

JOURNAL

ROTOR

THE WORLD OF HELICOPTERS BY EUROCOPTER - NO. 88 - DECEMBER 2010 / JANUARY 2011

FEATURED ARTICLES

THE X³ REVOLUTION

THE TENTH SUBSIDIARY IN ASIA

HIGH HOPES FOR EUROCOPTER INDIA

FLEET SAFETY

FUNDAMENTALS FIRST

WWW.EUROCOPTER.COM

Thinking without limits



A helicopter designed to meet every operational challenge. Even the future.

Designed in collaboration with our customers to cope with anything from a business trip to the most advanced SAR mission, the EC175 sets a benchmark for decades to come. The largest and quietest cabin. The highest levels of comfort, accessibility and visibility. The lowest fuel cost and CO2 emissions per seat. The EC175 is first in its class for them all. When you think future-proof, think without limits.

 EUROCOPTER

AN EADS COMPANY



© Daniel Biskup

THE X³ REVOLUTION

Innovation has always been a top priority for Eurocopter, and never more so than in recent years. Our commitment is clear: Since 2007, we have doubled our self-financed investments in research and development and our objective is to have a new technology demonstrator, a new helicopter version or an entirely new helicopter perform its maiden flight each and every year. In these troubled economic times, we feel it is now more important than ever to invest in the future by finding new solutions to increase safety and to reduce mission times and costs.

As part of these continuing efforts, we have now introduced a revolutionary concept, the X³. Our goal is to offer you higher productivity for your missions, by flying at higher speeds and with an increased range, all at very competitive prices. We are convinced that a market exists for faster helicopters in many dif-

ferent sectors, such as long distance rescue missions for civil and military operators, the oil and gas market, intercity shuttle services, coastguard duties and border patrols. But we are just as convinced that high speeds cannot justify exorbitant prices. For these reasons, the X³ is our solution that will provide all the functions of a helicopter while offering faster cruising speeds and thus increased productivity, which far outweighs the purchase, maintenance and operating costs.

Our technology demonstrator successfully performed its maiden flight on September 6, 2010. It is the answer we have been looking for, and it represents an excellent value for your money whatever your mission may be – particularly if speed is a critical factor. Above all, the purpose of innovation is to better satisfy your needs by transforming scientific progress into greater added value for your operations.

Lutz Bertling, *President and CEO of Eurocopter*

06 UP ABOVE
**Surf Life Saving
 Queensland**

08 AT A GLANCE
**Eurocopter News
 in Brief**

10 IN THE SPOTLIGHT
High Hopes for Eurocopter India



Eurocopter recently took a decisive step in India when the country became home to the Group's 25th subsidiary. Eurocopter India will be the perfect tool to conquer a complex but very promising market.



14 FEATURED
 ARTICLES
THE X³ REVOLUTION

Eurocopter has developed the H³ concept (High-speed, long-range, Hybrid Helicopter), a new type of aircraft that can perform vertical take-offs and landings and obtain cruising speeds of approximately 220 kts. The aircraft will offer the efficiency of a turboprop engine and the excellent

hover flight capabilities of a helicopter. The X³, the technology demonstrator for the new concept, performed its first flight on September 6, 2010 in Istres, France. *Rotor Journal* takes a closer look at this revolutionary concept and the different project phases that made it possible.

12 INTERVIEW
Francis Combes,
 director of the EC175 Program
The Year in Review

Twelve months have now passed since the EC175 PT1 prototype performed its first flight. The program's director, Francis Combes, talked with *Rotor Journal* about the events of the past year.

20 SPECIAL REPORT
Super Puma, A Work Horse for Singapore's Air Force



On Feb 1, the 125 Squadron of the Republic of Singapore Air Force (RSAF) celebrated its 25th anniversary. The Super Puma, which has been serving the RSAF since the squadron was first formed, was the centerpiece of the celebration. More than two decades after its introduction, it remains the perfect helicopter for the job, as its multi-functional capabilities enable this exemplary helicopter squadron to perform an impressive array of missions.

22 IN OPERATION

- **Gazprom avia: Delivery of the First EC135s**
- **Morocco: Two EC145s for the Royal Fleet**
- **EC225: New Markets and New Missions**
- **Helidax: Last of 36 EC120s Delivered**
- **STAR Flight: Saved from the Storm!**



SERVICES

Fleet Safety: Fundamentals First

In early 2010, the executive officers of Eurocopter, Bell, Sikorsky and Agusta-Westland signed a joint letter that was a call to action for helicopter operators,

stressing the importance of adhering to the four priorities laid down by the IHST to improve flight safety. Training is definitely on the list.

- **Eurocopter International Services: A Boost for Technical Support**

28

31 VIEWPOINT

European Rotorcraft Forum

32 LIFE OF THE RANGE

The Numbers Say It All

All around "Planet Eurocopter", the Group's helicopters reach new milestones almost every day, whether it be total flight hours or anniversary celebrations. These impressive figures offer the perfect opportunity to honor the reliability and longevity of Eurocopter products.

34 OFF THE BEATEN TRACK

Blugeon Hélicoptères Sets the Standard

The French operator Blugeon Hélicoptères is a reference worldwide for sling work and mountain flying. The company's reputation is no surprise, considering that its founder and president is often referred to as the "most sought-after pilot in the Alps."

Publication Director: Cécile Vion-Lanctuit, Editorial Director: Monique Colonges, Editor in Chief: Monique Colonges, Iconography: Jérôme Deulin, Thinkstock, Translation: Burton, Van Iersel & Whitney, Munich, Proofreading of the English version: Erin Callender, Proofreading of the German version: Regina Lange, Proofreading of the Spanish version: Gloria Illas, Published by: **becouse**, Printed by: SPI, ISSN No. 1169-9515 (Copyright Eurocopter 2010, all rights reserved). The following are trademarks of the Eurocopter Group: **becouse**, Stylence, Alouette, AS332, AS350, AS355, AS365, AS532, AS550, AS555, AS565, A Star, BK117, Colibri, Cougar, Dauphin, Djinn, Dolphin, EC120, EC130, EC135, EC145, EC155, EC175, EC225, EC635, EC725, Ecureuil, Esquilo, Fennec, Frelon, Gazelle, Lama, MRH90, NH90, Panther, Puma, Squirrel, Super Puma, Tiger, Tigre, Twin Star, Fenestron, Sarib, Spheriflex, Starflex, Elis, Eurocoat, Eurocopter online, Satisfly, Sparecopter, Arms, Cigalhe, Euroarms, Helitrainer, Horizon, Indoc, Locodoc EPS, Lodioc PCS, Keycopter, M'Arms, Miniarms, Minihums, Orchidee, Sirina, Steadycontrol, Teamcopter, Thinking without limits, Umcard, VEMD, Vertivision/VSR 700.



Magazine printed on Triple Star, paper originating from sustainable forests.

+ FOR MORE INFORMATION, CHECK OUT

JOURNAL **ROTOR** ON LINE



See more **PICTURES** of the operator Surf Life Saving Queensland (*page 7*).



Read **THE INTERVIEW** with Marie-Agnès Vève, CEO of Eurocopter India (*page 11*).



VIDEOS on line:

- An EC175 flight demonstration (*page 12*)
- First flight of the X³ (*page 15*)
- The EC225 water bomber (*page 25*)
- The operator Helidax (*page 26*).

