November 2012 Serving the Worldwide Helicopter Industry rotorandwing.com

rotor & wing

London's Olympic Guardian Angels

Dubai Helishow Preview

In-Flight Connectivity

Engine Maintenance

Access Intelligence

For superior service and support, the Bell Helicopter worldwide network of more than 100 authorized Customer Service Facilities (CSFs) offers some of the most modern, state-of-the-art facilities throughout the world. Staffed with Bell Helicopter-trained maintenance technicians and equipped to keep your helicopter in top operating condition, our CSFs will assure your helicopter is properly handled when service is required. *On a Mission.*

Bell Helicopter®
A Textron Company

1-800-FLY-BELL | bellhelicopter.com |

rotor&wing

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; Elena Malova; 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
Donald A. Pazour Chief Executive Officer
Ed Pinedo Executive Vice President/Chief Financial Officer
Macy L. Fecto Executive Vice President, Human Resources & Administration
Heather Farley Divisional President, Business Information Group
Sylvia Sierra Senior Vice President of Corporate Audience Development
Robert Paciorek Senior Vice President/Chief Information Officer
Michael Kraus Vice President of Production & Manufacturing
Steve Barber Vice President, Financial Planning and Internal Audit
Gerald Stasko Vice President/Corporate Controller
Alison Johns Vice President, E-Media, Business Information Group

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

BPA WORLDWIDE
AMERICAN BUSINESS PRESS ABP

Editor's Notebook

aparker@accessintel.com

Every Day Safety Plan

By Andrew Parker

In early October Sikorsky Global Helicopters (SGH) invited *Rotor & Wing* to its commercial production facility in Coatesville, Pa. The site of the former Keystone Helicopter, which Sikorsky acquired in 2005, Coatesville houses the production of the S-92, the S-76D—which received an FAA type certificate on Oct. 12—the S-300C and airframe assembly for the CH-148 Canadian Maritime Helicopter. (See story on page 12.)

Since the drive to Coatesville was only a couple hours, and because my schedule was open—which is rare these days with a two-month-old baby at home—I decided to head north and get a first-hand look myself. From the outside, the Coatesville facility is pretty basic, just a series of office-type buildings along a stretch near Chester County Airport (MQS) in Pennsylvania. Inside is a dynamic helicopter production line that is preparing for further expansion. Dorith Hakim, general manager of SGH operations, led a tour of the Coatesville plant, which now includes a customer delivery center among other recent additions.

While at Coatesville, I met Richard Mintern, president and CEO of Bond Aviation Group, who was there for first acceptance of two baseline S-92s. Mintern was faced with a unique challenge in the second week of his new position back in May, as a Bond-operated EC225 was involved in a ditching incident in the North Sea. He initiated a "100-day safety plan" that just wrapped up in late September. Mintern explained that a total of 40 "change agents" across the company worked to address four key areas, including three "ongoing streams" of organization and leadership, systems and processes, and communications. "We had to demonstrate that we are interested, and make sure that what we're saying is happening, is actually happening."

Initially, "people were—I wouldn't say skeptical, but they had different reactions, and they weren't used to the change," Mintern noted. "But when we went back a second and third time, and they realized that this was very sincere, and we mean what we're trying to do, it's satisfying to see the changes we've made in a short period." People feel like they've "let the side down if they've not delivered," he continued. "But if delivering that piece means that they're putting additional risk into the business, then that's what we have to manage very carefully." Mintern estimated that Bond has invested around $2 to $3 million in "both people and systems" in the effort to improve safety awareness and safety management sysytem (SMS) programs across the company. When asked how he measures the results, Mintern replied that a head of one of the offshore oil companies asked him the same question about three months ago.

"One of them said to me, 'All this sounds great, but how will you know whether you're making a difference? How will you know that you're getting there?' So I couldn't easily answer the question at that point, honestly, and spent a lot of time thinking about it and talking to other people." After searching for answers, Mintern concluded that "some of these goals are measured around performance, tangible things, and some are soft targets. But we've experienced a two percent reduction in our on-time delivery. Is that good? Yes, because it means we're not dispatching the aircraft as precisely as we were previously. We've doubled the number of occurrence reports—low-level items, but we've doubled the reports from May 9 until now, in terms of an average."

Other examples of measurable results include a case where technicians noted a small deviation in a HUMS indication. According to standard procedure, Bond contacted the OEM immediately, and the response was that it was safe to fly and to monitor for 10 hours before issuing another report. "We decided that we felt there should be other barriers in place," Mintern said. "We want to be in a place where if the guy's uncomfortable, then we don't go." So the helicopter in question was taken out of service.

"It caused delays and inconvenienced people coming back after two weeks offshore," Mintern continued, "but they took it to the hangar and replaced a small bearing with a total delay of 2-3 hours. It wouldn't have been catastrophic, but actually we rewarded that team. Those three people have been congratulated and recognized." He added: "Guess what the customer reaction was? Fantastic. No flight is too important to an oil and gas provider like that. They were really pleased and said they felt that we are going in the right direction. This is where safety should be going."

Even with the circumstances leading up to the 100-day effort, Bond's plan is important because it sets short-term, company-wide objectives for safety. It's easy to think of safety as a long-term goal, but it needs to be considered a daily/all-the-time priority for each operation—what might be termed an Every Day Safety Plan.

When you fly helicopters, looking for trouble becomes a full-time job.

That's why you fly with Garmin® GTS™ traffic alerting.
It can provide that "extra set of eyes" you need to help see-and-avoid other aircraft in busy airspace. Garmin's GTS™ 800/820/850 family of ADS-B enhanced TAS and TCAS I systems are the only ones offering CLEAR CAS™ – a patented Garmin technology that correlates both active and passive surveillance (including 1090 MHz ADS-B "In") to give you the best, most accurate picture of all the moving targets[1] in your vicinity. Detail-rich display cues make for easier target identification and monitoring[2] – while expanded audio alerts in an ATC-like spoken format ("Traffic. Two o'clock. High. Two miles.") tell you exactly where to look for oncoming traffic, so you don't have to interrupt your "eyes out" scan to check a cockpit display when fast response is critical. Garmin GTS: It's the protective edge you need for the kind of missions your helicopter flies.

Follow the leader.

NASDAQ **GRMN**

[1] From other transponder-equipped aircraft.
[2] Display compatibility varies. See Garmin website or dealer for details on display requirements and compatibility.

Garmin.com

GARMIN®

THIS MONTH FROM rotor&wing

Personal|Corporate | Commercial | Military | Pub

FEATURES

28 Dubai Helishow Preview
What to expect during the industry's third largest helicopter trade gathering, the Dubai Helishow. *By Douglas Nelms*

34 Guarding the Games
While the world watched Olympic athletes going for gold in London, guardian angels in the form of helicopters helped keep the UK skies safe. *By Andrew Drwiega, Military Editor*

38 Making Engine Maintenance Count
A close look at the importance of proper engine maintenance and how it impacts all areas of an operation. *By Mark Robins*

42 Keeping in Touch While in the Air
In-flight connectivity is more than just business-types sending airborne work e-mails, it's also assisting operators and crew with safety and situational awareness. *By Frank Lombardi*

On the Cover: Sikorsky Aircraft has obtained the FAA type certificate for the S-76D, which is being produced in Coatesville, Pa. See story in *Rotorcraft Report* starting on page 12. *Photo courtesy of Sikorsky.*

DEPARTMENTS

12 Rotorcraft Report
22 Program Insider
Northrop Grumman MQ-8C
26 People
26 Coming Events
27 Hot Products
47 Classified Ads
52 Coming Up in *R&W*
53 Ad Index

COLUMNS

4 Editor's Notebook
8 Feedback
10 Meet the Contributors
46 Public Service
48 Law Enforcement Notebook
50 Safety Watch
54 Military Insider

Vol. 46 | No. 11
November 2012

28

ONLINE

www.rotorandwing.com

HELICOPTER PHOTO CONTEST

- Have any breathtaking helicopter photos that can hang with the best of them? Submit them in our Facebook contest: **www.facebook.com/rotorandwing**

SIGN UP FOR THE *ROTOR & WING* COLLECTIVE

- Subscribe today for our free weekly e-letter for helicopter news—The *Rotor & Wing* Collective, which features an in-depth Story of the Week, Top News Picks, Helicopter Jobs and links to *Rotor & Wing*'s Facebook and Twitter pages. Sign up now by visiting: **www.aviationtoday.com/rw/collective_form.html**

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

NOVEMBER 1:

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

WEEK OF NOVEMBER 19:

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

WEEK OF NOVEMBER 26:

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

TO SUBSCRIBE TO ANY OF OUR EXCLUSIVE EMAIL PRODUCTS, GO TO: WWW.ROTORANDWING.COM

Get connected:

Become a fan of *Rotor & Wing* on facebook

Follow us on twitter @rotorandwing

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.
POSTMASTER: Send address changes to *Rotor & Wing*, P.O. Box 3089, Northbrook, Ill. 60065-3089, USA. Change of address two to eight weeks notice requested. Send both new and old address, including mailing label to Attn: *Rotor & Wing* magazine, Customer Services, P.O. Box 3089, Northbrook, Ill. 60065-3089, USA or call 1-847-559-7314. E-mail: RW@omeda.com. Canada Post PM40063731. Return Undeliverable Canadian Addresses to: Station A, PO Box 54, Windsor, ON N9A 6J5.

Publication Mail Sales Agreement No. 40558009

Feedback

EMS Accident Agreement

Terry Terrell's comments about the causes of HEMS accidents (See October 2012, *EMS Helicopter Safety 2012 Perspective*, page 62) are spot on. I have 45 years in the industry and this is a great concise description of what makes EMS flying the most dangerous job in the U.S. Pilots must learn that if they don't return safely today they can never save anyone again. This could also be applied to the U.S. Army. The combat loss vs. non-combat loss ratio has not changed in 45 years.

Steve Kilbourne

Civilian EMS Accident Reduction

In response to *R&W*'s question about HEMS safety in the October issue, I have never flown EMS civilian, but I have flown what the Army calls MEDVAC chase (a non-MEDVAC helicopter chasing the MEDVAC helicopter for a back-up. I did this for my last deployment to Iraq and will possibly do it again for my Afghanistan deployment. Most of the accidents that occurred on my deployment were not from enemy fire and mostly due to a lack of training and proficiency. I understand that the civilian world does not have the luxury of doing flight training like the military, but generally speaking a well-trained crew tends to mitigate accidents. Reducing accidents is just like any other type of science field, you take measurements and adjust.

It will cost HEMS companies but to reduce the accident rate time money and adjustments will have to be applied to the HEMS. When measurements are made to something, i.e. such as looking at accident rate, type of accidents and proficiency and experienced involved; will yield information. Once the pertinent information/measurements are taken, only then will accidents be mitigated in the HEMS community.

CW3 Stephen Harper
Alpha Company PA Army National Guard
Instructor Pilot, Safety Officer UH-60
Abingdon, Md.

R&W's Question of the Month

How do you think that advancements in in-flight connectivity will benefit helicopter operators?

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**

Photo by Ned Dawson

Mooooooooooooove, it you two.

Will Bullock

Now hold still, you are just the right distance apart for the skids.

Larry Peck

"Can't swat that high with my tail. Can you? Damn flies!"

Erik Adamson

Modern day cowboys.

Atif Saeed

Chopper steak.

Jeremy Batman

Deja Moo.....

Stephen John Whitehorn

Ten feet lower and we're gonna have roast beef sandwiches!

James Lee Stewart

"Who wants chopped brisket?"

Kris Rozett

From Twitter

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

@NZAircraftFan: One cow to the other: "If we just ignore that R22 it will go away."

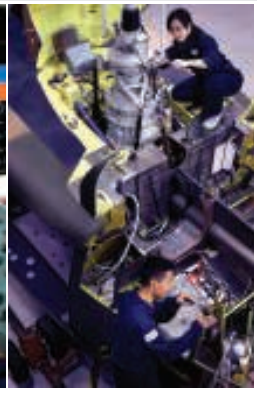
@Ginger_of_Tech: Don't just gralife by the horns... Grab it by the cyclic

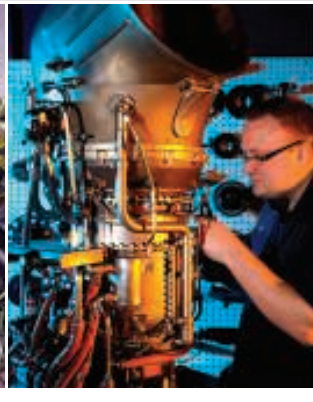
Do you have comments on the rotorcraft industry or recent articles and viewpoints we've published? Send them to Editor, Rotor & Wing, *4 Choke Cherry Road, Second Floor, Rockville, Md. 20850, USA, fax us at 1-301-354-1809 or e-mail us at rotorandwing@accessintel.com. Please include a city and state or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

SETTING THE STANDARD OF CUSTOMER SERVICE

MAINTENANCE REPAIR OVERHAUL

ENGINES • DYNAMIC COMPONENTS • STRUCTURES • AVIONICS





As a world wide leader in helicopter maintenance, repair & overhaul (MRO) - Vector Aerospace provides comprehensive support for Eurocopter, Sikorsky, AgustaWestland, Bell & Boeing helicopters.

VECTOR AEROSPACE

TOLL FREE: 1.888.729.2276
WWW.VECTORAEROSPACE.COM

Meet the Contributors

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

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

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

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

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

MIKE REDMON is an ATP rated pilot with CFI, CFII, and MEI privileges. He began flying helicopters for the U.S. Army and then moved to civilian fixed-wing flying. After six enjoyable years in helicopter EMS, he is back to flying airplanes. Helicopters he has flown are the UH-1, OH-58, AH-64, BK-117, A-109E, BH-430 and BO-105.

MARK ROBINS is an experienced and accomplished editor who has bylined more than 50 full-length feature articles in his career, most dealing with technical and manufacturing developments. He has written for such technical trade magazines as *Quality and Electronic Packaging and Production*. He has also worked full-time for the editorial departments of the American Society of Civil Engineers and Society of Manufacturing Engineers.

CHRIS SHEPPARD is the Associate Editor of *Rotor & Wing*. Coming from a strong background in journalism and public relations, she was an editor for a leading online newswire for several years. She has covered a wide range of topics, both online and in print since 2002. Chris is currently pursuing her master's degree in Journalism at Georgetown University in Washington, D.C. She can be reached at **csheppard@accessintel.com**.

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

Innovation. Reliability. Performance.

Your mission relies on your aircraft, and at Aeronautical Accessories the success of your mission is our number-one priority. We're committed to delivering fast, personalized service backed by an extensive inventory and the expertise you've come to expect. That's why customers rely on our personalized approach to meeting their unique parts and accessories requirements.

www.aero-access.com | sales@aero-access.com | 1-800-251-7094

Aeronautical ACCESSORIES™

■ COMMERCIAL | AIRFRAMES

FAA Certifies S-76D; Bond S-92 Completions Begin

A line of S-76Ds at Sikorsky's plant in Coatesville, Pa.

