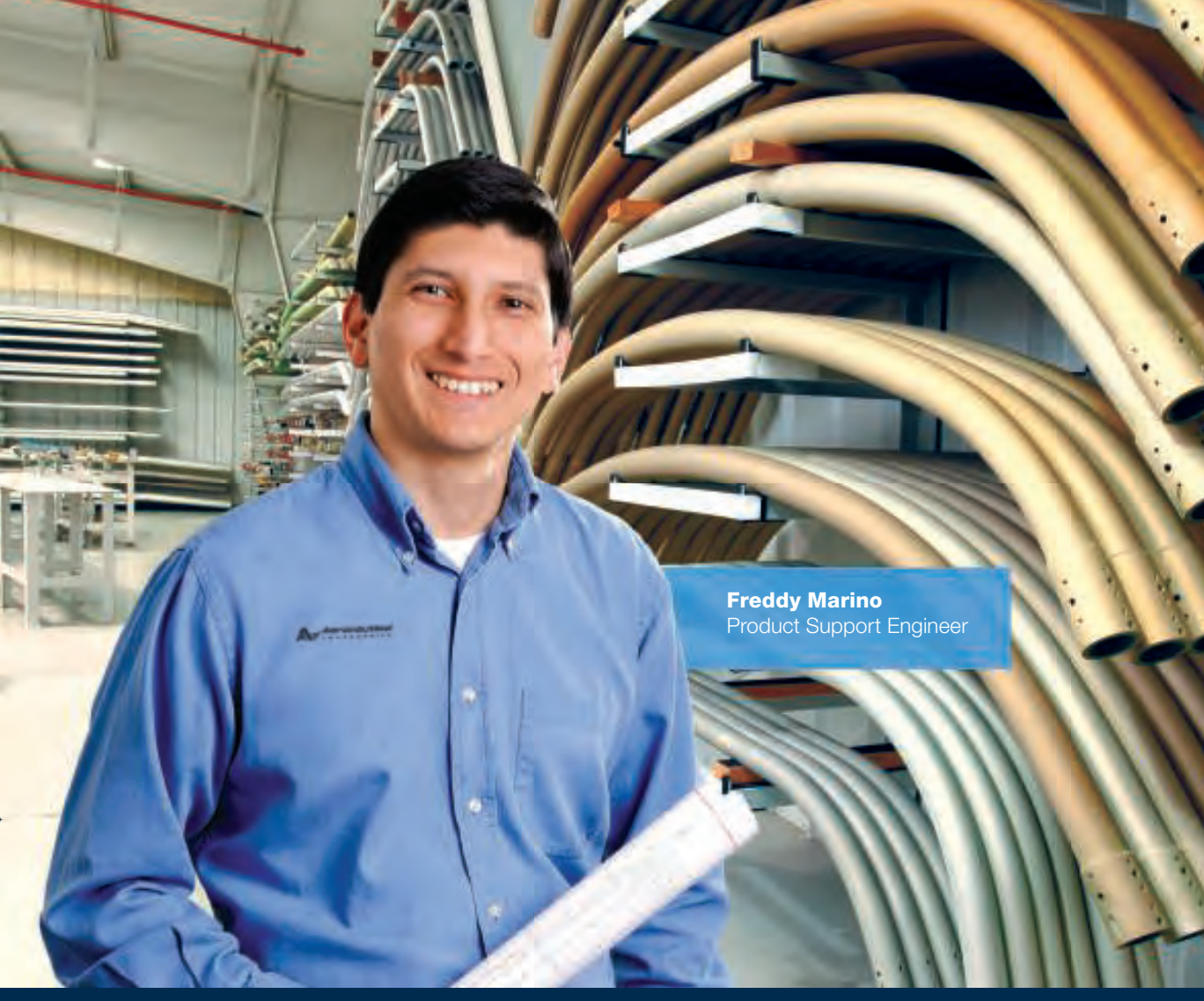
Anyway, the other method for finding pilots and medics is to actively go outside of the agency and look for them. When you find them, you can put them directly in the aviation unit as civilians, or swear them in and put them on the street for a little while before giving them their wings. But this whole recruiting business is where the wheels are falling off.

Police departments and sheriff offices are finding a bunch of candidates who look really, really good—right up until they plug them up to that electronic stool pigeon we call a polygraph. Question: "Are you concealing any information regarding illegal drug use?" BUZZ! Game over. As aviators and cops, we know we have to stay clean, not just because it's the right thing to do, but because we get tested for drug use. But unfortunately, civilian applicants seeking law enforcement careers frequently fail their drug test, either at the doctor's office or in the polygraph room. In fact, I recall the day a young man who was applying for a civilian police job arrived for his interview with so much marijuana in his system, the polygraph equipment got a contact high! And then there is social media. Many applicants now crash and burn because a photo of some past indiscretion is still floating around out there, like the beer blast they hosted while still 17 years old.

Law enforcement agencies are notorious for paying civilian personnel significantly less than sworn people. The argument, which certainly does have some merit, is that officers have the dual function of being peacekeepers. And whether or not the civilian person buys that line, the disparity in pay has often been the driving force behind many non-sworn aviators walking away from the job shortly after being hired, if not canceling their application altogether.

When you're lucky enough to find civilians with the appropriate amount of experience who can pass the background, and don't mind the money, it's the shift work that often disturbs them, and sends them looking for different job. And many times, this happens far too soon after the department has shelled out a lot of money to hire and train them.

Thank goodness police aviation still has its attractive aspects, like a certain amount of job security (for now), decent bennies, and missions that are more exciting than most places on the commercial side. But I would be remiss if I left out the one thing that still drives good people—sworn and civilian, pilot and paramedic—away: feeling unappreciated by their bosses. And that's too bad, since treating people well can be so easy.



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