WWW.EUROCOPTER.COM

SURF LIFE SAVING QUEENSLAND'S EC135

Article
ERIN CALLENDER

Photo by
PAUL SADLER

PATROLLING THE GOLD COAST



The Westpac Lifesaver Rescue Helicopter allows Surf Life Saving Queensland (SLSQ) to keep watch over the coastline from Rainbow Beach to Rainbow Bay in Queensland, Australia. SLSQ patrols throughout the year, and from the start of the 2010 season in September, the rescue service will operate an EC135 – a light, multipurpose twin-engine helicopter perfectly suited for Search and Rescue (SAR) missions. The helicopter rescue service first began

operations in 1976 and is the oldest community based service of its kind in the world today. The main mission of this free community service remains to prevent incidents and to save lives. With significant corporate and community support, this helicopter is used not only for SAR operations but also for patient transfers in conjunction with other emergency services such as the Queensland Police, the Queensland Ambulance Services and the Coast Guard.



SEE MORE PHOTOS OF SURF LIFE SAVING
QUEENSLAND ON ROTOR ON LINE
WWW.EUROCOPTER.COM

UTair CONTRACT FOR 20 ECUREUILS IN RUSSIA

On September 28, Eurocopter Vostok, Eurocopter's subsidiary in Russia and the CIS⁽¹⁾, signed a purchase contract for 16 AS350 B3 Ecureuils and 4 AS355 NPs with the Russian company UTair Aviation. UTair currently operates 250 helicopters of all types—the largest private fleet in Russia—and is the world's fourth largest civil operator in terms of work volume. "This is the largest contract ever signed in Russia for foreign-made helicopters and is further proof of Eurocopter's dominant position in Russia's light helicopter market segment," said Laurence Rigolini, CEO of Eurocopter Vostok. UTair has more than 40 years experience in the oil and gas industry in Russia as well as other parts of the world, and is also the leading transport service provider for United Nations peacekeeping efforts. Since 2006, UTair has been operating aircraft from the Ecureuil family that are able to transport up to five passengers and external loads of up to 1,400 kg. Customers greatly appreciate the advantages of these aircraft: the Ecureuil AS350 B3 and the AS355 NP for VIP transportation, pipeline surveillance, photography, the shooting of videos, sling transportation and medical flights. "Adding 20 Ecureuils to the UTair fleet will strengthen our position on the global helicopter

market," explained UTair CEO Andrey Martirosov. "These helicopters fully comply with the highest industry standards and are held in high regard by our customers in Russia and throughout the world."

(1) Commonwealth of Independent States



© Eurocopter Vostok

Chile FLIGHT SAFETY SEMINAR

Eurocopter Chile organized a flight safety seminar on September 22 in Santiago de Chile for all the helicopter operators in Argentina, Bolivia, Chile, Peru and Uruguay. The attendance of 220 participants from both the civil and military sectors helped to make the event quite a success. The primary goal of the seminar was to make the operators aware of the operational mishaps that lead to accidents, as progress in this area is the key to significantly improving flight safety. Other important points were also stressed: adequate training and the need for refresher courses on a regular basis and the implementation of Safety Management Systems (SMS) to constantly reduce exposure to risk. Eurocopter Chile offers its customers joint work programs to help them implement the Safety Management System within their organization. Flight safety is a top priority for Eurocopter, and the Group has made the constant reduction of accidents, regardless of the cause, a major objective (see article, page 28).

China CERTIFICATION OF THE COMPANY RUNCARE

The company RunCare Fluid Monitoring Co. Ltd., based in Shanghai, received its official certification this summer from Eurocopter to perform spectrometry analyses on lubricants for the Group's helicopters. The certification, which follows a long series of audits conducted in accordance with international aviation standards, covers the entire fleet of Eurocopter helicopters in China. A molecular analysis of the particles found in the oil provides precise information that is essential to determine the condition of the lubricants and the aircraft. It allows operators to anticipate and prevent any premature wear on the helicopter's dynamic components, such as the main gear box, further increasing flight safety.



© Eurocopter de Mexico

Mexico TWELVE EC725s FOR THE MINISTRY OF DEFENSE

On September 28, the Mexican Ministry of Defense signed an agreement with Eurocopter for the purchase of an additional six EC725s, following an initial order for six placed in February 2009. Delivery of the new helicopters, which are to be used for public safety and special forces missions, will begin in the fall of 2011. The new contract is another sign of the confidence that the Mexican government places in Eurocopter aircraft, which already operate in many of country's state agencies. The Secretaries of National Defense and the Navy are served by Eurocopter helicopters, as is the Mexican President. Mexico first purchased Eurocopter helicopters back in 1964, and today 384 of the Group's aircraft are carrying out successful missions across the country.



© Eurocopter China

United States CONTRACT FOR 12 AS350 B2 ECUREUILS



© American Eurocopter

American Eurocopter announced the purchase of 12 AS350 B2 Ecureuils by the Los Angeles County Sheriff's Department to upgrade the current fleet of the department's Aero Bureau. The order placed in early August also includes an option for two additional helicopters. The Aero Bureau currently operates a fleet of 12 AS350 B2 Ecureuils, which have been in service since 2003. The purchase of these new helicopters will allow the Aero Bureau to update its fleet to the latest technology, offering the performance and reliability necessary to meet the department's expanding range of missions.

Article
ALEXANDRE MARCHAND

Photos by
EUROCOPTER INDIA

THE TENTH SUBSIDIARY IN ASIA

Eurocopter recently took a decisive step in India when it chose the country as home for its 25th foreign subsidiary. The new entity will be just the tool the Group needs to conquer a complex but very promising market.

HIGH HOPES FOR EUROCOPTER INDIA



Eurocopter inaugurated its 25th subsidiary, Eurocopter India, on October 20, 2010 in New Delhi at a ceremony attended by government officials, customers and members of the press.

In order to establish a solid foothold in one of the world's most promising markets, Eurocopter inaugurated Eurocopter India, a wholly-owned subsidiary, last October. India is an emerging economic giant, but only 250 helicopters are currently operating in the country's civil market. This figure, which has already shot up due to rapid economic growth over the past few years, could triple in just five years if a coherent regulatory framework were put in place—something Indian operators have been calling for in no uncertain terms. The military market also shows enormous potential as several major calls for tenders are expected in the upcoming months (*see inset*). "In the past, Eurocopter was represented by a distributor in India," explained François Bordes, executive vice-president of International Affairs at Eurocopter. "But that setup was no longer sufficient for us to meet our growth objectives or seize the new opportunities that are sure to emerge in the Indian market. The creation of a new subsidiary, our tenth in Asia and 25th worldwide, was a logical choice—even more so because Eurocopter has always set itself apart from the compe-

tion by encouraging its businesses to take on a strong local flavor. India will no longer be an exception to this rule."

HIGH PRIORITY FOR TECHNICAL SUPPORT

Eurocopter India now has two sites in the country. The subsidiary is headquartered in New Delhi, India's political capital. It also has offices in Bangalore, the hub of India's aerospace sector, which focus on industrial activities and services.

A commercial office will be opening in Mumbai (formerly Bombay) in 2011 to complete the Group's Indian network. Marie-Agnès Vève, the subsidiary's CEO since its creation, talked about the work ahead for her staff. "Our top priority is to develop our technical support offer and our logistics network by establishing closer ties with local partners. They will be excellent vectors for our activities in the country and will provide our customers with neighborhood support solutions." The latest customer satisfaction survey showed that Eurocopter now has a much more positive image among Indian operators, offering further proof that the

creation of the new subsidiary, together with announcements about new policies to be implemented, have definitely created a positive dynamic.

Ms. Vève talked about other important projects: "Our commercial team is going to keep up its efforts in the market segments where we've already made headway (for instance oil and gas, corporate, and aerial work) and also anticipate new needs in the parapublic sector (police and emergency medical services), which remain underdeveloped. We will also be setting up an engineering office and strengthening our ties with our longstanding partner HAL in order to reinforce our industrial activities. In any case, the development of any future industrial strategies will hinge on how successful we are in upcoming calls for tenders—in particular for the RSH⁽¹⁾ and IMRH⁽²⁾ contracts."