Bond Aviation Group CEO Richard Mintern visited Sikorsky's commercial manufacturing plant in Coatesville, Pa. in early October to examine the initial two baseline S-92s that are part of a 16-aircraft order placed during Heli-Expo in February 2012.

Bond Aviation's group fleet and engineering director, Martin Whittaker, came along to get a look at the green S-92 combo that will go into service with Norsk Helikopter in January 2013 following completions at Sikorsky Global Helicopters (SGH) in Coatesville.

"I'm excited. Today is a momentous day really, where we come and do our first acceptance of the aircraft. We're very pleased to be teaming with Sikorsky," Mintern said on Oct. 4 before a handover ceremony with more than 50 employees, including Sikorsky Global Helicopters director of programs Dan Hunter and Ed Beyer, vice president and general manager.

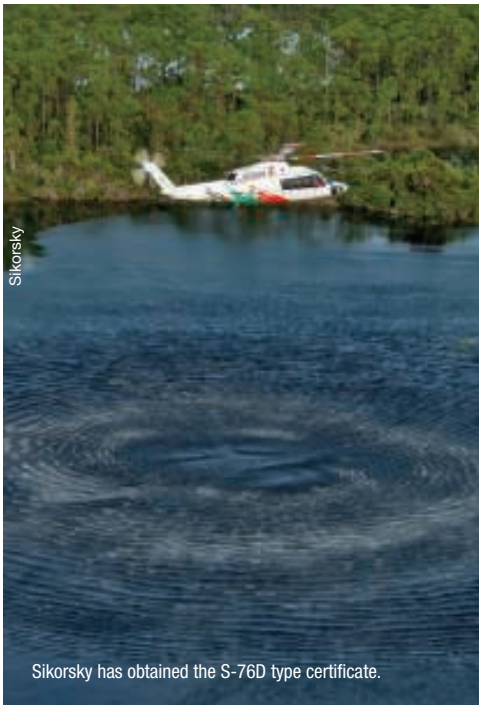
The partnership marks the first time that Bond will operate a Sikorsky variant. The World Helicopter Group subsidiary primarily flies Eurocopter types, including the AS332, AS365N3 and EC225, as well as a few AgustaWestland helicopters.

Mintern noted that around 45 percent of the organization's fleet is dedicated to HEMS/search and rescue, 30 percent to safety and environment, and about 25 percent energy services/oil and gas.

The total fleet across five divisions amounts to 365 aircraft, with about 85 percent rotary wing. Mintern, who became CEO of Bond Aviation Group earlier this year, said he has "taken a keen interest in HUMS [health and usage monitoring system] and how they monitor the aircraft in real-time, and was very impressed with the intellect and the processes by which [Sikorsky engineers] review that data and support us as customers." He implemented "100-day safety plan" following a May 2012 ditching incident involving

The hangar doors open up at the Sikorsky S-92 area in Coatesville. Bond Aviation Group is due to receive its first two S-92s in January 2013.

a Bond-operated EC225 in the North Sea. The just-completed 100-day plan covers four key areas, including managing HUMS indications "more dynamically," according to Mintern. "We've worked very hard to put further barriers in place along with Eurocopter," he said. "Safety is inherent in everything we do. We cannot work in this industry without that being at the forefront of our minds." Sikorsky's Coatesville plant is home to the S-92 and S-76D production lines, as well as the S-300C. FAA issued the type certificate for the S-76D on Oct. 12, giving the green light to begin addressing a backlog that is estimated at close to $500 million. Sikorsky also reports a full order book for the S-92 through 2013, specifically noting agreements with offshore and SAR/utility operators.



Sikorsky has obtained the S-76D type certificate.

Sikorsky experienced some technical delays with the certification program for the S-76D, after the first prototype took flight in 2009. The S-76D features Pratt & Whitney Canada PW210S engines, Thales TopDeck avionics, HUMS and all-composite main rotor blades.

According to Sikorsky officials, all of the various configurations for the S-76D will be available with first deliveries in early 2013, including VIP, offshore and SAR. One of the only exceptions is certification for the rotor ice protection system. "Because it's so calendar driven," Beyer explained, the certification delays "pushed the icing to the right. We're forecasting dry air testing and subsystem qualification activities on rotor ice protection this winter, and then we will fly behind the tanker and find natural icing the following winter. So we'd say by the end of next winter we'll have full certification for the ice protection."

Beyer explained that Sikorsky plans to deliver 10-14 baseline S-76Ds this year. Coatesville will produce more than 30 S-92s during 2012, a 60 percent increase in production over 2011. The uptick will help address the demand for the S-92, according to Beyer.

SGH also carries out airframe assembly for the CH-148 Canadian Maritime Helicopter before final assembly occurs in West Palm Beach, Fla. The Coatesville location is a silver Achieving Competitive Excellence (ACE) site, according to standards from parent company UTC.

Beyer noted that SGH is seeing "a lot of metrics that are hitting gold standard," adding that gold certification is anticipated in another year or two.

"Our focus has been to do what we've done—get control of completions so that we can deliver a very high quality product to our customers, and then also creating a truly commercial piece of the business. And that's been very successful," Beyer said. *—By Andrew Parker, Editor-in-Chief*

SERVICES | CERTIFICATION

FAA Decides Against Bell 429 Weight Increase

Bell Helicopter

Despite approvals from 11 other countries, FAA denied a request to increase the weight of the Bell 429 to 7,500 lbs.

Going against the grain of other regulatory agencies around the globe and the requests of Bell 429 operators in the U.S., FAA has denied a request from Bell Helicopter to increase the max gross weight of the variant from 7,000 to 7,500 lbs. Transport Canada approved the weight increase in January 2012, with several others nations giving the go-ahead through the course of 2012. In July, Argentina joined 10 other countries that have approved the weight increase, including Brazil, Ecuador, Malaysia, Mexico, New Zealand, Philippines and Vietnam.

Bell was seeking an exemption from 14 CFR section 27.1 (a) for the 500-lb increase. The FAA found that the granting the exemption "would not be in the public interest." The ruling followed an analysis that concludes "while the level of safety may be enhanced by the approved installation of additional certified equipment, the FAA does not agree that this can or should be accomplished through the granting of a blanket exemption from the applicability of a Part 29 rotorcraft weighing more than 7,000 lbs."

FAA also pointed to an "economic advantage" that Bell Canada and other 429 operators would receive over other Part 27 competitors that are limited to 7,000 lbs, and noted that it could upset the "FAA and EASA harmonized type certification and airworthiness standards."

Describing Bell Canada's application for the increase as a "business decision" that would directly benefit Bell 429 operators, the FAA argued that comparable Part 29 helicopters in a similar weight class would be "at a disadvantage since they were required to meet more costly Part 29 certification requirements."

The FAA ruling followed a series of petitions from Bell, 429 operators, other helicopter manufacturers and regulatory agencies. Many of the 429 operators noted the increased operational capabilities and safety benefits from being able to install more equipment such as H-TAWS, digital engine controls, radio altimeter, wide area augmentation system (WAAS), night vision goggles (NVGs) and wire strike protection, among others. One of Bell's arguments centered around an estimate of creating 400 new jobs, with 300 of those in the United States. Bell estimates that "429 ship sales in the next five years will go from 150 to 500 ships and $150 million in direct supplier sales will be generated to support production" with the approval, adding that another 1,600 indirect jobs would be created long term, according to FAA.

But the manufacturer and 429 operators were unable to convince FAA to approve the exemption. "We agree that jobs in the United States could be created with the sale of more than 300 new helicopters. If there is a demand for that many helicopters, then helicopter manufacturers will fill that need." FAA added that, " we believe jobs will be added regardless of the manufacturer... However, it is important to remember that a decision to exempt an applicant from FAA safety standards is, and should remain, primarily a safety decision." The agency also noted that it has received a number of requests for exemptions related to section 27.1, typically denying the requests. FAA has only granted an exemption "in one situation, directly related to rulemaking that increased the weight limitation for all Part 27 helicopters." FAA also agreed to examine whether the take-off weight standard for Part 27 aircraft should be updated.

All engine filters are not created equal

Can you afford to wait?

Protecting your most valuable assets, especially your engine, makes even more financial sense in today's economy. The best way to safeguard your engine from FOD, dirt, erosion, and other costly damage is with Inlet Barrier Filtration from Donaldson. If you can't afford unscheduled maintenance or an engine replacement, you can't afford to wait. Now more than ever. **Demand Donaldson.**

Donaldson provides the most comprehensive product line of barrier filter solutions for commercial and military helicopters.

www.donaldsonIBF.com

Visit us at Helishow Dubai Booth #106

Donaldson
FILTRATION SOLUTIONS
AEROSPACE & DEFENSE

SERVICES | FLIGHT TESTING

Designer of Electric Helo Reflects on 2011 Flight Tests

After having been virtually absent from the media for more than one year, Pascal Chretien, the designer and pilot of the world's first electrically powered helicopter, accepted an interview with Rotor & Wing. *He reflected on the flight tests that took place in the summer of 2011 near Aix-en-Provence, France. There, with help from Solution F, a small company specializing in motorsports, he managed to do what no helicopter manufacturer has done so far. Chretien sees his feat as just one step towards a more ambitious goal—persuading the industry that the time has come for hybrid helicopters, where a combination of an internal combustion engine and electric motors would revolutionize safety.*

The first flight, under its own power, of a manned electric helicopter happened on Aug. 12, 2011, as witnessed by a court bailiff. During the following weeks, the aircraft logged a total 99.5 minutes of flying time in 29 flights. A typical flight lasted four minutes, with a demonstrated maximum of six minutes, Chretien said. Actual forward flight above translational speed (15 to 20 knots) was never experimented. Although very low speed was tried, the test flights were just hovers, outside ground effect.

Chretien and Solution F's managing director, Eric Chantriaux, agreed to work together in 2010. Design work actually started in August, Chretien recalled. It turned out Sikorsky introduced its electric Firefly almost simultaneously at EAA Air Venture Oshkosh, late in July that year. Chretien was under pressure, as he wanted to fly first. The Firefly, a modified S-300C, eventually never took off.

Hard work—seven days a week, 10 to 12 hours a day, Chretien said—led to the first ground tests in March 2011. However, the following month, a motor incident delayed the program. The delay had some positive outcome. It gave Chretien time to rethink several safety issues. For example, "I had started the ground tests without a helmet or a safety belt," he said. Also, he installed additional controls on the cyclic stick to disengage the drive in case of emergency. Besides, the aircraft was fitted with a new set of blades using asymmetrical profiles. They raised out-of-ground-effect lift from 570 to 680-lbs force.

Safety was not always Chretien's top priority. To limit the risk of battery-induced fire in case of crash, common design practice would suggest installing distributed fuses along the chain of cells. But fuse weight was "unacceptably high," at 3.3 lbs per fuse. So Chretien decided to "trade safety for weight."

Piloting the first-ever electric rotorcraft was inherently challenging. Conventional cyclic controls were replaced by a weight-shifting system. This saved weight. However, this arrangement required flying with reversed roll and pitch controls. To get used to such tricky controls, Chretien had built a simulator early in the program. He trained "every day from September 2010 to July 2011."

Power never was a problem. Two Agni DC motors supplied a total 32 kilowatts (43 hp). This was enough to hover, at a takeoff weight of 545 lbs. For energy storage, Chretien chose Kokam lithium-ion polymer pouch cells—128 lbs of them, located under the pilot seat. He used a honeycomb frame and an Aerogel-based firewall. A battery management system, supplied by Lithium Balance, provided battery management and charger control. It was a key element to success, he said.

Why did Chretien choose a dual, coaxial main rotor? "I wanted to avoid wasting power," he answered. A tail rotor uses an estimated 8-10 percent of the total power available. The designer was essentially pursuing lift.

Chretien, who has engineering degrees in electronics and aerospace, in addition to its commercial helicopter pilot license, sees further than his single-occupant demonstrator. He and Solution F have filed patents relating to a "serial hybrid" helicopter concept. The principle is built around an engine that produces electric power via a generator. The generator feeds batteries, which

To avoid "wasting" relatively scarce power, the designer of the world's first electric helicopter chose a coaxial main rotor configuration instead of a conventional single main rotor and accompanying tail rotor.

Photos courtesy Solution F

Chretien's helicopter design features four rotor blades.

enable a distributed stack of electric direct drives to turn the blades.

"Gears are medieval technology; you can't have a redundant main gearbox on a helicopter," Chretien insisted. On the contrary, "you can design a stack of redundant of motors," he said. This brings a true redundancy up to the rotor mast. Hence a major enhancement in safety, if one thinks of the mind-boggling problems gearboxes have caused to helicopter manufacturers.

Moreover, an electric system would be much more durable—"about 12,000 to 15,000 hours of service life, compared to 2,000 to 4,000 hours with a main gearbox," Chretien asserted. Price would be a factor, too. On a five-seat turbine single, he estimated the price of the main gearbox at EUR250,000 ($325,000) versus EUR145,000 ($188,000) for the entire distributed electric motor unit.

In the future, superconduction might help. Chretien mentioned demonstrated superconductive temperature as high as 95 Kelvin (minus 289 F). "Even considering the weight of the cryocooler, such drive systems would be much lighter, with a power density way above 15 kilowatts per kilogram," he told *Rotor & Wing*. By contrast, common aircraft-grade gearboxes with their oil circuit and cooling accessories are around 6.7 kW/kg.

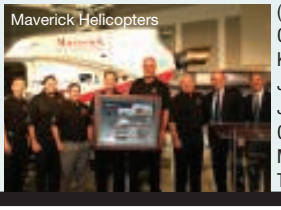
A major obstacle remains, though. Major helicopter manufacturers draw a large part of their revenues from maintenance, repair and overhaul. This market would be much smaller, should rotor power get rid of gearboxes. Helicopter makers may soon have to decide on a paradigm shift. *—By Thierry Dubois, on Twitter:* **@aerodub**

COMMERCIAL | TOURISM

First EC130T2 Joins Maverick Fleet


Photo by Anthony Pecchi
The EC130T2 performed a flight demo tour in Europe.

American Eurocopter has handed over an EC130T2 to Las Vegas and Grand Canyon tour operator, Maverick Aviation, which is one of seven launch customers for the airframe, including neighboring tour operator Papillion Airways, EMS provider Enloe FlightCare and Blue Hawaiian Helicopters. Unveiled at this year's Heli-Expo in February, the helicopter is the first EC130T2 to enter service and is part of a Maverick order for up to 50 rotorcraft. The helicopter is part of an upgrade and replacement program for Maverick's current fleet of EC130s. The EC130T2 prototype also recently completed a demo tour through Europe, where guest pilots were afforded the opportunity to fly the helicopter with Eurocopter pilot Olivier Gensse. Evian, France was the inaugural stop, before flying to Switzerland, Italy, the Netherlands and Sweden, wrapping up its final demo in Norway.