The ambitious policies of the Group may best be summed up by its overriding goal: to become the number one helicopter manufacturer in India by 2015.

(1) Reconnaissance Surveillance Helicopter
(2) Indian Multi Role Helicopter



The Agra Red Fort.

FOCUS ON...

Increased Needs

Four calls for tenders have already been launched or soon will be in India's military market, and the needs that have been expressed are enormous: 197 light helicopters for the RSH program, 400 heavy-lift helicopters for the IMRH program, 52 medium-lift helicopters for the Indian Navy and an additional 30 for the Indian Coast Guards. According to projections, another 100 helicopters will be needed in the parapublic market for emergency medical missions, 100 more for police missions and an additional 80 for handling natural disasters.



**CHECK OUT THE INTERVIEW
WITH MARIE-AGNÈS VÈVE,
CEO OF EUROCOPTER
INDIA ON ROTOR ON LINE
WWW.EUROCOPTER.COM**

EC175 PROGRAM

 Article
ERIN CALLENDER

On the first anniversary of the EC175 PT1 prototype's maiden flight, which took place on December 4, 2009 in Marignane, *Rotor Journal* takes the opportunity to check in with the program and see how things are progressing.

THE YEAR IN REVIEW



A lot has happened with the EC175 since its maiden flight a little more than a year ago. What has the program been up to this past year?

Francis Combes: People often think that a maiden flight is the culmination of a project, but really it is just the beginning. Performing a maiden flight on schedule with such a technologically advanced aircraft is crucial, but once we succeeded with this flight, that is where the work really began. The year 2010 was particularly busy because it marked the beginning of the flight test campaign as well as the preparation of the second prototype - the PT3. We also launched the necessary steps towards achieving full type-certification. In the summer we did a flight test in hot weather conditions which will allow us to receive an initial certification with a correct flight domain. To be precise, the EC175 has performed

flight tests since December 2009, and the success of these flights has allowed us to make the necessary modifications to the aircraft, and we now have a fixed aerodynamic and vibration configuration.

What is the main focus of the program for the last few months of 2010?

F.C.: With these configurations fixed, we are now entering into a phase where we will fly more often to prepare for certifications, taking into account all of the final options that will be available for the aircraft. We are in the middle of important flight tests that will allow us to refine what we have done either by calculation or simulation and to verify that all the parts are working correctly. These test flights must be completed by the end of the first semester of 2011. In the same timeframe, certification tests are being performed in both Marignane and China. For the first time ever, Eurocopter is working with a Maintenance Review Board (MRB) using the MSG3⁽¹⁾ method to create the EC175 maintenance program. Working in close collaboration with the certification authorities and our customers, we have recently achieved a major milestone in jointly defining the Policy and Procedure Handbook. The next important step is the maiden flight before the end of 2010 of the PT3, an essential element for the future of the program since it will be used for the certification process. This isn't always simple because we have to take into considera-

tion all the modifications made to the PT1, but currently we are on track for another on-time flight.

What's in store for 2011?

F.C.: This will be the year of the certifications, so we have a lot of development activity ahead in order to achieve the certifications as scheduled by the end of 2011. But 2011 will also mark the ramp-up of series production for the EC175, which has already begun for certain sub-assemblies, such as the structures that are manufactured by our Chinese partners. However, in 2011 we will also see the beginning of the assembly process for the first series helicopter. Producing a series helicopter for a client is a great accomplishment, but it's only worth it if everything that will be useful to the client is also available, particularly all the training syllabi and means to accompany the EC175. We have imagined that at the time of the first delivery, a FFS⁽²⁾ will be available, and we have recently chosen the manufacturer for this project. Finally, the first delivery in oil and gas configuration, which contains a wide range of options, is still scheduled for 2012.

(1) An FAA approved method for the development of a maintenance program

(2) Full Flight Simulator



**WATCH THE VIDEO OF THE EC175'S
FLIGHT DEMONSTRATION ON
ROTOR ON LINE**
WWW.EUROCOPTER.COM



HIGHLIGHTS

- 7-ton class (15,500 lbs)
- 16-pax
- Range up to 680 nm
- Civil certified
- Multi-mission
- Designed to latest safety standards (CS-29)
- Primarily designed for the most demanding Oil & Gas and SAR missions
- Comprehensive mission equipment and training means from first delivery
- Maintenance program approved by EASA
- On track and on time:
 - EC175 Program on track since the beginning (2006)
 - Second prototype (PT3) first flight: end 2010
 - Type Certification: end 2011
 - First delivery: end 2012

“During this past year, our work mainly focused on exploring the features of the EC175 in various flight conditions in order to identify what could be improved and which configurations could be finalized— always keeping in mind the comfort, ease of use and security characteristic of the EC175. The results are very promising.”
Alain Di-Bianca, EC175 Flight Test Pilot.



THE REVOLUTION **X³** HAS BEGUN

Pg. 16
**THE CONCEPT BECOMES
A REALITY**

Pg. 18
**DEVELOPMENT OF THE X³,
A RECORD BREAKER!**



Article
CHRISTIAN DA SILVA

Photo by
PATRICK PENNA / EUROCOPTER

Eurocopter has developed the H³ concept (High-speed, long-range, Hybrid Helicopter), a new type of aircraft that can perform vertical takeoffs and landings and obtain cruising speeds of approximately 220 kts. The aircraft will offer the efficiency of a turboprop engine and the excellent hover flight capabilities of a helicopter. In addition to high speeds, the H³ project is also focusing on the overall cost of the machine, which must remain affordable. This concept not only saves mission time but also reduces mission costs: The productivity gain associated with the increase in speed is greater than the purchase, maintenance and ongoing costs of using the aircraft. In other words, the cost per transported passenger is reduced when the increase in productivity outweighs the increase in the machine's overall cost. The expected increase in productivity—approximately 50%—far exceeds the increased costs for the aircraft, which must remain below 25%. The X³, the technology demonstrator for the new concept, performed its first flight on September 6, 2010 in Istres, France.



**DISCOVER THE VIDEO OF THE MAIDEN
FLIGHT OF THE X³ ON ROTOR ON LINE**
WWW.EUROCOPTER.COM



Sending a shock wave through the world of existing vertical and horizontal flight aircraft, Eurocopter has put to the skies a new high-speed hybrid helicopter, which combines excellent technical performance with reasonable costs for operators.

THE CONCEPT BECOMES A REALITY

Article **CHRISTIAN DA SILVA**
Photos by **PATRICK PENNA / EUROCOPTER**

A major goal of the H³ concept is to offer more cost-effective transport missions, specifically targeting operators looking to reduce costs. The H³ will mainly target civil passenger transport and offshore missions, inter-city shuttle services and long-distance SAR missions over both land and sea. The “long distance” capacities of the aircraft are a key point, as the expected gains in productivity imply that the majority of the mission will be spent in cruise flight (5 minutes for the takeoff and landing phases, and the remainder at high cruising speed). But the concept may also attract military customers interested in rapid intervention capabilities in remote theaters, as an aircraft offering vertical takeoffs is the ideal tool for rescuing downed crews behind enemy lines.

A COST-EFFECTIVE BUSINESS MODEL

The aircraft should not be much more expensive than a normal helicopter: no more than 25% considering that the cruising speed will be increased by about 50% (from 145 to 220 kts). As these figures show, the increased productivity will far outweigh the cost increase per flight hour, and operators can also benefit from indirect gains: Increased productivity means fewer aircraft will be needed to satisfy long-distance transport needs.

AN ASTONISHINGLY SIMPLE CONCEPT

The configuration of the H³ is actually quite simple and offers excellent hover flight performance by reducing the disk load (the

“The X³ is no more difficult to pilot than a traditional helicopter. It was very smooth and stable during acceleration and deceleration. We also noted that it accelerates very quickly. The demonstrator showed good behavior during the forward flight we performed up to 30 kts.”

Hervé Jammayrac, test pilot and Daniel Semioli, flight engineer.

AS SEEN BY

JEAN-MICHEL BILLIG
EXECUTIVE VICE-PRESIDENT OF
RESEARCH AND DEVELOPMENT
AT EUROCOPTER.

“The X³ benefits from the lessons we’ve learned after more than 20 years of research in the field, such as the tilt-rotor technology that we studied as part of the Eurofar project. Tilt-rotors switch from a vertical position during hover flight to a horizontal position for forward flight. The problem with this technology was the extreme technical complexity, not to mention major concerns about its cost-effectiveness. We also examined other concepts for the aircraft’s architecture but finally abandoned them as they proved to be too complex as well. The key points we focused on when designing the X³ were to maintain the multifunction capabilities of the aircraft. It can perform hover flight, autorotation and a wide range of missions.”



weight for which the rotor must provide lift, divided by the surface area swept by the blades). The lower the disk load, the less power the machine needs in hover flight. The rotational speed of the high-speed rotor is also decreased (thereby reducing lift) to avoid reaching the drag divergence Mach number on the forward-moving blade profiles. The H³ also includes a fixed wing that adds additional lift and relieves the load on the main rotor, which prevents stalling on the backward-moving blades. Another key phenomenon must be taken into account: As drag increases on the airframe, the lift-to-drag ratio of high-speed rotors drops. This phenomenon means that additional thrust is essential, and the cyclic pitch of the rotor must continuously be increased to drive the helicopter forward. But in the H³ concept, propellers take over from the rotor to provide thrust. The propellers also provide anti-torque and yaw controls, making a tail rotor unnecessary. For level flight, the aircraft has been equipped with “trimmable” (adjustable) components. In fact, these are not control surfaces but small flaps located on the horizontal stabilizer and tail fin that provide balance during pitch and yaw movements. Their actuators are powered by electric motors controlled by the automatic pilot. It should also be noted that the unique conception of the H³ means it is capable of performing autorotation just like a standard helicopter.

In conclusion, although the concept may be mechanically more complex than a conventional helicopter, it is nonetheless much

simpler than other technologies that have been proposed (such as tilt-rotor aircraft, for example).

THE X³ TECHNOLOGY DEMONSTRATOR

The X³ is the proof-of-concept demonstrator that will be used to validate the H³ concept. It has three different functions. First, it will be used to validate the technical concepts: anti-torque function and yaw controls, optimization of controlled thrust via the propellers or a slight rotor inclination and rotor and propeller controls (power management system). Second, the X³ will make it possible to evaluate performance, flight quality, stress and vibration levels in an expanded flight envelope. Third, different aircraft configurations will be studied and adjustments made to determine optimal settings. For example, in hover flight there is nearly an infinite number of ways to neutralize torque by adjusting the pitch settings on the two propellers. To reduce the demonstrator’s development costs and cycles to a minimum, subassemblies from other helicopters in the Eurocopter range were used whenever possible. The structure is based mainly on the Dauphin, the 5-blade rotor and the automatic pilot were taken from the EC155, the central module for the gearbox comes from the EC175, the engines from the NH90 and the servocontrols and trim actuators from the EC145. Development work was only necessary for components required specifically for the X³ or for those adapted from existing components, such as the MGB/propeller coupling shaft.

2011: A DECISIVE YEAR

Following the first flight on September 6 in Istres, the test phase will be conducted in two steps. The goal of step 1, which will take place from September to December 2010, will be to open the flight envelope to approximately 180 kts working with reduced power. In step 2, which will begin in January 2011, the aircraft will undergo work for three months and will then begin flying again in March 2011 in the step 2 configuration in order to reach a speed of 220 kts.



© Eurocopter



© Eurocopter

© Patrick Penna / Eurocopter

A RECORD BREAKER!

To respect the requirements of the short development cycle (just two and a half years), the X³ project was broken down into three phases: design, manufacture of the demonstrator, and ground/flight testing.

Article **CHRISTIAN DA SILVA**

One of the most original aspects of the project is the use of sub-assemblies from already existing helicopters in the Eurocopter range, which offer guaranteed reliability. This decision also kept development costs and cycles to a minimum and did away with qualification phases that would have made it impossible to remain on such a tight schedule. But the success of this extraordinary challenge also depended on the know-how and determination of the few dozen engineers, technicians and mechanics at Eurocopter who make up the project team.

DESIGN

The program was officially launched on January 25, 2008. In parallel, flight simulations were begun with the SPHERE⁽¹⁾ simulator and were continued into 2010. This allowed for the piloting concept to be validated well before the test flight campaign. The definition was already frozen by May of 2008 (Preliminary Design Review), and when the Critical Design Review was established in August, the production documents could then be drawn up. Between June and August, the initial designs were also sketched out for the propeller gearboxes and wind tunnel testing was conducted. Testing of the dynamic assemblies on a multi-purpose rotor bench was completed in November.

FOCUS ON...

One of the most crucial developments for the project was the new propellers. A great deal of controlled simulation work was necessary to check the aircraft's behavior: failure analysis, finalization of piloting laws and power management in order to find the perfect union between two different concepts—the airplane and the helicopter.



© Éric Raz / Eurocopter



© Patrick Penna / Eurocopter

“This program is a major challenge for us, and its success depends on the know-how and determination of the few dozen engineers, technicians and mechanics at Eurocopter who make up the project team.”

Philippe Roesch, director of the X³ program and of Innovation at Eurocopter.

PRODUCTION

It was then time to begin the production and assembly phase for the different components. The work pace began to pick up in January 2009. After the structure was assembled, the fixed wings were built and the hydraulic distributors for the propellers underwent qualification. Between September and November, the teams at Eurocopter assembled the aircraft: tail fin, tail boom, cowlings, instrument panels, etc. Everything was now ready for the test phase to begin in 2010.

FLIGHT PREPARATION

The engines were accepted in January 2010, and fatigue testing

was performed on the transmission gearbox and shaft following their delivery in April. This was the final stage of the ground test phase, which ended in June. Flight authorization was issued for the X³ on July 13, 2010. Then the work teams really moved into high gear: On the night of July 31st, the aircraft was transported to the air base in Istres, where it would then perform its first flight right on schedule on September 6.

(1) A helicopter flight simulator for research and development



SUPER PUMA, A WORK HORSE FOR SINGAPORE'S AIR FORCE

REPUBLIC OF SINGAPORE AIR FORCE

Article
RÉGIS NOYÉ

On February 1, 2010, the 125 Squadron of the Republic of Singapore Air Force (RSAF) celebrated its 25th anniversary. The Super Puma, which has been serving the RSAF since the squadron was first formed, was the centerpiece of the celebration. More than two decades after its introduction, it remains the perfect helicopter for the job, as its multi-functional capabilities enable this exemplary helicopter squadron to perform an impressive array of missions.



The impressive range and transport capacities of the new helicopter considerably expanded the range of Singapore's military support missions.

The Super Pumas of the RSAF are heirs to a long tradition that began in 1969, when Singapore's first helicopter squadron was formed with the Alouette III. Since then, the RSAF has expanded its fleet and its mission range. A major step was taken in 1985 when the Super Puma arrived for the new 125 Squadron, the third unit of its kind, adding a whole new dimension to RSAF's operational capabilities. The impressive range and transport capacities of the new helicopter considerably expanded the range of Singapore's military support missions, both on land and at sea. The Super Puma can carry 24 troops in addition to the three-man flight crew, or up to six stretchers and seven seated wounded, along with medical personnel, in its emergency medical configuration.