(L to R) Brad Guzman, Bryan Kroten, Dan Flores, John Buch, John Mandernach, Greg Rochna, Marc Paganini and Todd Powers

PRODUCTS | MISSION EQUIPMENT

Curtiss-Wright to Provide Flight Recorders for AW169

AgustaWestland has selected the Curtis-Wright Controls Avionics & Electronics (CWC-AE) division to provide the AW169 with accident data and voice recorders. The "black boxes" were installed for the flight-testing phase of the new helicopter variant, "mounting directly to the airframe," according to David Adams, co-chief operating officer for CWC. Shipments for the series product line are set to begin in 2013. Adams added that this is the first CWC-AE division's technology in use for the AW169. The CWC Penny + Giles business unit will manufacture the products under this contract at its Christchurch, UK facility.

SERVICES | MAINTENANCE

Russian Helicopter Service Center Opens in CIS, Europe

Russian Helicopters has established an after-sales support facility, Helicopter Service Center. Customers in the Commonwealth of Independent States and Europe will now have access to components, modifications, repairs and upgrades for Russian Helicopters. The center will implement a new web-based service for ordering parts and provide electric documentation for operators. Russian Helicopters also secured teaming agreements with Denel Aviation for a service hub in Africa. The sub-Saharan center will provide support for commercial and military helicopters in the region, with plans to expand and perform complete overhauls.

MILITARY | UNMANNED

Telephonic Tests Radar on Fire Scout

Farmingdale, N.Y.-based Telephonics Corporation has completed flight tests of its AN/ZPY-4(V) Maritime Surveillance Radar on the U.S. Navy's Northrop Grumman MQ-8 Fire Scout unmanned aerial system. The testing was performed with ground moving target indicator (GMTI) mode upgraded radar. According to Kevin McSweeney, chief operating officer of Telephonics, the AN/ZPY-4(V) uses a "single sensor to address the changing conditions over land [and] over water" while in GMTI mode.

MILITARY | AIRFRAMES

Navy Adds Sikorsky VH-3D Option

The U.S. Navy has exercised a $41-million option involving its VH Presidential Helicopter contract with Sikorsky Aircraft. The modifications include integrated logistics support, security, project engineering, technical manual updates and training. Sikorsky will also perform modifications on three of the VH-3Ds in service. Work on the Presidential Helicopters is scheduled to run through September 2013.

TRAINING | MILITARY

Bell to Produce Venom, Viper FTDs

The U.S. Marine Corps has issued a $44-million contract to Bell Helicopter for the procurement of two UH-1Y Venom flight training devices (FTDs). The agreement also contains a provision for the baseline configuration upgrade of one AH-1Z Viper FTD. Bell will divide the work among its facilities in Missouri, Oklahoma and Texas.

Photos by Sgt. Keonaona Paulo

U.S. Marines with the Marine Light Helicopter Squadron (HMLA) 469, Marine Aircraft Group 39, 3D Marine Aircraft Wing (Forward) stationed at Camp Bastion, Helmand province, Afghanistan perform routine maintenance on a Bell UH-1Y Venom. Mechanics repaired the rotor and washed the helicopter as part of aviation readiness for the 469.

PUBLIC SERVICE | LAW ENFORCEMENT

FAA Approves R66 Police Variant

Robinson Helicopter has secured approval from FAA for the police variant of its R66 turbine. The police model is outfitted with FLIR Ultra 8000 thermal imaging cameras, Spectrolab SX-7 searchlights and additional law enforcement upgrades. The Fontana Police Department in southern California will receive the first R66 police model in October 2012. Robinson plans on expanding the R66 line to include an electronic news gathering (ENG) variant in 2013.

Robinson R66 police variant, which includes FLIR cameras and Sprectolab searchlights, has received FAA approval.

MILITARY | SERVICES

Boeing to Provide PBL for Chinooks

The U.S. Army has awarded Boeing a series of contracts in support of the CH-47 Chinook, including a five-year, $185-million contract for performance-based logistics (PBL). The PBL agreement includes production, overhaul and distribution of the Army's Chinook rotor blade inventory. The PBL contract differs from a traditional agreement in that the Army will pay for an agreed-to readiness level, instead of paying for parts and services. The Army also granted two additional Chinook contracts, including a $17-million deal for improved vibration control systems and an $8.6-million award for cargo-platform health environment field demonstration kits on the CH-47F.

COMMERCIAL | AIRFRAMES

Erickson Purchases San Diego 'Sun Bird'

Portland, Ore.-based Erickson Air-Crane has bought back an S-64F Air-Crane "Sun Bird" from the San Diego Gas & Electric Company (SDG&E). Erickson Air-Crane originally sold the helicopter to SDG&E in 2009. As part of the purchase agreement, Erickson will provide an Air-Crane to San Diego County for fire suppression support.

MILITARY | AIRFRAMES

Helibras Opens EC725 Plant, Adds Suppliers

Eurocopter subsidiary, Helibras, has established a manufacturing plant in Itajuba that will focus on the production, assembly and maintenance of the EC725 in Brazil. The initial production at the facility will focus on a 50-aircraft order from the Brazilian Armed Forces. Helibras has delivered four French-produced EC725s so far, with the Itajuba plant to build the remaining helicopters. The new facility will also have the means to produce civilian versions of the EC225 to meet demand from offshore oil and gas operators in the region. Helibras has also struck an agreement with Inbra Aerospace involving composite armor protection on the EC725. The company currently equips Helibras' Ecureuils with armor protection. Through early October, a total of 15 suppliers have agreed to provide Brazilian-produced components for the EC725s.

PRODUCTS | ENGINES

Carson, Pall Join for S-61 Upgrade

Port Washington, N.Y.-based Pall Corporation has teamed with Carson Helicopters to upgrade the Centrisep engine advanced protection system (EAPS) for the Sikorsky S-61 Sea King. Carson holds the supplemental type certificate (STC) for Pall's Centrisep EAPS, with this latest upgrade available for commercial-use S-61 operators. The previous S-61 model was only approved for use on Westland and government Sea Kings. The updated Centrisep EAPS design is lighter and aims to improve performances and operational efficiency, according to Pall.

Ka-62

LEVIUS, CITIUS, FORTIUS

The all new medium lift multipurpose helicopter Ka-62,
made of the latest materials, using the most advanced technology,
but remembering the need for economy and ease of operation.
The Ka-62's spacious cabin makes it particularly suitable
for cargo transport and emergency medical assistance.

more at www.russianhelicopters.aero

RUSSIAN HELICOPTERS

EXPERIENCE & INNOVATION

29 bld. 141, Vereyskaya st.,
Moscow,121357, Russian Federation
Tel: +7 (495) 627-5545 • Fax: +7 (495) 981-6395
E-mail: info@russianhelicopters.aero

Navy Gears Up for MQ-8C Fire Scouts

The upgraded MQ-8C Fire Scout will use a Bell 407 airframe and Rolls-Royce 250-C47B dual-FADEC engine.

The U.S. Navy has scheduled delivery of the first two MQ-8C Fire Scout unmanned aerial vehicles (UAV) for the February 2013 timeframe, with first flight scheduled for next August, according to Capt. Patrick Smith, Program Manager for Navy and Marine Corps Multi-Mission Tactical UAS Program Office. Beta testing on a Bell 407 test bed with both software and hardware is already being conducted in Yuma, Ariz.

The Navy signed a $262-million contract with Northrop Grumman as prime contractor for the upgraded Fire Scout in April (see *Rotor & Wing*, April 2012). The contract covers the two test aircraft, which will be based at Webster Field, part of the NAS Patuxent River complex, plus six additional aircraft for delivery designated for fleet support for deployment in the fall of 2014.

Another contract is expected later this year for an additional six MQ-8Cs. At this time, the Navy is anticipating a requirement for a total of 28 Fire Scout 8C models for delivery through 2015, Smith said.

The MQ-8C will use a Bell 407 airframe, making it larger than the MQ-8B it will replace. The airframe includes both 407 rotor systems plus the transmission—although the main rotor hub will be replaced to allow the blades to be folded for ship deployment. It will also initially have the same Rolls-Royce 250-C47B dual-FADEC engine supplied with the standard 407. However, the Navy plans to take that back to Rolls-Royce for an upgrade.

"The biggest advantage of the MQ-8C [over the B model] is more fuel," Smith said. "It will be able to carry over 2,600 lbs. of fuel. The requirement given Northrop Grumman was to enable it to go out 150 nm, remain on station eight hours and return." The 8B can only go out 110 nm and stay on station just over three hours, he said. Gross takeoff weight (GTW) for the B model is 3,150 lbs., while the C model is 6,100 lbs. Both the B and C have payload capacities of just under 300 lbs., although the C variant will have the capacity to grow to about 700 lbs. of payload. Smith also noted that the payload could go up to 1,250 lbs., although that would require a tradeoff with fuel capacity and a subsequent reduction in range and loiter time.

The additional payload will also allow growth in areas such as radar and weapons capability. "There have also been discussions about whether (the 8C) can carry weapons pylons," he said.

Although the airframe is totally different from the earlier model, the payload has roughly 90 percent commonality with the MQ-8B for both hardware and software.

Northrop Grumman has already been flying a Bell 407 out in Yuma "for about the past 12 months, using the baseline software off the MQ-8B, adjusting it for center of gravity and weight, and doing flight envelope expansions," Smith said. "So we've already shown that the software is transportable from the B model over to the new airframe." Both the ground and shipboard control stations also

have about 90 percent commonality for both software and hardware.

With the primary mission of the MQ-8C Fire Scout being to support maritime-based intelligence, surveillance and reconnaissance (ISR) requests from the U.S. Special Operations Command (SOCOM), the primary mission equipment package item is the FLIR electro-optical infrared (EOIR) Bright Star II sensor. This is integrated with a weapons payload system called APKWS, for Advanced Precision Kill Weapon System, developed by BAE Systems. The APKWS is compatible with the Hydra 70 unguided rocket system, allowing the 2.75-inch Hydra 70 rockets to be converted into laser-guided missiles.

Both the EOIR and APKWS are directly transportable from the B model to the C, Smith said.

Some of the translated payload will consist of systems that are being enhanced, to include a new Tactical Common Data Link, integrating an L-3 system providing better reliability and more robust data linkage, Smith said. The 8C will also have an upgraded Litton LN-250 inertial navigation system with interferometric fiber optic gyro technology, providing a laser-ring gyro GPS-INS system.

Smith noted that unlike most fixed-wing drones, the Fire Scout is not a remotely piloted aircraft "flown" by ground controllers who actually maneuver the drones in flight. Instead, the MQ-8 has pre-programmed flight plans inserted into its computer's database, automatically directing it to specific waypoints in space.

"However, changes in the flight path can be changed while the aircraft is airborne," Smith said. "So we can pre-plan a flight, but then execute a maneuver airborne if needed to move right or left, up or down.

But to change altitude is not necessarily adding or reducing power. Changes are made on a keyboard rather than dialing in a change. Even firing the weapons is done from either a keyboard or scroll ball with a graphic interface to execute what it wants to happen." The controller does, however, have a joystick to use if necessary, "and we're also looking into a two-handed or one-handed controller (device) to control the payload. The joystick is not used by the air vehicle operator (AVO—or pilot), but is for the mission payload operator (MPO).

Currently, all but one of the AVOs are pilots, while MPOs are enlisted specially trained to handle the mission payloads. Both the AVOs and MPOs come from the Navy's MH-60 Squadron.

Another advantage the MQ-8C gives the Navy is reduced workload on the flight deck, Smith said. A recent study was done comparing the two Fire Scout variants on a continuous 24-hour mission. The 8B required four aircraft with eight to 10 launches and recoveries.

Because of the greater endurance of the 8C, the study showed that it would require only three launches and recoveries using two aircraft. "That takes a lot of workload off of our flight deck crews, not having to be constantly up on the deck to either launch or recover a Fire Scout," Smith said. "So when you are able to give someone back literally hours in their day, that is a great thing to be able to offer a sailor."

The MQ-8B Fire Scouts are currently being operated off the fantail of guided missile frigates, and have been tested on the Littoral Combat Ship (LCS). "But with the C, we're looking to grow to additional ship classes to include DDG-51 Arleigh Burke class destroyers. We've also been asked to investigate a Joint High Speed Vessel. And further down the road the Navy has a ship called the DDG 1000 (Zumwalt class) guided missile destroyers.

Regarding two accidents involving MQ-8B Fire Scouts, Smith said that the two incidents involved totally separate issues. The first was in Afghanistan and involved a navigational failure. "There was a very low probability of the navigational failure occurring, but corrections are now in place to reduce that probability even lower." The second accident occurred on the USS Simpson and is believed to have involved the UAS Common Air Recovery System, or UCARS.

"We were not able to make recovery (on board) the ship, so decided to terminate the flight off the side of the frigate. The aircraft was recovered and is currently at Cherry Point awaiting disposition. We believe we've resolved that problem also. Both of those accidents occurred within seven days of each other. It was just a very bad week." *—By Douglas Nelms*

CONTRACTS

The **U.S. Navy** has exercised an $11.9-million option with Indianapolis-based Rolls-Royce for maintenance services on the AE1107C engines that power the Bell-Boeing V-22. Rolls-Royce will perform low-power engine repairs as well as turboshaft engine and site support under the contract extension. The engine work is split between Indianapolis and Oakland, Calif., with a completion date of February 2013.

Boeing has received a $136-million contract modification from the U.S. Army related to work on the AH-64 Apache. The re-tooled agreement covers the conversion of AH-64As into AH-64D models. Boeing's facility in Mesa, Ariz. will carry out the work, which is expected to continue through December 2013.

PUBLIC SERVICE | SAR

Canadian Forces Win 2012 Cormorant Trophy


Photo by AgustaWestland

Canadian Forces used an AgustaWestland AW101 during an Arctic rescue in October 2011.

AgustaWestland has awarded the 2012 Cormorant Trophy to the Rescue 915 crew of the 103 Search and Rescue Squadron at Canadian Forces Base Gander in Newfoundland. The Rescue 915 crew was recognized for their October 2011 rescue of two walrus hunters that were stranded on an ice flow in the Arctic Sea. While the AgustaWestland AW101 was en route to the hunters, the crew received word that two SAR Techs from the 424 Squadron at Canadian Forces Base Trenton in Ontario—which had parachuted from a CC-130 into the water to assist the hunters—had activated their personal locator beacons. Upon arriving, Rescue 915 was greeted with wind gusts of 55 mph and 32-foot-high waves that tossed large chunks of ice into the air. Using a hoist and rescue horse collar, both the hunters and 424 SAR Techs were rescued from life rafts. The Guild of Air Pilots and Air Navigators (GAPAN) recognized both SAR teams with the Guild Award for Gallantry.


Photo by AgustaWestland

The Rescue 915 crew of the Canadian Forces' 103 Search and Rescue Squadron.

PUBLIC SERVICE | EMS

Utah AirMed, Charlotte Police Select Becker Avionics DVCS6100

Becker Avionics has obtained a contract to equip the University of Utah AirMed's Eurocopter EC145 with its DVCS6100 digital audio system. The helicopter replaces an older Bell 407. Air Methods, which operates AirMed's HEMS fleet, is completing the helicopter at its United Rotorcraft facility in Denver, Colo.

Becker has also installed the system in a pair of Bell 407s in operation with the Charlotte-Mecklenburg Police Aviation unit in North Carolina. The upgrades were made in advance of the aviation unit's role in providing security for the Democratic National Convention in September. Kearney, Neb.-based Rodgers Helicopter Services also recently selected the DVCS6100 for its new EMS-equipped Bell 429. Rodgers has provided Good Samaritan Hospital's AirCare unit with air ambulance services for 30 years.

PRODUCTS | WHEELS & BRAKES

X4 Stops with Messier-Bugatti-Dowty

Messier-Bugatti-Dowty, part of the Safran group, has contracted with Eurocopter to provide brakes and wheels on the X4. The company currently outfits additional Eurocopter variants, such as the Dolphin, Super Puma and Tiger. In addition to the two main wheels and two electric brakes, Messier-Bugatti-Dowty will supply electric brake controllers (EBCs) and four brake pedal transmitter units (BPTUs) for the X4. Safran Electronics Canada will develop and produce the EBCs for Messier-Bugatti-Dowty.

TRAINING | SIMULATORS

Air Methods Opens HEMS Training Center

Englewood, Colo.-based Air Methods Corp. has opened the doors of its 14,000-square-foot center dedicated to aviation, medical and maintenance training technology. The facility, located in nearby Aurora, features a Eurocopter EC135 training device equipped with an Air Methods cockpit that allows for scenario-based training. The clinical section of the facility includes an adult human patient simulator (HPS) and a TraumaMan skills trainer. The HEMS operator will use the center to train new pilot hires and conduct pilot assessment interviews. The facility includes office space in addition to the classroom and simulation areas.


Photo by Air Methods

Air Methods' new EC135 trainer.

HELI-EXPO 2013

The World of Vertical Aviation | CONNECT • ENGAGE • SUCCEED

Las Vegas • March 4–7 (Exhibits Open March 5–7)

Exhibit Floor Open New Days: Tuesday Through Thursday!

"HELI-EXPO is the place to meet face-to-face with OEM senior management and with new and established suppliers. The networking opportunities are great as well."

— Ron Cline, Owner and Operator

Plan Now to Attend

Register Today at rotor.com/heliexpo

HELI-EXPO 2013
March 4–7 • Las Vegas, Nevada
Exhibits open March 5–7

PRODUCED BY
Helicopter Association International

VISIT US AT HELISHOW DUBAI — BOOTH I-109B

PEOPLE

Rockwell Collins has appointed **Kelly Ortberg** as president of the company. Rockwell Collins also established the office of the chief executive position, where Ortberg will join Clay Jones, chairman and chief executive. Ortberg has worked for Rockwell Collins since 1987 as was formerly chief operating officer of government systems.

Keystone MedFlight has named **Heidi Ames** as chief pilot for the company. Ames was previously the Southeast regional manager and pilot hiring manager for Med-Trans Corp. She has more than 20 years of flight and management experience with commercial air medical operators and the military.

Mike Barbee has joined Proxy Technologies as chairman of the board of directors. He currently is the president of Barbee Executive Management and served as president of Wamnet Government Services. Before working with Wamnet, Barbee was vice president at Lockheed Martin.

BBA Aviation Engine Repair and Overhaul (ERO) has hired **Luke Chiang** as a regional sales manager. He will oversee the business and general aviation sales of the Asian Pacific region and the government and business services of the southern Asian Pacific sector. Chiang comes to BBA from Jet Aviation Singapore, where he was the director of regional sales.

Susan Sheets Brogan has come on board as the director of special programs at JETNET iQ. Sheets Brogan spent 20 years as the president of the National Aircraft Resale Association, prior to joining JETNET iQ. An advocate for business aviation, Sheets Brogan has served as the president of the International Aviation Club in 1998, president of the Aero Club of Washington in 2008, and secretary of the International Aviation Women's Association in 2011.

Metro Aviation has added **Amy McMullen** as a customer configuration coordinator. She will assist clients with aircraft configuration, equipment selection and support during completions. Prior to joining Metro, McMullen worked for Allegiance Health Management where she was vice president of finance and COO for a critical access hospital.

IN MEMORIAM

Helicopter Aerodynamics Authority Dies

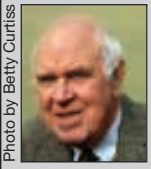


Photo by Betty Curtiss

Howard "Pat" Curtiss Jr., widely regarded as an expert in the field of helicopter aerodynamics, passed away on Sept. 20. He was 82. Curtiss taught mechanical and aerospace engineering at Princeton University for more than 30 years.

During the late 1970s through the early 1980s, Curtiss and his students performed experiments on the "ground effect" aerodynamics of spinning rotor blade wake as it rebounds from the ground and goes through the rotor again.

Curtiss worked with several manufacturers—including Bell Helicopter, Boeing, Northop Grumman and Sikorsky—to test new designs and to lend his aerodynamic knowledge to vertical takeoff and landing (VTOL) aircraft projects.

In 1998, Curtiss collaborated with Carson Helicopters to produce new rotor blades for the Sikorsky S-61. The design that Curtiss developed now helps power the VH-3Ds of the Marine One helicopter fleet.

coming events

2012:

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:

Feb. 20–21: Avionics Europe 2013, Munich, Germany. Call 1-888-299-8016 or visit www.avionics-event.com

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

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

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

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

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

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

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

HOT PRODUCTS

for Helicopter Operators

Aviation Maintenance Software

CORRIDOR is industry-proven software developed to streamline the aviation maintenance process. Created by aviation professionals more than 15 years ago, CORRIDOR continues to improve efficiency, reduce errors, increase control and visibility, reduce costs, and elevate customer service levels for rotor and fixed wing service providers. CORRIDOR handles all functions in real time. CORRIDOR's modular design allows each organization to tailor the application to their specific needs. Modules include those for Inventory Control, Procurement & Logistics, Maintenance & Shop Management, Part Sales & Retail Distribution, Customer & Vendor Management, Aircraft Maintenance Record Keeping, Accounting Integration, and more. CORRIDOR is backed by an experienced staff to support each business throughout training and implementation and continued user support. Contact us today for more information or to request a demo: 512-918-8900, **www.corridor.aero**

From the Cockpit to Your iPad

GDC64 Tablet Aircraft Interface Unit (TAIU). Type design approved Product PMA Pending

- Apple approved MFi licensee
- Allows weather and aircraft position on iPad (weather application required)
- Library of data
- SDK (Software Development Kit) for other applications
- Wired connection provides safe and approved power and aircraft interface leaving Wi-Fi connectivity available for other uses
- Four Arinc 429 input ports
- Eight discrete inputs from different sources
- Aircraft power keeps iPad fully charged

Connect today at **dacinfo@dacint.com** or via phone at 1-512-331-5323.

Programmable Location & Identification Beacon Available from FEC Heliports

FEC Heliports has added a new range of innovative Programmable Location and Identification Beacons to their range of heliport lighting equipment. These medium intensity beacons, which are available as three or single color units, use high brightness LEDs and advanced micro-electronics to provide a range of pre-programmed and user field-selectable operating modes. The beacons can be programmed without any special knowledge, skills or tools, by means of on-board switches either before or after installation. Additional on-board switches enable different maximum light output levels to be set and control which quadrants of each light are active. These new beacons are housed in FEC's existing, field-proven range of robust cast aluminium and glass housings, providing simple installation and upgrade. Depending on beacon type, the modes which may be selected include:

- FAA L-802H Civil Helipad Beacon - 36 Flashes per Minute [FPM], 75ms pulse width
- FAA L-802M Military Helipad Beacon - 17.3 FPM, 100ms pulse width

Two Location beacon modes:

- Modified ICAO pattern (short [2mS] and long [25mS] pulse) - 30 FPM
- 25 FPM UK CAA and Transport Canada timing compliant

Two Morse beacon modes: 4 - 6 WPM (Words Per Minute):

- 1, 2 and 3 character code options (defined at time of ordering)
- Rotating (simulated) and flashing beacon modes

For installations requiring light shielding to prevent pilot glare or distraction, arrays are individually selectable enabling any combination of 90-degree quadrants to be enabled or disabled. The Beacons are powered from a 48V DC source making them safe to install and operate and suitable for powering from a suitable 110/240V AC power supply or batteries. Custom versions of the beacons are available (e.g. IR, non-standard modes, automatic night-time switching). For more details, prices and to download the user manual visit **www.fecheliports.com** or **www.heliportsequipment.com**, email **fraser@fecheliports.com** or call Fraser Mackay at +44 1494 775226 to discuss your needs.

DUBAI SERVES AS MIDDLE EAST HE

Photo by Douglas Nelms

UAE Sikorsky Black Hawk on display at the 2011 Dubai Airshow.

Biennial Middle East helicopter tradeshow has grown into the third largest behind Heli-Expo and Helitech UK.

By Douglas Nelms

SOUK FOR ROBUST LICOPTER MARKET

While much of the rest of the world worries about where its next meal is coming from, the petro-rich Middle East is still a robust market, particularly in the realm of military sales, according to Dan Darling, Middle East military markets analyst for Forecast International.

For 2013 alone, the six states of the Gulf Cooperative Council (GCC), plus Jordan, are expected to commit some $80 billion to military expenditures. The bulk of that will be Saudi Arabia, with $50 billion. Even smaller countries are making major commitments, with the UAE expected to spend $11 billion while Iraq will spend an estimated $15 billion. The GCC consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. Jordan has been invited to join.

The Bell 429 will be on display during Dubai Helishow 2012.

The military helicopter market is particular robust, with "virtually all of the GCC countries modernizing their military equipment, much of which was purchased in the '90s following the first gulf war," Darling said.

"Some of those countries are still doing some fixed-wing fighter programs, but for the most part they've already gone in that direction and are moving to helicopter platforms." Of particular interest are attack and transport helicopters, he said.

In just the first part of 2012, Qatar has requested an estimated $30 billion government-to-government sale of 24 Boeing AH-64D Block III Longbow Apaches and $2.5 billion for 10 Sikorsky MH-60R Seahawks and 12 MH-60S Seahawks. The Saudis had already requested 70 AH-64Ds and 72 UH-60M Black Hawks to help boost their National Guard. This explains why the biennial Dubai Helishow has become the major marketplace, or souk, for the helicopter industry serving the Middle East. Located in what has become the primary business hub for the region, the Helishow has now grown to be the world's third largest international show for the helicopter industry, behind only HAI's Heli-Expo and the UK's Helitech.

With the first Dubai Helishow held in 2004, this is the fifth show in eight years, with a steady progression of growth as the importance of the show has become apparent. Exhibitors have increased by almost 40 percent, going from 80 in 2004 to 110 signed up so far this year. Visitors to the show are anticipated to be around 2,000, compared to 1,500 at the 2004 show.

The venue has also changed, moving from Dubai International Airport's Exhibition Hall using 1,153 square meters (12,410 square feet) to a 1,660-square-meter (17,868-square-foot) space in the Grand Stand, Meydan Racecourse of Al Meydan City.

Military

With military sales expected to be a major consideration in the Middle East, both Boeing and Sikorsky will have a presence at the show. Sikorsky signed a estimated $300-million order for 60 Black Hawks with the UAE Air Force at the 2010 show, and has arranged for one of the UH-60s to be on display in the aircraft park during this year's event.

Boeing said it would not have an aircraft for display, but will have a booth with representatives there to talk to key members of Middle East militaries about its military programs. These include the AH-64D Apache, AH-6 light attack/reconnaissance helicopter, CH-47F Chinook and the V-22 Osprey tiltrotor.

With roughly 1,500 aging, daylight only, attack/reconnaissance helicopters worldwide that need to be replaced, Boeing is very actively promoting its AH-6i, according to Mike Burke, director of global strike rotorcraft. The AH-6i is the international version of the AH-6 and MD Helicopters MH-6 Little Bird.

Commercial

Despite the emphasis on military sales in the Middle East, the civil side will be well represented to serve the growing market for commercial and personal helicopters.

Aerogulf, a leading commercial helicopter operator in Dubai for more than 36 years, will be displaying a Bell 212 and 206L as well as offering attendees discounted tours over Dubai during the show. A Bell 429 will also be on static display from Hawker Pacific, the Bell sales representative for the region. The 429 will be available for demonstration flights, said Alan Parsons, vice president of aircraft sales. Following the show, the 429 will be taken on a sales tour of the region. Hawker Pacific is a major repair station in Dubai for helicopter parts such as hydraulics and avionics; while a sister company, RBI Hawker, is an authorized rotor blade repair station.

Moscow-based Russian Helicopters will have a booth, while a Mil Mi-8MSB will be on display by Sharjah-based Motor Sich Middle East, representing the Ukrainian airline.

Enstrom Helicopters will participate for the first time at the 2012 show, displaying its 480B. Although a major manufacturer of helicopters for the civil market, ranging from personal to law enforcement to electronic news-gathering (ENG), Enstrom has also entered the military market with the 480B, selling it to the Royal Thai Army and Japanese Ground Self Defense Force. Dennis Martin, Enstrom's international sales program manager, said that the success of the aircraft in the international market led to their decision to evaluate the Middle East. One aspect of selling to the Middle East military market is that they tend to overbuy when procuring a fleet of helicopters, "buying more than what they have an infrastructure or manpower to crew and maintain," Darling said. "This makes it a better market for the producers, because they can provide aftermarket services. That is why everybody angles for this market, because there is no self-production, there is no offset agreements."

FLIR system on display at the 2011 Dubai Airshow.

When Qatar put in its request to the U.S. to purchase its 24 AH-64D Block III Longbow Apaches, it also asked for night vision goggles, AGM 114R Hellfire II missiles, Stinger missiles with launchers, 2.75-inch Hydra rockets, Apache aviator integrated helmets, training devices, simulators, support equipment, tools and test equipment, U.S. government and contractor engineering, technical and logistics support services, "and other related elements of logistics support."

Orders such as this are, needless-to-say, major markets for parts and service providers. Joe Garland, vice president of international business development for Lockheed Martin Missiles and Fire Control, said that his company will be exhibiting "several of its internationally field Precision Engagement, Fire Control and Situation Awareness

systems and solutions." These include the Hellfire and direct attack guided rocket (DAGR) missiles, Arrowhead advance electro-optical fire control system, and electronics supporting Longbow system.