A FLEET OF WORKHORSES

The RSAF now operates two helicopter squadrons (125 and 126) to carry out an impressive range of civil and military operations. The excellence of the 125 Squadron

is also the result of its highly skilled and dedicated crews, both on the ground and in the air. The enormous pride they take in serving in the squadron is evident. These highly qualified and motivated personnel are on call 24/7 at their base in Sembawang. The nature of their duty means operational availability is a must—both for the crews and the machines.

INTEGRATED OPERATIONS

From April to July 2009, two of the squadron's Super Pumas were deployed in the Gulf of Aden off the coast of Somalia as part of a Singapore Task Group. The Singapore Task Group is part of an international coalition (Combined Task Force 151) deployed in the region to combat pirate activity. Serving on board the RSS Endurance, a Landing Ship Tank of the Republic of Singapore Navy, the helicopter's crew had to work closely with fellow servicemen from other branches of the armed forces. Just another mission for Singapore's Super Pumas.

KEY DATES

Achievements

of the 125 Squadron

1986: 1st rescue mission

1990: Earthquake in Philippines

1993: United Nations mission in Cambodia

1995: Flight simulator introduced in Sembawang

1999: United Nations mission in East Timor

2004: Humanitarian assistance and disaster relief following the Tsunami in Indonesia and Thailand

2009: Anti-piracy operations in the Gulf of Aden

The thirty Super Pumas in service for the 125 and 126 Squadrons of the Republic of Singapore Air Force perform a wide range of civil and military missions.



GAZPROM AVIA

Article
MONIQUE COLONGES

Four EC135 T2i helicopters were delivered in early September to Gazprom avia, a strategic operator for Eurocopter in Russia.

DELIVERY OF THE FIRST EC135s

*IDENTITY
CARD*

Name: Gazprom avia
Activities: The aviation arm of the energy company Gazprom, Gazprom avia offers international commercial flights and is one of the ten largest airlines in Russia.
Fleet (rotorcraft): Over 100 helicopters (primarily Russian)



Gazprom avia received its first four EC135 T2i helicopters at the Eurocopter plant in Donauwörth, Germany on September 9, 2010. In attendance were Victor Rakhmanko, head of the Transport division at Gazprom, Andrey Ovcharenko, general director of Gazprom avia, Wolfgang Schoder, CEO of Eurocopter in Germany and Laurence Rigolini, CEO of Eurocopter Vostok. Following the delivery, the helicopters were transported by ferry flight to the Gazprom avia base at the Ostafyevo Airport. A total of eight EC135s were ordered, with the remaining four slated for

delivery before the end of the year. The majority of the EC135s will be used to monitor pipelines in Siberia in extreme temperature conditions, flying out of Gazprom avia's bases in Ukhta and Perm. Very little infrastructure exists in this region of Russia, which covers more than 13 million km², so the helicopter is the only viable option for carrying out this type of operation.

"Eurocopter Vostok is very proud of the close ties it enjoys with Gazprom avia, a key customer for Eurocopter in Russia," said Ms. Rigolini. "We will be expanding the scope of our cooperation beyond the

Gazprom centers that have already received Eurocopter certification for EC120 and EC135 maintenance work. We share a common goal: to develop pilot and technician training activities and introduce a flight simulator to improve flight safety. This is a top priority for Eurocopter." The new EC135s operated by Gazprom avia are also the first Eurocopter helicopters to be equipped with Russian avionics, produced by Transas. "We will continue to work with Transas to integrate their equipment on other helicopters in the Eurocopter range," explained Ms. Rigolini.



TWO EC145s FOR THE ROYAL FLEET

MOROCCO

The Air Gendarmerie Unit of the Royal Moroccan Gendarmerie has been a Eurocopter customer for more than 40 years now, and over the years has equipped itself with a large fleet of helicopters (*see inset*). At the end of August, two EC145s joined the ranks.

The first two EC145s delivered to the African continent set off from the Eurocopter plant in Donauwörth on their ferry flight on August 23. Two days later, after traveling 3,000 kilometers across Germany, France, Spain and the Strait of Gibraltar, they landed at Morocco's Royal Gendarmerie base in Rabat-Salé. An Ecureuil of the Royal Gendarmerie escorted the two new helicopters during their trip.

MULTI-MISSION

The EC145 is a high-performance, multi-

purpose helicopter that is perfectly adapted to many different missions and operating conditions. Morocco will be using them not only for missions such as for law enforcement, search and rescue (SAR), medical evacuation and VIP transport but as well as for service in severe climatic and geographic conditions such as high temperatures and sand storms. "Our job is still not done," pointed out Christophe Canguilhem of the EC145 program. "The next step is pilot training, and in 2011, three EC135s will also be delivered."

Article
REGINA LANGE

Photo by
**JOSEF BAIRLEIN /
EUROCOPTER**

IDENTITY CARD

Name: Air Gendarmerie
Unit of Morocco's Royale
Gendarmerie

Bases: Rabat Souissi
and Rabat-Salé

Eurocopter fleet:
Four Alouette 2s, four
Lamas, one Alouette 3,
four Gazelles, five
Ecureuils, three Dauphins,
five Pumas, one Super
Puma and one EC225

Missions: Emergency
rescue, SAR, medical
evacuation, VIP transport,
law enforcement

LAW ENFORCEMENT MISSIONS

Article
GLORIA ILLAS

The EC225 continues to cross new borders and conquer new markets. Already predominant in the oil & gas sector and widely called on for Search And Rescue (SAR) missions, the EC225 is now making its presence felt in other markets, such as law enforcement.

NEW MARKETS, NEW MISSIONS

© Patrick Penna / Eurocopter



On September 16 of this year, two EC225s were delivered at opposite ends of the globe, but both are faced with the same task: tackling new missions in new territories. The EC225 delivered in China will be serving the country's police force, as will its counterpart that arrived in Spain some 10,300 km away.

DELIVERIES IN CHINA AND SPAIN

The EC225 arriving in China joined the EC120 and EC135 already operated by the Guangdong Police Department.

The keys were officially handed over at a ceremony held at the Baiyun International Airport in Canton, in southern China, just in time for the new helicopter to help out with law enforcement and public security missions during the Asian Games in Canton in November.

The new EC225 is truly



WATCH THE EC225 WATER
BOMBER IN ACTION ON
ROTOR ON LINE
WWW.EUROCOPTER.COM

an original, and not just because it is the first EC225 to fly on Chinese soil in the police configuration. It is also the first EC225 in the world to be equipped with a water bomber kit, which the Guangdong police will be using to fight the many fires that break out in the region during the summer months.

The Eurocopter water bomber kit has many features that make the EC225 a capable ally: It has a 4,000-liter capacity and can be quickly installed and removed from the machine, which means it has no effect on the helicopter's mission flexibility. In Spain, the EC225 delivered to the Ministry of the Interior will also go down in the history books as the first EC225 to be delivered to a Spanish customer and, like its Chinese counterpart, one of the first to be used for police missions.

But that's where the comparison ends, as the EC225 will be serving an elite unit of Spain's national police force, the G.E.O.⁽¹⁾ special operations group, for highly sensitive and specialized missions. Based in Guadalajara, the G.E.O. carries out dangerous work that requires highly qualified

agents, such as the neutralization of terrorist cells, armed groups and dangerous criminals and the freeing of hostages. The specialized equipment on the EC225 includes a next-generation hoist and a searchlight, which are essential for carrying out these types of missions.