Arma-Global, based in Tampa, Fla., will also be promoting its MRO integration of spare parts, repairs, major overhauls, upgrades and maintenance. It also serves the military by providing solutions for the procurement, inspection, delivery and support of "numerous weapon systems and ammunition," the company said.

FLIR Systems will be returning to the 2012 following a successful 2010 show, displaying its thermal imaging and stabilized EO/IR systems used for surveillance and reconnaissance, search and rescue, border and maritime patrol and—particularly for the military application—targeting, fire control and laser weapons designation programs.

The show will also see exhibitors promoting products for civil and paramilitary operations such as search and rescue, EMS, offshore operations and other areas.

One such company is Breeze-Eastern, an industry leader in the design, development, manufacture and product support of helicopter rescue hoists, cargo hooks, special application hoists and cargo winches, restraint systems, weapons handling and motion control devices for the aerospace, defense and commercial marketplaces. The company said it would be focusing on both the military and civil markets during the show, talking directly to governments, the OEM aircraft companies and the end users.

Training will also be emphasized during the show, with companies such as Bakersfield, Calif.-based SRT Helicopters and Emirates-CAE Flight Training in attendance. SRT Helicopters provides training from private pilot ratings up to certified flight instructor-instrument (CFII). They also offer recurrent and operational night vision goggles training.

Emirates-CAE is a joint venture between the Emirates Group and Canada's CAE, offering both rotary and fixed-wing training. Helicopter training is conducted using a Bell 412 simulator.

Australia is represented at the show by Chopperline Flight Training Academy, which provides training in Robinson R22 and R44 trainers.

The Helishow will also provide a forum for conferences on "High-Rise Firefighting and Rescue," and "Heliborne Intelligence, Surveillance and Reconnaissance." The first of these will look at emergency services first responders to fires in high-rise or mega-buildings, while the second will cover the effectiveness of manned and unmanned air assets operating in the airborne ISR role.

A totally new aspect of the show will be the ability of attendees to scan smartphones across QR codes for each exhibitor listed in the Show Guide and receive information on that exhibitor. Attendees will be able to download a free app provided by London-based Showcase to access the exhibitor information.

Bell-Boeing V-22 flies past the Burj Al Arab in Dubai.

Bell-Boeing

NATIONAL TRAINING AND SIMULATION ASSOCIATION

THE WORLD'S LARGEST MODELING & SIMULATION EVENT

I/ITSEC | INTERSERVICE/INDUSTRY TRAINING, SIMULATION & EDUCATION CONFERENCE

NAVY USMC AIR FORCE '12 ARMY INDUSTRY

Why I/ITSEC?

- 19,000 Industry Professionals
- Over 550 Exhibiting Companies
- 160 Technical Sessions/Tutorials

THE POWER OF INNOVATION

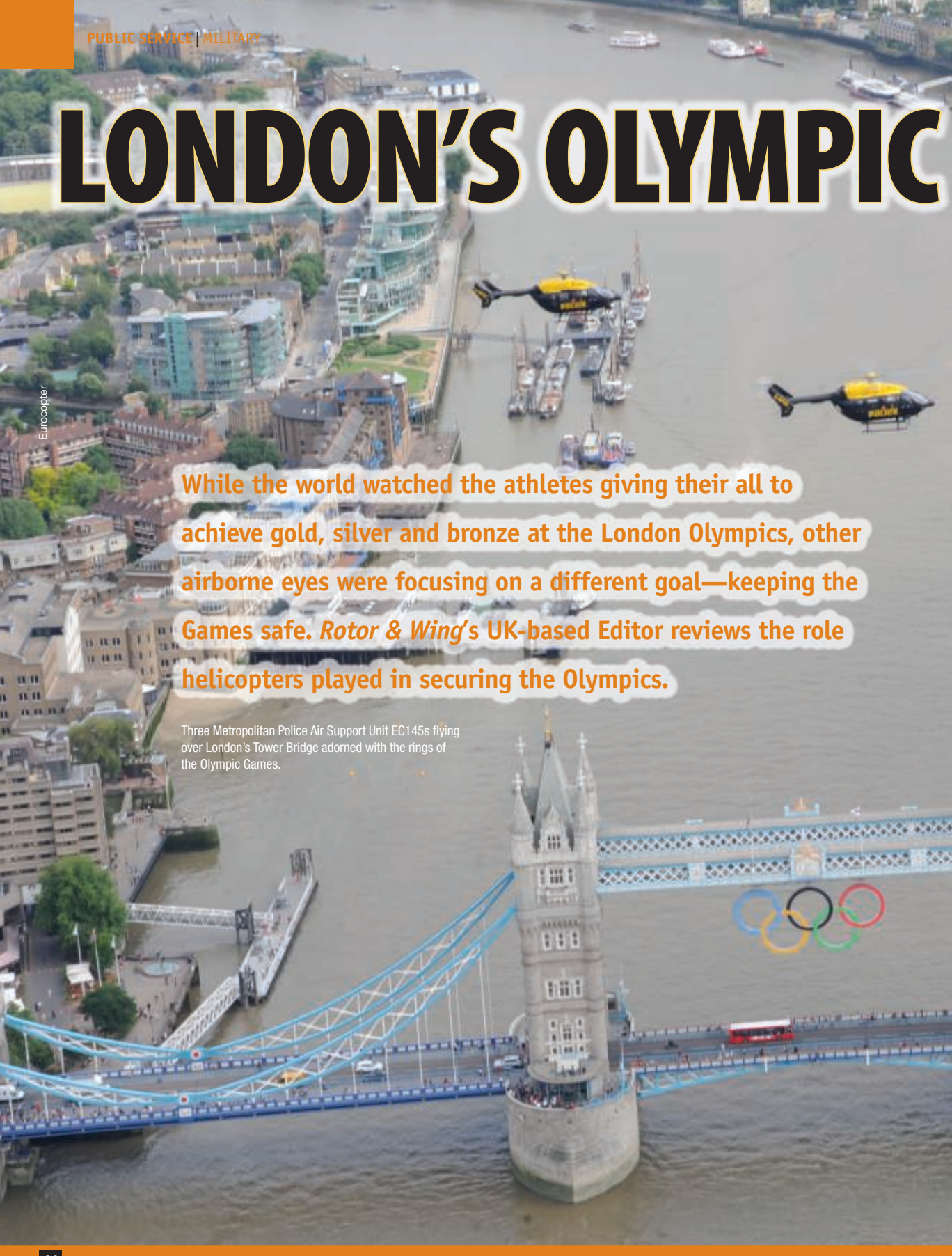
ENABLING THE GLOBAL FORCE

Save the date!
December
3-6, 2012
www.iitsec.org

NDIA
National Defense Industrial Association

DECEMBER 3-6, 2012 ▶ ORLANDO, FLORIDA

LONDON'S OLYMPIC



Eurocopter

While the world watched the athletes giving their all to achieve gold, silver and bronze at the London Olympics, other airborne eyes were focusing on a different goal—keeping the Games safe. *Rotor & Wing*'s UK-based Editor reviews the role helicopters played in securing the Olympics.

Three Metropolitan Police Air Support Unit EC145s flying over London's Tower Bridge adorned with the rings of the Olympic Games.

GUARDIAN ANGELS

By Andrew Drwiega, Military Editor

When London won the right to host the 2012 summer Olympics in Singapore on July 6, 2005, coming from behind to "win by a nose at the post" from what had been considered the favorite bid city, the French capital Paris, most of the country was overjoyed.

But with celebrations getting into full swing in cities across the nation, security planners must have been plunged deep into thought trying to come to terms with the immense challenge of keeping such a world event safe. The potential threat was massively underlined only one day later on July 7 when a series of coordinated suicide attacks (known as the 7/7 bombings) caused mayhem during the morning rush hour. Four bombers detonated devices on three underground trains and a double-decker bus, resulting in 52 civilians being killed and over 700 more injured.

While the London Organizing Committee of the Olympic and Paralympic Games (LOCOG) was the entity responsible for overseeing the planning and development of the 2012 Summer Olympic and Paralympic Games, overall security planning lay with the National Olympic Security Coordinator (NOSC), an assistant commissioner who was responsible for overseeing the planning, development and implementation of policing for the Games and for cross-agency (including military) coordination.

The scale of security needed for the summer Olympic Games was going to be huge and was outlined by the NOSC, Assistant Commissioner Chris Allison:

- 14,700 athletes from 205 countries will compete over 28 days of competition
- Approximately eight million tickets will be sold for

the Olympic Games, with another two million for the Paralympic Games

- 11 forces will police Olympic venues or villages
- Around 12,000 officers will be on duty across the venues on peak days
- 26 Olympic sports will take place in 34 venues
- 20 Paralympic sports will take place in 21 venues
- 800,000 people are expected to use public transport to travel to the Games on the busiest day, more than the entire population of Leeds
- 20,000 members of the world's media are accredited with access to the Games. A further 20,000 non-accredited media are anticipated.

One of the first measures taken was to draw up two airspace restriction zones covering central London. One was a prohibited zone and covered the airspace surrounding the major sites involved in hosting Olympic events, while a wider restricted zone covered a large area of airspace that stretched south of Gatwich airport, north of Luton and Stansted airports and out beyond Heathrow in the west and over the Thames Estuary between Kent and Essex.

A Royal Air Force 230 Squadron Puma HC1 helicopter based at RAF Benson, Oxfordshire is pictured over the 2012 Olympic Stadium during a training flight in London.

Pre-planning Police MRO

However, way before any of the security measures were put into place, one company was addressing challenges that it foresaw in simply allowing a selection of those forces to reach the starting line.

Eurocopter UK was responsible for supporting 20 police air support unit EC135 and EC145 helicopters from different police forces during the Olympic and Paralympic Games, as well as the Royal Air Force Puma helicopters that were on-call for use principally by the special forces during events.

In addition, a company called Arena TV provided aerial coverage of not only the Olympic Games but also the procession of the Olympic torch around the UK. They had five AS355s that would also be extensively used throughout the tournament and would eventually fly more than 600 hours during the period.

Eurocopter UK's managing director Markus Steinke told *Rotor & Wing* that the preparations for the Olympics represented a "major effort in pre-planning with Eurocopter taking concerted action with police forces before the Olympics."

Steinke said that Eurocopter was able to call on its experience in supporting other major tournaments worldwide such as soccer's FIFA World Cup in 2006. The process to prepare the UK's police helicopter fleet for intensive operations during the Games began one year before with the company contacting individual police air support units to alert them to the fact that this would be a busy period for all concerned.

As the EC135 and EC145 helicopters conform to a different maintenance regime an intensive maintenance planning and logistics structure had to be devised. Some of the EC135 schedules were brought forward. This allowed Eurocopter's MRO facility to pre-book some emergency slots within its job schedules for unforeseen aircraft MRO needs during the Olympics.

Eurocopter UK also worked with its suppliers to create a stockpile of the most frequently required items, from rotor blades and mission equipment down to the smallest items. "We doubled our stock for the Olympics—and that also included having replacement engines on standby," revealed Steinke.

It was also deemed necessary to increase a number of critical resources including the aircraft-on-ground hotline and technical services, the implementation of a 24/7 maintenance duty roster, the management of vendor support for systems ranging from engines to mission equipment, and the deployment of a fleet 20 GPS-tracked mobile vehicles. These vans, only introduced at the beginning of the year, were fully equipped and were ready to be despatched to customer sites or police helicopters that may have performed emergency landings away from their home base or any airfield.

The pre-planning paid off handsomely. Steinke states that there was only one significant "intervention" to repair a helicopter, three logistics requests and two requests from customers for technical support throughout the Olympics and Paralympics.

Steinke was justifiably pleased as the result of his company's pre-planning and preparations: "It has been demonstrated that Eurocopter is the UK's backbone for national security (in terms of providing the police helicopters with dedicated MRO support)."

Military Muscle

The military's air contribution towards securing the Olympic Games and Paralympics included fast-jet interceptors and helicopters. Aircraft of both types were moved into the London area to give them the shortest possible reaction time to any airborne threat.

RAF Typhoon fighters and Royal Navy S-61 Sea Kings were based at

RAF Northolt in the west of London (a base more used to the Royal Flight and private jet traffic). Being situated inside London's orbital motorway, the M25, this meant that reaction time was down to minutes.

A pair of Mk 2 Puma helicopters complete with onboard sniper teams were located at Ilford in east London. The snipers provided a final resort if unidentified light aircraft could not be turned back and were heading to one of the Olympic venues.

A helicopter intercept procedure was established for light aircraft or other unidentified helicopters heading into the restricted zone. The military helicopter would join the left hand side of the incoming aircraft and rock his aircraft. The military aircraft might also display a "Follow Me" sign that had to be obeyed. The military crew could also get the pilot's attention by use of a green laser or firing a flare. If none of these had the desired effect of halting the rogue aircraft, stronger and more kinetic measures were available.

Army Air Corps Lynx and three Royal Navy Mk 8 Lynx helicopters relocated from their bases to the helicopter carrier HMS Ocean, which berthed on the River Thames near Greenwich for the duration of both Games. This 21,000-ton dedicated helicopter carrier has six helicopter operating spots on its flight deck. Incidentally, due to the proximity of the ship to the Olympic site it was also used as a floating accommodation base for more than 400 soldiers who were drafted in to boost security at the eleventh hour when security company G4S revealed that it could not recruit and train the 10,400 private security staff it had contracted to provide. This meant that many additional servicemen had to be drafted in late in the day to bolster security at a variety of sites. Around 18,000 service personnel of all types were eventually called upon, some have to give up promised leave after just returning from tours in Afghanistan.

The RN Lynx detachment from 815 Naval Air Squadron (NAS) comprised 60 aircrew, engineers and support staff who were all relocated from their home base at the Royal Naval Air Station (RNAS) at Yeovilton. According to the RN Lynx detachment commander Lt. Commander Nigel Cunningham, who was responsible for coordinating with the Police and LOCOG; the London Organizing committee responsible for the Olympic and Paralympic Games, the Lynx were kept at a high state of readiness from July 13 until both Games were over.


Eurocopter

EC145 trio over London.

Aside from maintaining aviation safety, daily tasking revolved around constant updates with briefs and planning, ready to react to any emergency that occurred. "Operating in this unusual battlespace has brought with it a series of demanding and challenging problems," said Cunningham, adding that the ship was berthed close to the Olympic equestrian event area. This required the varying of launching and recovery of helicopters in order to prevent excessive helicopter noise from adversely affecting the horses in competition nearby.

One of her primary tasks of HMS Ocean was to coordinate the flying operations above London. By the end of the deployment her flight team had logged a total of 1,680 hours of flying aircrew and snipers in their embarked Lynx helicopters. In a public relations mode to local residents and the general public, the ship was opened for visits for three days with more than 11,000 visitors taking up the opportunity to visit the carrier.

Around 50 personnel from 854 NAS with a pair of Sea King Mk7 helicopters fitted with the Searchwater 2000 radar would add airborne surveillance and control to the Olympic security picture, and were based at RAF Northolt. The Mk7's intelligence, surveillance and reconnaissance (ISR) was most recently deployed into Afghanistan where it was used to monitor insurgents in Helmand Province. Usually it is used to detect and protect naval ships at sea from maritime and air threats.

Away from the capital city, Merlin MH1s of 814 NAS were based on the 21,000-ton HMS Bulwalk providing security for the Olympic sailing events in Weymouth Bay. During the AW101 Merlin's operated from the ship supported by 150 personnel.

The offshore RN helicopters supported the Dorset Police through their maritime patrol capability. A harbor revision order that lasted daily between 8 a.m. and 6 p.m. was devised to ensure that boats did not interfere with the Olympic competitors in the area that they were using. In this scenario, the military's role was to support the authority of the police by their presence and by their ability to gather information. The aircraft's L-3 Wescam MX-15 electro-optical camera could identify and send real-time footage via downlink to situational controllers.

WHY ENGINE MAINTENANCE MATTERS

Maintaining proper rotorcraft engine maintenance is critical for safe, smooth flight.

By Mark Robins

Helicopter Specialties Inc.

Proper engine maintenance guarantees a long-lasting, efficient source of power for the helicopter.

Regular and thorough helicopter engine maintenance ensures safety, compliance with legal obligations, peace of mind, and enhanced flying pleasure. According to the Helicopter Safety Advisory Conference, engine-related mechanical malfunctions are one of the leading causes of helicopter accidents. Powerplant maintenance is so important because the engine is the main component keeping the helicopter in the air. "An airplane uses wings for much of its lift, but a helicopter relies on the engine to drive the main rotor blades that provide the required lift," says Jim Freeman, president of Helicopter Specialties in Janesville, Wis. "A neglected engine can't provide enough horsepower to safely take off or land a helicopter." A complete engine failure could be catastrophic. "Without a reliable engine, the helicopter is just about useless," says Jerry McCawley, test pilot and safety engineer at Lockheed Martin in Owego, N.Y. "Proper maintenance is critical to engine long-term reliability and performance. Daily inspections, pilot pre-flights and heavier inspections such as 100 hour/annual inspections and hot-end inspections all play a part in ensuring an engine is both safe and delivering full performance."

Not all rotorcraft engines receive equal engine maintenance. Smaller engines complete more cycles over the same period of time compared to larger engines. Any maintenance activity prescribed according to engine cycle will be carried out more often on a smaller turbine engine. McCawley notes piston engines require more maintenance than turbine engines due to their more complex makeup, spark plug fowling and cooling issues.

Engine manufacturers establish maintenance standards for their products via an extensive test and qualification process during the design and development phases of the engine-making process. A smart design team includes operators' input early on to help ensure easy access for maintenance. Additionally, manufacturers often work in cooperation with the helicopter airframe manufacturer. "The airframe manufacturer may impose additional specific maintenance requirements relative to the engine installation, ancillary systems, controls and indicating systems," say Phil Kemp, vice president of airframe and avionic sales for Vector Aerospace Helicopter Services North America in Langley, Canada.

Engine maintenance procedures are part of the engine certification process (JAR21). "Based on engine architecture, design margin, system redundancies and engine parameters monitored, safety analysis will identify mandatory maintenance tasks and associated periodicities that have to be performed," says Keith Marshall, vice president at Turbomeca USA. "These maintenance constraints are taken into account along all the engine development phases and design optimization. Most of those tasks are related to control functions which will be activated in emergency and can't be tested in normal operations. Qualification tests will identify all limitations related to engine operations." Respecting preventive and scheduled maintenance is the only way to keep engine airworthiness. "It's important from both a practical standpoint and a legal/regulatory standpoint to maintain a helicopter engine in accordance with the manufacturer's standards," stresses Freeman.

Cory Little, senior technical sales manager at Phoenix, Ariz.-based Honeywell, agrees, saying: "Civil certification authorities

prohibit continued operations outside of approved maintenance standards. Violating standards can result in fleet grounding by civil authorities until an engine comes back into compliance with maintenance standards."

From the regulatory standpoint, the FAA plays a big role in U.S.-based civil helicopter fleets in the standards which regulate engine maintenance initially and through issuance of Airworthiness Directives to address issues that arise as an engine matures in service and problems arise. "The Aviation Missile Research Development and Engineering Command (AMDREC) does this for the U.S. Army and NAVAIR for the U.S. Navy/USMC," says Sam Evans, Colonel (ret.) and U.S. Army Aviator.

Operators can also set maintenance standards to better reflect the conditions they face in their operations. The more an operator lowers the hourly operating cost of the engine, the more profitable the operator becomes. "Through coordination with the OEM they can tailor their programs to be both effective in catching any issue as well as cost effective," says McCawley. "A operator that uses its aircraft in longer distance executive transport has needs that are vastly different than one involved with logging, long lining or offshore applications."

Engine maintenance includes regular, scheduled maintenance events with routine inspections and overhauls, as well as unscheduled events including repairs, component replacement and troubleshooting.

It's important from both a practical standpoint and a legal/regulatory standpoint to maintain a helicopter engine in accordance with the manufacturer's standard.

"The most common maintenance is the daily/pre-flight inspection performed by the mechanic, the pilot, or best (in my opinion) both," says McCawley. "A thorough visual inspection will spot many issues at an early stage and allow for a quicker fix, though not in every case, of course." At this time, the engine, systems and components must be examined for cracks, corrosion, general condition, leaks and signs of material distress.

External components and fuel control systems require close inspection of lines, unions and fittings for leaks and cracks. "At specified periods in the engine overhaul cycles, or following specific abnormal events, the engine may require internal inspection of the compressor, combustion or power sections," says Kemp. "These inspections may be accomplished through either partial disassembly of the engine to access the parts to be inspected, or with a borescope, which allows a detailed inspection of the engine interior through a fiber-optic viewfinder, without extensive disassembly, which may be recorded by photo or video."

Performing periodic engine maintenance tasks reduces the risk of severe engine damage. Checking oil, fuel filters, magnetic plugs, oil level and air intake are periodic tasks, which help get information to understand engine health to detect and prevent serious engine degradation. For example, the composition of a metallic particle collected on a magnetic plug or oil filter will identify which component it came from and trigger a specific maintenance procedure.

A helicopter's engine oil is its lifeblood. "Maintenance requires that the engine oil be changed before it becomes acidic," says Mike Turner, president of Air Technology Engines Inc. in Naples, Fla. Acidic oil results in a drastic reduction in the Ryder gear value of the oil. Under high loads, the oil gets squeezed out between the gear teeth resulting in excessive wear."

Spectrographic oil analysis programs provide a very detailed analysis of the engine oil, monitoring elevated levels of specific metals and materials. "By reviewing the volumes and type of material in the sample, it is possible to identify the source within the engine and intercept potential failures, or to direct maintenance activities to avoid expensive repair or replacement actions," says Kemp. "By interpreting trends across individual engines as well as fleets, it is possible to anticipate failures as well as the impacts of operational and environmental conditions."

Inspection of fuel and ignition systems includes the filtration system to ensue that clean fuel is being delivered to the burner nozzles, ensuring reliable and safe engine operation. Some engine types require periodic inspection of nozzles and igniters, to ensure the nozzles and igniters are operating to specification and are not damaged, which in turn can cause additional damage and problems to the combustion and power sections of the engine. "Air and bleed air systems are an extremely important and essential part of the engine operating and control system," says Kemp. "In addition to their role in the start process, in many types of fuel-control systems, they play an essential role in the scheduling and governing of the entire fuel system. Chafed line or loose connections can cause air leaks that result in the sudden and uncommanded loss of all engine power."

The above helicopter engine maintenance procedures along with others are all considered operator-level maintenance. Brian Costello, field service engineer at Lycoming Engines in Williamsport, Pa. believes most required periodic maintenance and inspections can be carried out by a properly trained and equipped in-house staff. Kemp feels much depends on staff training, technician experience, and the ratings, capabilities and access to special tooling.

More intermediate-level activities must be carried out by service centers capable of disassembling and inspecting an engine at a modular level. "These activities might include disassembling the engine into the primary modules

Advancements in manufacturing technology through improved material properties and/or advanced manufacturing methods allow engine manufacturers to produce engines with increased maintenance intervals that allow operators to safely leave the engines on wing for longer periods of time.

(turbine module, compressor module, gearbox module), inspecting those modules per approved inspection procedures, and then carrying out any module-level maintenance," says Little. Intermediate level maintenance is performed off-wing at certified and properly equipped facilities.

Depot level engine maintenance is the most advanced and detailed. It includes complete engine disassembly and inspection and/or maintenance activities at the part level. It's typically completed during major inspections prescribed in intervals often measured in engine hours, cycles or both. "An unusual helicopter operating event, such as a hard landing, may also trigger a depot-level inspection per the approved maintenance standard," Little adds.

Helicopter engine air intakes are frequently challenged by many airborne contaminants encountered in flight such as: sand, dust, ice, FOD, snow, heavy rain and salt spray. When ingested, these contaminants can seriously affect helicopter safety and availability.

"The air inlet's cleanliness is vital to prevent damage to the precision high-speed rotating equipment in turbine engines," says Pierre-Yves Jan, global leader of air intakes at Pall Corp. in Port Washington, N.Y. "Failure to protect the engine air intake can lead to compressor blade erosion, reduced combustion chamber life, turbine blade glazing, blockage of turbine blade air cooling holes, component wear corrosion, decreased MTBUR, power loss or ultimately, engine flameout."

One of the most important engine maintenance tools to lower these contaminants' impact is a simple water and chemical wash of the engine's interior. A clean engine performs better due to increased aerodynamic efficiency across the turbine sections which results in more horsepower, cooler temps and reduced fuel flows. "An engine flush passes solvents or water through the turbines to clean any deposits on the turbine blades after flight in dusty, dirty or salt environments," says Evans.

Also, there are various engine air protection systems available that eliminate or capture sand and dust particulates such as self-cleaning particle separators, integrated particle separators, dust protection units, oil-wetted inlet barrier filters and debris screens.

"They eliminate or capture airborne sand and dust particulates, thus protecting the engine from premature erosion," Jan says. "Selecting the best performing, safest, cost effective and—not forgetting—environmentally friendly solution, requires a good understanding of how each works."

HUMS and condition based maintenance (CBM) are among the most prominent developments in helicopter engine maintenance. CBM describes a set of practices utilized to transform the aircraft maintenance from a reactive environment to a proactive environment. HUMS is one tool for accomplishing the CBM objective.

Self-diagnostic systems such as HUMS or (Digital) Electronic Engine Control Units, or (D)EECs, monitor the engine and will report any faults through a variety of displays or outputs. "They can play a critical role in spotting problems as well as trending an engine's condition and performance," McCawley says. These systems allow vast data collection and number crunching of all engine parameters. These produce a highly detailed real-time review of operating equipment's current condition and may predicate corrective or preventative maintenance actions, as well as single-aircraft and fleet-trend monitoring.

For instance, a Bell 2061 operator can install a Honeywell VXP on-board HUMS system. "The system is comprised of multiple sensors installed throughout the aircraft and connected to a primary data processing unit," Little says. "This system allows the operator to monitor critical aircraft engine data during a flight that is subsequently analyzed to identify potential maintenance issues before they occur."

Marshall believes HUMS is just in its infancy in terms of engine maintenance and agrees that it is turning engine maintenance from a corrective to a proactive model. Also, "Computer aided trouble shooting tools, based on statistical case databases will enhance problem isolation and resolution by optimizing resources or access time," he says. "Real-time data transmission between in-flight helicopters and on-ground maintenance centers using specialized tools will limit helicopters' on-ground operation."

Developments like these and others related to advanced manufacturing technology involving improved material properties and/or advanced manufacturing methods continue to surface. "They allow engine manufacturers to produce engines with increased maintenance intervals that allow operators to safely leave the engines on wing for longer periods of time," says Little.

Ultimately, an operator's goal should always be the safe operation of their helicopter. Using substandard engine maintenance practices, and unlicensed or substandard parts degrades overall engine performance, which can potentially affect the purpose for which it was designed.

AIRBORNE &

Honeywell

By Frank Lombardi

Beyond the needs of the passenger, a wireless connection brings a series of tools to the cockpit capable of increasing situational awareness, lowering workload, enhancing safety, and even assisting with maintenance.

ON THE GRID: IN-FLIGHT CONNECTIVITY

Conceptual image from Honeywell illustrates in-flight connectivity for aircraft. *Helicopter image added by Graphic Designer Gretchen Saval.*

Without question, the Internet is woven into the daily lives of just about all of us. Technology has broken the bonds of the wires that once tethered us to our desktops, and wireless networks have become more the rule than the exception. The ability to send and receive floods of information at a moments notice is quite literally at our fingertips, and the personal electronic device (PED) has evolved into an extra appendage that we seem to need almost as much as the opposable thumbs we text with.

It is interesting that despite the speed of advancing wireless technology, the ability to connect to the web while in flight is still somewhat of a luxury. However, this technology is finally becoming more pervasive on the market, and with it comes a host of steadily growing applications.

In commercial aviation, the primary goal of wireless networking has been to provide in-flight connectivity to passengers for both entertainment and productivity. But looking beyond the Internet, for those of us in the cockpit, a wireless connection option brings a bag of tools capable of increasing situational awareness, lowering workload, enhancing safety—and even assisting in maintenance.

To explore the topic, we must first understand the basics. Any wireless

connection in flight will initially need to connect with a router-style "access point" installed in the aircraft. The data being requested must then be relayed from the aircraft to a ground station. The ground station then taps into the Web or whatever data service is necessary, and the return data is passed back in the opposite direction.

Gogo (originally Aircell), an Internet provider to select air carriers, employs an air-to-ground (ATG) system to bring third-generation evolution-data optimized (3G EV-DO) wireless broadband into select airline cabins. To accomplish this, Gogo's networked cell towers across the U.S. have been outfitted with antennas that point their signals up at the sky instead of down across the ground. This provides a wireless service experience that most of us are used to when we surf the Web with our smartphones. However, it does have its limitations. The most obvious should be the fact that the signal is only good while over the continental U.S., since the last cell tower will go out of range shortly after the aircraft flies out over the ocean. Another issue is that as more people try to stream data-intensive material, such as movies on their PEDs, the speeds they can achieve may leave something to be desired. Let's face it, as our electronic lives evolve, we crave more bandwidth.