AN UNEQUALLED PERFORMANCE

The EC225 has benefited from the extensive operational experience of the Super Puma family to meet the rigorous requirements of police missions and to offer increased operational capabilities.

The helicopter is equipped with cutting-edge technology and powered by new Makila 2A high-performance engines that offer unequalled performance levels, most notably in high altitudes and hot conditions.

The EC225 is rapid, reliable and has excellent range. It continues to conquer new markets by demonstrating its capacity to adapt to new missions and demanding operating environments.

(1) Grupo Especial de Operaciones

The EC225 delivered to the Guangdong Police Department in September 2010 is not only the first EC225 in police configuration to be delivered in China, but also the first EC225 to be equipped with the water bomber kit.

FOCUS ON...

Chinese Ministry of Transport

On September 10, Eurocopter signed a service contract with the China Rescue and Salvage Bureau (CRS) at the Chinese Ministry of Transport. The five-year contract calls for six CRS pilots to undergo training at Helisim each year.

Article
**ALEXANDRE
MARCHAND**

Photos by
ANTHONY PECCHI



**WATCH THE VIDEO FROM
HELIDAX ON ROTOR ON LINE**
WWW.EUROCOPTER.COM

THE LAST OF 36 EC120s DELIVERED

HELIDAX

The EC120 has replaced the Gazelle for the training of French and Belgian military pilots. It can perform the same missions as the Gazelle and offers an important added advantage: substantially lower operating costs.



On October 8, Eurocopter delivered the last of 36 EC120s ordered by the company Helidax, closing out the last phase of a particularly innovative and successful program to provide the EAALAT academy in Dax⁽¹⁾ with a modern and low-cost helicopter. The academy provides basic flight training for all of France and Belgium's helicopter pilots in a truly multinational setting. When the EAALAT began looking at different helicopters to replace its fleet of SA341 and SA342 Gazelles back in 1998, it also began studying the possibility of outsourcing some of its activities to civilian service providers. The plan was simple: The EAALAT would express its needs to a private partner, who would in turn provide the necessary means (helicopters in this case) and then invoice the flight hours. The army would remain responsible for fuel, instructors and infrastructures.

A call for tenders was launched to obtain "turnkey" flight hour services, and in 2007 the contract was awarded to Helidax, equally owned by DCI and Proteus (later acquired by INAER France). Helidax eventually opted for the EC120 to fulfill the contract, and all the different program participants have saluted the choice. Each EC120, or "NHE⁽²⁾" as it is now called, is delivered up to Eurocopter standards to Helidax, who then

FOCUS ON...

Dynamic Demonstrations

Since last spring, the EC120 unit at the Dax training academy has been using an EC120 NHE for dynamic demonstrations, which were set up by Major Rettmeyer. The demonstrations have benefitted from Major Rettmeyer's years of experience (10,300 flight hours) and the feedback he has received from the Spanish air patrol ASPA. The flights showcase the helicopter's outstanding maneuverability and confirm that the NHE is more than just a low-cost, quiet machine. It also provides excellent handling in steep banking maneuvers.

equips them with the avionics required by the EAALAT. Although it has less power than the Gazelle, the EC120 can still perform all the same missions: flight training, navigation, night flights with night vision goggles, autorotation, instrument flying and initiation to mountain flights. It also offers better availability and approximately 30% lower direct operating costs, as it is cheaper to maintain and more fuel efficient. Such savings are hardly negligible for a flight academy that performs around 22,000 flight hours a year!

(1) The training academy of the French Army Air Corps (ALAT)

(2) Nouvel Hélicoptère École / French for "new training helicopter"

STAR FLIGHT

Although thought to be unlucky by some, the number 13 will surely carry a different meaning for STAR Flight helicopters, which rescued 13 people from flood waters in Texas with their three EC154s.

SAVED FROM THE STORM

The STAR Flight crew had their work cut out for them in the early morning hours of September 8, when they were called upon to rescue people who found themselves trapped in high flood waters after Tropical Storm Hermine hit the region with high winds and heavy rain. With 13 people successfully saved, this was the largest rescue operation to date for the unit's EC145s. One of the aircraft, piloted by STAR Flight's Director of Operations Willy Culberson, came to the aid of an EMS team who had become trapped in a river when their rescue boat broke down. "The EC145 performed extremely well in such adverse conditions,"

explained Culberson. "The stability of the aircraft was amazing, as we were able to safely hover in order to hoist people into the cabin, which was large enough to fit my crew, our equipment, and the people rescued." STAR (Shock Trauma Air Rescue) Flight, which performs primarily rescue and transport missions, has been operating its EC145s since 2006. These aircraft are certified for single-pilot IFR operations and are equipped with a hoist and Night Vision Goggles (NVG), both of which were essential during the rescue operation.

Marc Paganini, President and CEO of American Eurocopter, was proud of the

work performed by the crew and staff of STAR flight. "Their bravery and perseverance under extremely advanced conditions is commendable, and we are pleased that the EC145 was up to the challenge required and performed as it was designed to do," he said. The EC145 offers excellent performance, a fast cruise speed and advanced technologies, making it a perfect match for Emergency Medical Services (EMS). With its rear loading clamshell doors, large cabin, high payload capacity and high set rotors, the EC145 offers unmatched visibility and safety for missions that matter the most.



“Even though it was a difficult environment and the rescue was demanding, we were able to accomplish it with little or no difficulty, thanks to the performance of the EC145.”

Willy Culberson, STAR Flight's Director of Operations.

Articles
ERIN CALLENDER
REGINA LANGE

Photo by
ANTHONY PECCHI

FLEET SAFETY

In early 2010, the CEOs of Eurocopter, Bell, Sikorsky and AgustaWestland signed a letter addressed to all helicopter owners outlining four IHST⁽¹⁾ priorities for improving helicopter safety: training is one of these top priorities.

BEING MORE THAN PREPARED

Since approximately 85% of helicopter accidents are due to operational issues, efficient and up-to-date training is key for maintaining safety.

To keep up with the evolutions of local regulations in each country and to provide standardized training worldwide, Eurocopter participates in several working groups at international level, such as within ICAO⁽²⁾ and EASA⁽³⁾ structures. To provide training solutions for both pilots and technicians, Eurocopter works in close proximity to its customers with its 19 approved training centers worldwide, including 16 for type/recurrent training and 3 for ab-initio training. Eurocopter has developed a large network of Flight Simulators, a great resource for offering hands-on training. In addition to the Full Flight Simulators (FFS) currently avail-

able, such as the recently inaugurated AS350 FFS at American Eurocopter (see page 29) or the EC135/145 FFS at Eurocopter in Germany, plans are in the works for at least 10 more simulators. A highlight of these initiatives is the plan for a N3 FFS at HeliUnion, which will be the first simulator of its kind in the world.

With the help of training centers located at Eurocopter sites in France and Germany as well as in the United States, Brazil and Australia, Eurocopter provides a full range of training resources, which are directly derived from official Eurocopter Flight and Maintenance Manuals. These supports include classical courses, Computer Aided Instruction (CAI), Web Based Training (WBT) and Virtual Cockpit Procedure Trainer (VCPT). Eurocopter experts work closely with training materials to

guarantee quality and accuracy. "Continuous interactions between Eurocopter's specialists and our instructors enable us to ensure that the correct and most current information is passed on," explains Hervé Berriet, CEO of Eurocopter Training Services (ETS), a Eurocopter subsidiary located in Marignane. A center boasting a series of full-scale helicopters dedicated to hands-on training, ETS is able to provide full EASA Part 147 compliant maintenance training.

(1) International Helicopter Safety Team
 (2) International Civil Aviation Organization
 (3) European Aviation Safety Agency



FOCUS ON...

A Preferred Offer

Attesting to the importance of continuous training, Eurocopter has signed an agreement with the insurance company Verspieren, which will propose a preferred insurance rate for any Eurocopter customer that agrees to attend a Recurrent Training Course in one of Eurocopter's authorized training centers. For more information, please contact: marketing.services@eurocopter.com

40TH ANNIVERSARY OF THE TRAINING ACADEMY

KASSEL

On September 21, the Aviation Training Academy in Kassel celebrated its 40th anniversary. A new building was inaugurated at the school during the ceremony, which was attended by numerous public officials and captains of industry.

The new building was constructed in record time, as it opened its doors just five months after ground was broken. It will house an airframe segment of an Airbus A310, an EC135 and three BO105s, which will strengthen the academy's training capacities. The additional 1,000 square meters of floor space allow the training center, which already has EASA Part 147 certification, to offer even better practical training in an environment that resembles the actual working conditions of a maintenance center.

The center currently provides training for Category A aviation maintenance mechanics, aviation electronics technicians and Category B1 aviation supervisors. In the future, it will be offering courses for Category B2 aviation electronics supervisors as well. Every day, anywhere between 300 and 350 trainees can be found taking part in the 14 different training courses offered, which range from Category A Part 66 training to Category B1 and B2 training. "The new building will be a key factor in making the Training Academy in Kassel a truly unique center of excellence in Europe for basic aviation technical training, as it enables us to cover all the EASA training cycles for helicopters and airplanes," explained Detlef Ehrig, who heads the Training Academy. ■



© Fotostelle.ECD

KEY DATES

1970: the Aviation Training Academy is created

1985: the academy opens its doors in Calden

1994: creation of the company Eurocopter Hubschrauber Service GmbH (ECS)

1998: ECS is absorbed by Eurocopter Deutschland GmbH

2003: the Calden airfield becomes part of the Marbachshöhe technology park

Septembre 2010: the new hangar is inaugurated and practical maintenance training begins



© American Eurocopter

NEW AS350 FLIGHT AND MISSION SIMULATOR

AMERICAN EUROCOPTER

American Eurocopter (AEC) unveiled its new AS350 B2/B3 flight and mission simulator at its Training Center on October 8. Developed with Indra Systems, the full-motion simulator will provide training options for complete aircraft emergency procedures, Crew Resource Management (CRM), Night Vision Goggles (NVG), Helicopter Emergency Medical Services (HEMS) and Airborne Law Enforcement (ALE) missions. The simulator is equipped with a full-motion platform, a full cabin,

auto pilot, FLIR Star Safire III (including hand controller, TV and IR mode), moving map functionality and a SpecraLab S-16 slaved searchlight. "Safety is our number one priority, and we have made a significant investment in the development of our simulators," said Marc Paganini, AEC President and CEO. "The efforts of our team have culminated in the world's most technologically advanced AS350 flight and mission simulator, which is now available to our customers." ■



Article
ALEXANDRE
MARCHAND

Photo by
PATRICK PENNA /
EUROCOPTER

A BOOST FOR TECHNICAL SUPPORT

EUROCOPTER INTERNATIONAL SERVICES

Eurocopter has created Eurocopter International Services (EIS) to offer more flexible technical support services that are better in tune with customer needs.

Up until now, each entity in the Eurocopter Group performed its own technical support work, but with the introduction of EIS this will soon be changing. First launched in 2007 by Jacques Demassieux, the head of technical support in Marignane, EIS is a wholly-owned Eurocopter subsidiary that will be centralizing the management of support personnel—Tech Reps, Maintenance Technicians and Logistics Field Reps. Over time, EIS will be able to handle the full cycle, from recruitment of new employees through to deployment to customer sites, and it has already taken full responsibility for all new hiring in the sector. There are no plans to transfer Eurocopter personnel to the new subsidiary, and the door has been left wide open for the internal pro-

motion of technicians to new careers in technical support.

“EIS will not handle commercial issues however,” explained EIS Director Patrick Berthier. “Contractual relations with the customers will remain the full responsibility of each entity. EIS will be able to step in upon request to oversee the deployment of qualified technicians, with skills adapted to each specific mission.”

EIS was created first and foremost for economic reasons: Eurocopter is finding it increasingly difficult to remain competitive in the technical support market—even for its own product range. “It has become vitally important for us to adapt our setup in order to reduce the costs of our services,” said Mr. Berthier. “We must also be ready

to respond to emerging technical support needs for complex military programs such as the NH90 and the Tiger, which will be enormous.”

The creation of EIS also offers an excellent opportunity to harmonize the employment and management conditions for technical support personnel deployed on long-term missions. Over time, the new organization will offer greater operational flexibility and better responsiveness to customer needs for both civil and military fleet support.

The main offices of the new company are right in the heart of Dublin’s business district, where EIS is sharing office space with Airbus Financial Services, another company in the EADS Group. As many as a hundred people could be working at EIS by 2012. All the Tech Reps will have Part 66 certifications and the company itself will hold the Part 145 approval to further solidify its position as an aviation maintenance specialist. ■

PUSHING THE LIMITS OF KNOWLEDGE

EUROPEAN ROTORCRAFT FORUM

Article
CHRISTIAN DA SILVA

Photo by
ÉRIC RAZ / EUROCOPTER

Eurocopter and ONERA⁽¹⁾ were honored to participate in the organization of the 36th European Rotorcraft Forum under the auspices of the AAAF⁽²⁾. This year's forum, which was held in Paris from September 9 to 11, was noteworthy for the extremely diverse range of topics that were presented.

This year's European Rotorcraft Forum—a somewhat smaller version of the American Helicopter Society forum held in May in the United States—brought together all the key players in helicopter technology: research centers, including a strong showing from ONERA and DLR⁽³⁾, universities, industry, technical departments from the armed forces, as well as government agencies such as France's DGA⁽⁴⁾ and DGAC⁽⁵⁾. The European Commission is also an active participant, as it provides funding for research projects and initiatives such as Cleansky. The forum also welcomed distinguished guests from the United States, such as Dr. W. Lewis of the U.S. Army who was on hand to present the "Condition Based Maintenance" concept, and professors P. Friedmann and I. Chopra who talked about active rotor systems. In his keynote address to open the forum, Eurocopter CEO Lutz Bertling threw down the gauntlet in no uncertain terms when he "challenged researchers and industry alike to push back the frontiers of technical knowledge". The message was loud and clear for the 220 participants from 18 different countries, as the figures clearly show: No less than 115 presentations were on the schedule by speakers from 12 countries.

Many of the presentations dealt with new methods using advanced digital aerodynamics. Another popular topic was the new aerodynamic/dynamic coupling methods, developed in particular by German and French research centers (ONERA, DLR, the Universi-

ty of Stuttgart), that provide key insights into the understanding of rotor/structure torque phenomena. Eurocopter showed that it too is active in the area of research, presenting its latest findings for new prediction models, together with new technology such as the water bomber helicopter, new processes for composite structures and the automatic pilot for the CH53PV. But this year, in addition to the traditional aeromechanics presentations, the ERF selection committee also expanded the scope of the forum to include a wide range of topics: active rotor systems, new blade geometry, safety, comfort, flying in icing conditions or with low visibility, airspeed, operating range and drones. In two separate presentations, DLR provided an overview of the different research work that has been conducted throughout the world on active rotor controls over the past quarter century, and underscored the efforts that remained to be made in order to develop concrete production applications.

"The forum enabled us to place Eurocopter's research work in a larger context, as we learned about progress being made around the world," noted Marc Allongue, who heads the general engineering department at Eurocopter. "We can use this knowledge to confirm and further develop certain projects, or to make any adjustments that may be necessary." Yves Favennec, vice-president of Research and Innovation at Eurocopter, summed up the forum as follows: "From a technical point of view, we had many fruitful discussions that will undoubtedly result in new contacts because several

universities and research centers presented ideas that Eurocopter will certainly want to follow up on." Next year's forum will be held in Gallarate, Italy.