The quick answer to these two issues is the use of satellites for data transmission. At a glance, satellites seem to solve all our in-flight connectivity problems. But the reality is a bit more complex. Jeff Warner, President and CEO of North Flight Data Systems, helped explain what can be a confusing hierarchy of businesses involved in the process of getting connected. First there is the aircraft. Then there are companies that produce data collection devices, i.e. the hardware necessary to gather certain data—be it cockpit data, passenger data, etc. Finally there is the service provider, which passes the collected data through its software and modem access point and transmits it via satellite for a fee. Warner's company produces lightweight voice, video and flight data recorders for use in light helicopters such as the Eurocopter AS350, EC135 and EC145, among others.

SkyTrac ISAT 200A.

Two predominant types of satellite connectivity solutions in use today are the high-altitude, high-powered geostationary variety requiring high-powered transmitters, and the low-altitude, lower powered type in low Earth orbit.

Inmarsat, provider of mobile satellite services, operates a network of 11 geostationary satellites around the world to achieve near-global coverage (coverage at the poles is tricky because of poor line-of-sight). By definition, each of these satellites match the rotation of the Earth and maintain their location over a point on the equator, while in orbit approximately 22,236 miles above the surface. They are capable of providing the high-bandwidth data transfer speeds comparable to what we have come to expect in our home office networks, via their Swiftbroadband service. Generally speaking, the higher power of these satellites requires larger, heavier and draggier equipment to be installed on aircraft wanting this capability.

The other satellite solution—which North Flight's recorders make use of—is provided by Iridium Communications, which maintains a low Earth orbit constellation of 66 satellites (there's even a bunch of spares in orbit), about 485 miles up. Because the satellites are closer to the earth, more are required to maintain global coverage. Their coverage is arguably more efficient with the ability to crosslink (talk directly to each other), and their power requirements are less, allowing for smaller, lighter, more streamlined equipment. The caveat is that they only provide lower bandwidth signals more suitable for voice and low-speed short burst data transfer. A second generation satellite network, coined Iridium NEXT, will launch in 2015, and promises numerous performance increases. With some insight into each type of system, it's apparent that no one system can address every possible requirement. To help in making the proper choice, companies such as Honeywell can provide packaged solutions. Kurt Weidemeyer, Honeywell's director in marketing and product management for satellite communications, explained: "With the coming upgrades in the near future, operators will have multiple choices to serve the cockpit and cabin when choosing a system." He was referring to Inmarsat's evolving Global Xpress system with "Ka-band" technology, which has more capacity and is well-suited for mobile use. It is resulting in smaller, more reliable and more efficient components that can still provide a broadband signal, and has allowed Inmarsat to become more competitively priced with the offerings of Iridium. Weidemeyer went on to say, "Honeywell supports both Iridium and Inmarsat, and provides everything needed on the aircraft to take their satellite signal and make it usable to the operator."

Whether the "operator" refers to the commercial airlines, business class, or private jet travel, a clear need for worldwide connectivity is evident. As put by Jenelle Davis, marketing manager for ARINC Direct (a distribution partner for Inmarsat), "When the business person in today's world gets onboard an aircraft, their business should not have to stop just because they take off." Having the ability to email, text, fax, stream large amounts of data and make voice calls globally is crucial to the productivity of many businesses, and a system taking advantage of a high speed, secure data connection would provide what Davis describes as "seamless global communication while in-flight."

When we think of productivity in the office, it should be easy to see that such a system is equally beneficial to the crew in the "front office" of an aircraft. Via satellite connection, pilots can access enhanced weather reports, plan and file the next leg of their flights, or access their base operation's server, even during long, overwater trip segments. It is also imperative that certain safety-critical data can be delivered through a highly reliable and redundant certified connection, which both Inmarsat and Iridium systems can now provide. Additionally, with the Federal Aviation Administration's allowance of iPads and similar tablet devices to be used as Electronic Flight Bags by pilots, a cascade of apps have appeared on the market. Davis highlighted the ARINC Direct flight planning app, for example, as one such tool to aid and enhance flight planning from the cockpit when combined with one of ARINC's service plans.

North Flight Data Systems multifunction data acquisition unit (MFDAU).

Perhaps least thought about, but possibly the ultimate display of usefulness of in-flight connectivity is exemplified by aircraft routinely taken into remote locations, such as offshore, search and rescue, EMS, forestry, or disaster relief helicopter operations. To these types of operations, an in-flight connection is a literal lifeline. With a wireless connection via satellite, operators can have a full-time live link to their entire base operation. Voice over Internet Protocol (VoIP) can allow voice calls from areas where no cell coverage exists. Health and usage monitoring systems (HUMS) that watch over the many rotating and vibrating critical parts of a helicopter can be tied into a wireless connection and transmit the state of an aircraft's systems to maintenance personnel hundreds of miles away, who can monitor or troubleshoot many issues without physically being there.

The cost effectiveness of helicopter operations is particularly sensitive to weight, balance and useful load. From that angle, it's not hard to see why the addition of current components that support a high-speed connection can be too cost prohibitive. Beyond that, there are electronic issues of obtaining a good signal with a broadband antenna that is mounted under the spinning rotor. Such systems exist, but are generally only suitable for military application at this time. Yet, SkyTrac Systems is a company that recognizes the importance of wireless communication in the helicopter industry, and has developed products to meet that need.

Realizing that most critical cockpit operations do not require a broadband connection, SkyTrac offers connectivity packages that make use of the lower-cost and lighter equipment weight of the Iridium satellite network to bring two-way voice, e-mail and flight following into the helicopter cockpit. Malachi Nordine, director of product development at SkyTrac Systems emphatically told *Rotor & Wing*: "Satellite connectivity should not be reserved for the bizjet/air transport market just because they operate in a different economy class. Non-scheduled 'working' rotorcraft also need connectivity. Maintaining communication to one's operations is critical. Safety is the factor when communicating with remotely deployed assets." While discussing the cost of operating such instrumental electronics, Nordine also had an interesting view: "There is a misconception that satellite service is expensive. Satellite connectivity in aircraft is actually more economical than regular cellular roaming. When I travel, my roaming charges are significantly more when compared to what the satellite charges would have been. My office people joke that it's cheaper for me to use satellite when I travel."

For the average air traveler, the cost of upgrading an airliner to have a broadband connection will ultimately fall upon them, as they pay a fee for their connections. While there are probably enough parents that would gladly pay any fee to be able to provide their toddler with a form of in-flight entertainment during a trip to make the technology worthwhile, its uses go so far beyond such a notion. Still, Warner cautioned, "Satellite communication is wonderful technology, and that's where the industry should go, but it should be taken in small bites. It sounds like a panacea, but we can unintentionally impede our operation trying to make sense of it all." In Warner's view, "Sending data is not cheap, so why not just send only what's important? It's a lot more than a communications link. The conduit is there, but there's lots of work that needs to be done in qualifying those sent messages and making sure they're useful. I mean, you don't want junk mail coming over your satellite connection!"

SkyTrac Systems

SkyTrac Systems' SkyWeb mobile map for the iPhone.

With all this talk about digital communication on aircraft, this article wouldn't be complete without addressing the pressing questions about the legality of electronic device and cell phone usage on aircraft. Although difficult to enforce, it is the Federal Communications Commission, which bans the use of all 800 MHz cellular phones on any aircraft in flight. One of the thoughts behind this is that the radio transmitters of cell phones in flight can connect to multiple cell towers, and have the potential to disrupt cellular operations on the ground. As it stands today, in the U.S., the use of electronic devices by passengers while onboard a commercial airline flight is prohibited below 10,000 feet. Above this altitude, electronic devices are permitted, but cell phones must have their radio transmitters off.

Public Service

By Lee Benson

Procurement Dragons

One of my challenges in writing a column for *Rotor & Wing* is to attempt to be relevant to its entire readership. In the broadest terms that means for profit, not-for-profit, military, non-military, foreign and domestic. My career has spanned all six of the groups identified but mostly involved domestic, governmental operations. Guys, there are magazines out there that cater to governmental entities, but it would seem to be a little confining to write for "Government Ops Are Us" don't you think? All of this came to me as I prepared to write a story about the recent multiple program failures related to procurement. In 2007 and 2008 several of my columns were a collection of mistakes and small successes that I had experienced in the acquisition process while I was employed by Los Angeles County Fire. All of this was intended to help my fellow chief pilot/program managers. One of my points was to be a little sensitive and inclusive to the procurement folks, more about this later. Being a consultant on program management issues, a product representative and an interested observer of military helicopter programs has caused me to beat my head against the wall and ask what the heck is going on? We have all repeatedly seen programs delayed, contested, or canceled. Why is this, why are a significant number of programs experiencing procurement problems? I think I can shed some light on this problem. One of the reasons is just plain old greed and corruption—been around since at least Judas, probably going to be around awhile longer.

The next reason is chief pilot or program managers not doing their job, but what is their job? Their job is not taking someone else's specification and presenting it as your agency requirement. The reason that this is not the answer is because you can't back it up. Two separate issues here—either you haven't identified your mission profile and now you have nothing to base your specification on, or a specific specification is included to eliminate competition. For example, specifying a rotor system that rotates clockwise. This will eliminate half the OEMs, but let's hear you explain why this trait is a defining quality needed to complete your mission. In both instances, when the tender hits the street the companies that you have excluded go to your procurement folks and make a detailed complaint against your tender; you can't justify the specification against a written mission profile that includes every aspect of your specification, you lose the appeal and your tender gets tossed. First of all, don't blame the company that contested the tender. They had expended time and money in their bid, they deserved a chance to compete on a level playing field. You tilted the field and got caught, you didn't do your job, but they did theirs. More of this occurs then gets called out, but every time it occurs, it strengthens the procurement dragons rational for being further into your tent.

As I have said before, all procurement dragons go to the same oil field to reload their flame throwers, they talk, however dragons talk, and the next thing you know instead of their nose being under your tent flap they are sitting at your table telling you how to fly a helicopter. This trend of procurement dragons getting stronger by the day has to stop, if we as the aviation professionals are going to retain a seat at the head of the table. Two documents can help in this effort. One is your agency's mission statement. Let me quote Los Angeles County Fire's Mission Statement: "... to protect lives, the environment and property by providing prompt skillful and cost effective fire protection and life safety services."

Every word of that mission statement was reflected in a detailed mission profile that was written with great specificity about exactly what was required of the helicopter when L.A. County Fire bought the Firehawk. That's step one in how you slay a dragon. The additional factor is, what is the mission statement of the procurement dragons. The mission statements for most agencies would be difficult to apply to a procurement section within that agency, see the example above. Any subsection of a large entity left without defined goals and parameters will fill the axiom "that nature abhors a vacuum." At this point I believe that the subspecies of dragons in procurement and human resources world are out of control and plotting their takeover of the world at the above mentioned oil field. Why do you think the U.S. General Services Administration spends millions of our dollars on conferences? Oil isn't cheap and dragons use a lot of it.

Law Enforcement Notebook

By Ernie Stephens

Ground Security

It was in October, about nine years ago. Mike and I had just landed after a routine night patrol. As I was completing my post-flight inspection and he was returning the nozzle to the fuel pump, I saw a car stop on the road off the end of the runway. This wasn't unusual, since people frequently stopped whenever they saw us outside, probably to see if we were going to takeoff. But that's where the norm ended that night.

As Mike and I were grabbing our gear out of the aircraft, we heard five pops coming from the direction of the stopped car, immediately followed by five whiffing sounds near our heads. Those were sounds I remembered from my second week out of the police academy over two decades earlier. They were gunshots coming from the car 400 yards away, and bullets passing close enough for us to hear! As Mike took cover and I turned off the apron lights to cloak us in darkness, the car sped off.

After a very thorough check, we didn't find any holes in the aircraft, the hangar, the fuel farm, or ourselves. Evidence technicians, however, collected spent bullet casings from the spot where we saw the car.

A few days later, at almost the same time, someone fired shots at fellow aviators, Bo and Brian. This time, the shots came from the opposite direction. Again, no injuries, damage or suspects.

For the next few nights, our takeoffs, landings and refueling were covered by a squad of ghillie-suited, NVG-equipped counter-snipers hidden around the airport. It increased our comfort level, but when it came to catching anyone, no joy.

The two incidents raised an important question that went beyond the usual risk of ambush that all officers face: How do we also protect aircraft that, by the nature of their mission, have to sit outside when on duty? It was bad enough that we couldn't see the flight line from inside the facility, but truth be known, even if we could see it, the aircraft wouldn't be any safer from a sniper. After all, by the time we could hear a shot and get outside to investigate—carefully, I might add—the damage might already be done. And I never liked the idea that we wouldn't hear anything if we were on the pad in a running helicopter.

Although it had nothing to do with our two sniper incidents, we moved to a different airport about a month later. But that really didn't change anything. The area was only slightly less remote than the old place, and our apron was still out of our view when we were inside, and vulnerable to a hidden gunman.

Paranoid? Yeah, I was—but not the paralyzing kind. Just the kind that makes you wonder if there's anything that can be done to make the environment safer for the crew and the machines. And it wasn't just about bullets, either. Being based at a small, general aviation airport with no separation from anyone else sometimes resulted in folks strolling over to look at our aircraft, and innocently molesting our equipment. Heck, I came out one day to find a kid spinning our FLIR ball around! (When the paramedics got me off the ground, I walked the youngster back to his preoccupied parent.)

My friends who fly out of the Trooper 2 hangar of the Maryland State Police have it made. With their hangar located on the airfield of Joint Base Andrews (formerly Andrews Air Force Base), its proximity to the Air Force One hangar arguably makes it the most secure law enforcement airbase in the world. Base security personnel won't let you bring your dreams past the main gate of that place!

Unfortunately, most of the other police and sheriff bases I've visited are located in places that leave their on-call aircraft vulnerable to malicious attack or non-malicious (but equally damaging) tampering. And while the personnel who staff those units do the best they can to monitor the safety or their helicopters, is there cause to do more? If so, what else can be done?

Keeping an aircraft behind closed hangar doors isn't an option for many agencies, simply because it takes far too long to get them out for an emergency launch. So, we'll scratch that option off the top. Many aviation units have installed lights with motion detectors. They make the aircraft a little harder for people to see from a distance when the lights are off, and hopefully alerts unit members if someone approaches the flight line. And while they're at it, those departments sometimes install surveillance cameras that will allow them to keep an eye on their ships from inside of their quarters. I've even seen some outfits install windows so that personnel can better see the apron.

Whatever method a unit uses, I think a major component of any aircraft security system is a pre-launch walk-around. Personally, I rarely get into anyone's aircraft—police, military, private or commercial—until I've given it a quick, walk-around check for bullet holes, open panels and rags, even though it isn't always my responsibility to do so. That check won't find every possible problem, but it gives me a better chance of finding an issue than not looking at all.

Helmets

ANVIS 6 HELICOPTER HELMETS (Kevlar helmets and spares including: HGU models). NOMEX coveralls, jackets, gloves, etc. factory new, in stock. Sage green and desert tan. GOVERNMENT SALES, INC., 89 Francis Ave. Hartford, CT 06106, Tel: (860) 247-7787, Fax: (860) 586-8020. Catalogue on website: www.aviationhelmets.com

Heliport Lighting

HELIPORT LIGHTING FAA-approved equipment. MANAIRCO, INC. (419) 524 - 2121, www.manairco.com

Autogas STC's

FAA & EASA Robinson R22, R44 Autogas STCs available
Amortize in less than 100 hours of operation!
JTI Air Holdings, Nashua, NH 03048 hfuller@jtiair.com

Safety Watch

By Mike Redmon

Pink Slip

I'm an Army National Guard pilot and my unit recently went through an "ARMS" inspection. It occurs about every three years and is a detailed inspection of everything an aviation unit does, which includes checkrides for the unit pilots. During this most recent inspection I made some mental observations about training that I'd like to share.

First off, there is no cramming for checkrides. If you go 363 days without cracking open a book then two days of cramming will not help you come checkride time. Knowledge and flight skills are perishable items. Many EMS companies offer one-hour "training" flights every quarter. These flights are almost always without an IP onboard and sometimes without even another rated pilot. So during these so-called "training" flights the pilot does not go out and perform single-engine ops, inadvertent IMC recoveries, or any other emergency procedure.

Even if the pilot is an IP, it isn't the same when you are giving emergencies to yourself. Many bosses view training flights as a waste of time and money. I would argue that "training" flights are a waste if everyone is just turning Jet A into noise. Ensure that training flights are effective by having an IP onboard, stressing the importance of training, and ensuring debriefs occur with follow-up assignments to strengthen pilot skills and associated knowledge base. Some companies allot zero training time throughout the year and it can be hard to stay sharp on the skills we are supposed to be proficient at on a daily basis. As a professional pilot we have to practice the things we can during the year, study hard, chair fly emergency procedures, and then hope for the best come checkride time.

Secondly, training has to be realistic and effective. I know of a couple of programs that send their pilots to FlightSafety International every year for one day. The odd part is that they train in a different model of helicopter than the one they actually fly back at their base. If the cockpit, limitations and checklist are different, then what is the point of that training other than to confuse the pilot? I suspect it helps the vendor's marketing or insurance rates because they can say "all our pilots attend simulator training."

Speaking of effective training, initial and recurrent academic training via web-based programs are completely replacing classroom training with a real instructor. I can't believe the FAA allows it. When I flew Part 135 the leading Internet training provider had the following phrase on their home page: "Designed to save you money." That's great, my company saved some money but the training never taught me anything.

It is human nature to not pay attention when completing these Internet-based lessons. I used to watch various reality TV shows while completing my annual recurrent training via the web. I would look at the computer every 30 seconds and click to the next screen when the big arrow turned blue. I recognize web-based training is here to stay, but it has to change. There has to be an assessment of a person's knowledge prior to beginning the training.

All the Internet-based training is a one-size-fits-all philosophy and that isn't necessarily effective. Additionally, there has to be additional time allotted with a check airman to ensure all academic areas have been learned. The 10 days of training at headquarters is gone forever but I would argue that being in a classroom with your fellow pilots and an experienced company instructor is invaluable. With Internet-based training there is no swapping of war stories or sharing of questions that makes everyone else go "I didn't even think of that." This is especially true in the commercial helicopter world where almost all operations are flown single pilot.

Finally, everyone can't pass their checkride and that's OK. The problem I see in the civilian helicopter world is that virtually no one fails a training event. With a FAA examiner or an Army IP there is a possibility of failure. Simulator companies avoid failing future customers. Most Part 135 check airmen won't fail a pilot if it is going to mess with the flight schedule. In most Part 135 operations it always messes with the flight schedule. The two checkrides I learned the most from are the two checkrides I failed. All instructors, including myself, need to keep that fact in mind the next time we evaluate another pilot. We aren't doing anyone any favors by not holding pilots to the standard.

Statement of Ownership, Management, and Circulation (Requester Publications Only)
1. Publication Title: Rotor&Wing 2. Publication Number: 1066-8098 3. Filing Date: 10/4/12 4. Issue Frequency: Monthly 5. Number of Issues Published Annually: 12 6. Annual Subscription Price $89. Complete Mailing Address of Known Office of Publication: Access Intelligence, 4 Choke Cherry Road, 2nd Floor, Rockville, MD 20850-4024 Contact: George Severine Telephone: 301-354-1706 8. Complete Mailing Address of Headquarters or General Business Office Publisher: Access Intelligence, LLC, 4 Choke Cherry Road, 2nd Floor, Rockville, MD 20850-4024 9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Maging Editor: Publisher: Randy Jones, 4 Choke Cherry Road, 2nd Floor, Rockville, MD 20850-4024 Editor: Andrew Parker, 4 Choke Cherry Road, 2nd Floor, Rockville, MD 20850-4024 Managing Editor: Chris Sheppard, 4 Choke Cherry Road, 2nd Floor, Rockville, MD 20850-4024 10. Owner if the publication is owned by a corporation, give the name and address of the corporation immediately followed by the names and addresses of all stockholders owning or holding 1 percent or more of the total amount of stock: Veronis Suhler Stevenson, 55 East 52nd Street, 33rd Floor, New York, NY 10055 11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or other Securities: None 12. Non-profit organization: not applicable. 13. Publication: Rotor&Wing 14. Issue Date for Circulation Data: September 2012.

15. Extent and Nature of Circulation:	Average No. of Copies Each Issue During Preceding 12 Months	No. Copies of Single issue Nearest to Filing Date
a. Total Number of Copies (Net press run)	21,052	20,245
b. Legitimate Paid and/or Requested Distribution		
(1) Outside County Paid/Requested Mail Subscriptions	18,708	18,466
(2) Inside County Paid/Requested Mail Subscriptions	0	0
(3) Sales Through Dealers and Carriers, Street Vendors Counter Sales and Other Distribution Outside USPS	493	340
(4) Requested Copies Distributed by Other Mail Classes	37	37
c. Total Paid and/or Requested Circulation	19,238	18,843
d. Nonrequested Distribution (By Mail and Outside the Mail)		
(1) Outside County Nonrequested Copies	339	349
(2) Inside-County Nonrequested Copies	0	0
(3) Nonrequested Copies Distributed Through the USPS by Other Classes of Mail	0	0
(4) Nonrequested Copies Distributed Outside the Mail (Include Pickup Stands, Trade Shows, Showrooms, and Other Sources)	788	646
e. Total Norequested Distribution	1,127	995
f. Total Distribution (Sum of 15c and 15e)	20,365	19,838
g. Copies not Distributed (Office, Returns, Spoilage, Unused)	687	407
h. Total (Sum of 15f and g)	21,052	20,245
i. Percent Paid and/or Requested Circulation	94.47%	94.98%

16. Publication of Statement of Ownership for a Requester Publication is required and will be printed in the November 2012 issue of this publication
17. Signature of Owner: Don Pazour Date: 10/4/12

PS Form 3526-R, August 2012

Coming Up in rotor & wing

December 2012:

Operator's Choice: Aircraft Accessories and Ground Support Equipment—Our year-end Operator's Choice Report this year will focus specifically on the accessories and ground support equipment that operators tell us are vital to their flight operations.

AAS—By the time this issue comes out, the U.S. Army will be largely finished with flight evaluations of Armed Aerial Scout alternatives. Will there be an AAS competition? We'll bring you up to speed with the latest insight from those who know!

AUSA Round-Up—What other helicopter related news came out of AUSA? Military Editor Andrew Drwiega and Editor-in-Chief Andrew Parker report from Washington, DC.

Year in Review—We examine the biggest stories in the helicopter industry from 2012, with an eye to the potential impact on 2013 and beyond. What's your favorite story from 2012 and why? Let us know at editor@rotorandwing.com

Guardex 2012: Responding to Offshore Wind Farm Emergencies—Military Editor Andrew Drwiega provides a first-hand account of Guardex 2012, a multi-agency, international SAR exercise held on October 2 in Europe.

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

Bonus Distribution: Nov. 28-Dec.1, Interservice/Industry Training, Simulation and Education Conference (I/ITSEC) in Orlando, Fla.

January 2013:

Annual Reports—As we approach the start of the new year, *Rotor & Wing* surveys its advertisers, key vendors and suppliers in the helicopter marketplace, and asks them to tell us what important changes they have made in the past year, as well as provide an update on what new products, initiatives or innovations we might expect to see from them in the coming months.

Executive Outlook—*Rotor & Wing* asks the top executives from each of the Annual Report companies to provide a brief answer to simple questions regarding what they see on the horizon for the rotorcraft marketplace in 2013. The compilation of these answers produces an insightful prediction of what to expect. The Executive Outlook provides valuable insight and an indispensable planning tool for the coming year.

advertiser index

Page#	Advertiser	Website
19	Aero Dynamix	www.aerodynamix.com
11	Aeronautical Accessories	www.aero-access.com
17	Aerospace Optics Inc.	www.vivisun.com
51	Air Technology Engines	www.airtechnology.com
49	Alpine Air Support	www.alpine.aero
56	American Eurocopter	www.eurocopterusa.com
47	APSCO	www.apscomiami.com
47	Becker Avionics	www.beckerusa.com
2	Bell Helicopters	www.bellhelicopter.com
51	BorgWarner	www.aerospace.borgwarner.com
51	Chopper Spotter	www.chopperspotter.com
49	Component Control	www.componentcontrol.com
15	Donaldson Filtration	www.afs.donaldson.com
5	Garmin International	www.garmin.com
47	Helicopter Accessory Repairs	www.helicopteraccessoryrepairs.com
25	Helicopter Association International	www.rotor.com
49	Helitowcart	www.helitowcart.com
49	HR Smith	www.hr-smith.com
47	Machida Inc.	www.machidascope.com
33	NTSA	www.iitsec.org
55	Reed Exhibitions/HeliTech	www.reedexpo.com
21	Russian Helicopters	www.russianhelicopters.aero
53	Survival Products	www.survivalproductsinc.com
53	Van Horn Aviation	www.vanhornaviation.com
9	Vector Aerospace	www.vectoraerospace.com

Military Insider

By Andrew Drwiega

Uplifting News for Combat Casualties

One of the amazingly positive results to have come from the war in Afghanistan is the increase in survival rate of battlefield casualties airlifted to in-theater hospitals by helicopter. From the days of extracting casualties from the frontlines by Bell 47/H-13 during the Korean War around 60 years ago, the methods and techniques have moved on to the point where a Medical Emergency Recovery Team (MERT) of two paramedics, one nurse and one consultant now travel into the danger zone in the back of a medically equipped Boeing CH-47. Currently, this is use of a Chinook is solely a British activity but its achievements have been widely praised and there is a strong desire to replicate it within areas of the U.S. military.

With a medical consultant onboard in addition to the other specially trained team members, the "Golden Hour" clock is slowed significantly, if not stopped, when treatment of the casualty begins in the back of the helicopter as it lifts off from an emergency landing zone cleared by Troops in Contact (TICs) in the boonies.

"What we are essentially doing is taking an A&E [accident and emergency] department in the back of a CH-47," said Wing Commander Andy Evens, SO1 Med Ops, Royal Air Force Tactical Medical Wing, who has been one of the MERT team members in Afghanistan.

"We deliver as much treatment as we can. Intravenous (IV) lines are set up for standard casualties but in cases of multiple amputee trauma victims where huge blood loss occurs resulting in the inability to get fluids into veins that have collapsed, we use intraosseous access where we drill into humeral head, end of humerus or sternum and inject fluids through those particular bones."

"We get two lines into the patient from minute one into the helicopter and we immediately start giving blood products," he continued. "The delivery of blood products pre-hospital has saved many lives in the back of the Chinook to the point where the civilian UK air ambulance structure are now considering taking blood on board their helicopters as they see the value of bringing it to the actual scene of the accident."

The type of blood given is universal blood at this stage without waiting to cross match it. Evans said that "while on the negative side the universal blood can distort the picture when they are trying to perform an identification of blood type, the hospital always conducts its own lab test to fully determine the exact type."

The absorption of blood and/or plasma into the bone, although it has to be warmed and injected with some degree of force, is very quick, continued Evans. "A patient will come onboard with no radial pulse and normally by given less than 500mls of blood. After that you will get a radial pulse back—it is that quick."

"We are providing the top end of the capability in our Area of Operation (AO) from Camp Bastion," he said. He added that the reason the U.S. did not currently do the same was that there were misgivings about sending consultants forward into dangerous areas, but that the concept was currently being debated. In addition, the supply of consultants for U.S. forces would need to be large. "The number of consultants required for all of their operations around the world would be considerable, but there are discussions between U.S. military and the UK Tactical Medical Wing on this subject."

But Evans restated that the RAF is also now well practiced and committed to using the MERT based on a dedicated Immediate Response Team CH-47, complete with RAF Regiment security force of four soldiers: "We always have a dedicated aircraft ready to go."

Following the announcement that the U.S. Air Force has relaunched its Combat Recovery Helicopter (CRH) procurement program, this option must surely be one that again deserves close consideration. Last time around the CSAR-X competition that was due to select a replacement for the USAF's HH-60G Pave Hawk (Pedro) combat search-and-rescue helicopters. Aircraft put forward included two offerings from Boeing—the PRV-22 Osprey and the HH-47 Chinook, Sikorsky's H-92 Superhawk and Lockheed Martin's bid of the US101 (from AgustaWestland).

The Chinook HH-47 won the CSAR-X competition in November 2006 before its competitors objected and the whole thing was "deep-sixed" in 2009. Although budget and numbers will be a key issue in this new competition the opinion that the CH-47 was too big and noisy to operate as a combat recovery helicopter now seems irrelevant following the extensive use by the RAF in Afghanistan.

helitech is evolving

helitech® international
HELICOPTER EXPO & CONFERENCE

AN ANNUAL EVENT MOVING TO EXCEL LONDON IN 2013

24-26 SEPTEMBER 2013

In association with new EHA EUROPEAN HELICOPTER ASSOCIATION and BHA BRITISH HELICOPTER ASSOCIATION

An unmissable event – Europe's only 100% helicopter show, bringing the international and national rotary wing market together

- ➜ Delivering UK & international business contacts in a face to face environment
- ➜ High level, 3 day industry conference
- ➜ More industry networking opportunities
- ➜ Customer demonstration flights from outside the venue

For more information about Helitech International visit
www.helitechevents.com/rw

Visit: www.helitechevents.com/rw for more info

Have a Smartphone? Scan this QR barcode to be taken directly to the new Helitech International website

Join & follow us
Search for **helitechevents** on these social media channels

Organised by Reed Exhibitions

(THINK BUSINESS)

When it comes to gaining a competitive edge in business, only the best will do.
With a Eurocopter helicopter you'll fly more safely, while enjoying greater comfort and reliability.
Demand more.

Thinking without limits

AMERICAN EUROCOPTER

AN EADS NORTH AMERICA COMPANY