- (1) The French Aerospace Lab
- (2) French Association of Aeronautics and Astronautics
- (3) The German Aerospace Center
- (4) French Armament Procurement Agency
- (5) French Civil Aviation Authority

**"Innovation
is what transforms
scientific progress
into new added value
for the customer."**

Lutz Bertling,
Eurocopter CEO.



SUPPORT IN NUMBERS

Articles

MONIQUE COLONGES

GLORIA ILLAS

REGINA LANGE

All around the globe, Eurocopter helicopters continue to break boundaries, from reaching a new record of flight hours to noteworthy anniversaries – an excellent reminder of the reliability and the longevity of Eurocopter products.



BRAZIL

30th Anniversary of the Puma Squadron

On September 10, the Puma Squadron of the Brazilian Air Force celebrated its 30th anniversary in Rio de Janeiro, home of its operational base. The squadron, which was created in 1980, operated AS330 Pumas up until 1986, when they were replaced by the AS332 Super Pumas that are still in service. The seven Super Pumas, redubbed the CH-34 by the Brazilian Air Force, have completed more than 40,000 flight hours. The squadron uses the helicopters for search and rescue missions in response to natural disasters and for humanitarian missions, and also to perform air rescue operations and transport flights for special forces. In June 2010, the Puma Squadron played a key role in the rescue operations carried out for flood victims in the northeastern states of Alagoas and Pernambuco.



FRENCH CIVIL DEFENSE

100,000 Flight Hours for the EC145

On July 30, the EC145 fleet operated by the helicopter unit of the French Civil Defense reached the 100,000 flight hour mark. The Civil Defense was the launch customer for the twin-engine helicopter, which is used for a wide range of missions such as sea rescues, forest fire monitoring and high-mountain work. Approximately 25% of the missions flown by the EC145s are at high altitudes. The helicopter is particularly appreciated for its large cabin, as it offers rescue crews greater flexibility and enables them to work more effectively. The French Civil Defense currently operates 34 EC145s out of 22 different bases in metropolitan France and in the country's overseas departments and territories.





© Police Edmonton

EC120

1 million Flight Hours

Last spring, the EC120 fleet currently in operation worldwide reached a major milestone: 1 million flight hours. As of the end of September 2010, a total of 650 EC120s were in service for more than 420 operators in 54 countries. The most common use of these aircraft (27% of the flight hours) was in public service missions, mainly for law enforcement agencies. One standout among the fleet is the first EC120 that was purchased by the Edmonton Police Service in Canada. It recently logged its 10,000th flight hour, making the Edmonton Police only the second operator worldwide to reach this mark with an EC120 (the first was the Baltimore Police Department in the United States). The EC120 has remained busy in other sectors as well, such as business aviation and private use (24% of flight hours), commercial flights (20%), and ab initio training for military pilots (10%).



ÖAMTC

100,000 Flight Hours with the EC135

Last July, the air rescue unit of the ÖAMTC (Austrian Automobile, Motorcycle and Touring Club), which groups together the Christophorus air rescue organization (CFV, Christophorus Flugverein) and the operator Helikopter Air Transport GmbH⁽¹⁾, celebrated the 100,000th flight hour logged by its fleet of EC135s. With 28 EC135s, the ÖAMTC operates one of the largest fleets of this aircraft in the world. In May 2010, the ÖAMTC's air rescue unit, which performs 15,000 missions each year, also celebrated another major milestone in its 25 year history when it successfully completed its 200,000th mission—in an EC135, of course!



© Wolfgang Obrusnik

(1) An ÖAMTC subsidiary that performs helicopter flights and maintenance.



BLUGEON HÉLICOPTÈRES SETS THE STANDARD

SLING WORK AND MOUNTAIN FLYING

The French operator Blugeon Hélicoptères is a reference worldwide for sling work and mountain flying. The company's reputation is no surprise, considering that its founder and president is often referred to as the “most sought-after pilot in the Alps”.

Article **RÉGIS NOYÉ**



CHECK OUT THEIR WEBSITE
WWW.BLUGEON-HELICOPTERES.COM



© Blugeon Hélicoptères

© Blugeon Hélicoptères



© Blugeon Hélicoptères

To understand how special the operator Blugeon Hélicoptères is, just consider the company's founding father, Christian Blugeon. He is one of the few pilots in the world to have logged more than 20,000 flight hours (20,700 to be exact, as of early October). A total of 19,600 of these hours were spent performing lifting operations—and all this almost exclusively with Eurocopter helicopters. As he is quick to point out, Christian is a true native of the Alps, where he once worked as a shepherd. This background helps explain his intimate knowledge of every aspect of the mountains, whatever the season. An avid skier who has also worked as an instructor and on ski patrol, Christian helped lay out the slopes at the famous ski resort in Les Arcs. It was during this project that he realized a helicopter was exactly what was needed for the job. That was the moment, at the age of 24, that his destiny was revealed. He became a professional helicopter pilot in 1987, "earning his stripes" with the French air rescue unit Secours Aérien Français (SAF) founded by Roland Fraissinet, and setting up a

subsidiary, Héli-SAF Levage, specialized in lifting operations. Christian Blugeon would eventually found his own company in 1998, and the reputation it enjoys today owes everything to the passion and rigor he has put into its development.

12 HELICOPTERS IN 12 YEARS

Blugeon Hélicoptères operates four AS350 Ecureuils, three of which are B3s. Offering both excellent comfort and impressive lifting capacities in mountain conditions, the B3 is the ideal helicopter for the job, explains the company's president. Blugeon Hélicoptères also flies a B2 that is dedicated to tourist flights and aerial photography. One of Blugeon's golden rules is to replace the helicopters on a regular basis to ensure the fleet is always in excellent condition and meets the latest standards. He has purchased no less than 12 helicopters in 12 years—an average of one per year. Each of the four Ecureuils flies around 800 hours per year, usually with either the company's president or one of his two sons—both as driven as their father—at the controls.

This is truly a family affair: The company only has two additional employees—a secretary and a ground operator—and a temporary worker who is brought in to help out during the busy season.

The majority—some 85%—of the operations performed by the Ecureuils is high-precision and lifting work. Flying out of their three mountain bases at Morzine, Bourg-Saint-Maurice and Domancy, the helicopters carry loads between 1.4 and 5 metric tons up to altitudes of 3,870 meters. The remainder of their missions are more standard work such as transport flights. Christian Blugeon has even been called on to rescue animals from mountain pastures!

Mr. Blugeon puts his thorough understanding of Eurocopter aircraft to good use in sales and consulting work abroad. He is also happy to take on overseas missions, for example construction work on the coastal road to Saint-Gilles on Reunion Island. With the future of his company already assured thanks to his two sons, Mr. Blugeon is now free to focus on development opportunities abroad. ■

Thinking without limits



Innovation at Eurocopter. The future of the helicopter begins here.

The helicopter is an extraordinary machine. At Eurocopter, four decades of innovations have pushed its limits even further. Operational innovations, like the glass cockpit graphics and all-weather capabilities, or the reduced pilot workloads that help increase safety. Technical innovations, like the HUMS, fly-by-wire and composite air frames. Environmental innovations, like the Spheriflex™ 5 blade main rotor and Fenestron™ tail rotor, setting the industry's standard by making ours the quietest range of helicopters in the world as well as the most fuel efficient. Are there still limits to what a helicopter can do? If there are, then at Eurocopter we're already thinking beyond them.



AN EADS COMPANY