

Rotor

BY AIRBUS HELICOPTERS

SERVICES

Five points about technical documentation

LIFE OF THE RANGE

The H125: versatility at an affordable cost

LOGBOOK

The Monaco Grand Prix: a race on land and on high

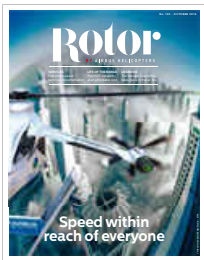


Speed within reach of everyone



10

FEATURED ARTICLES Speed within reach of everyone



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In this, our latest issue of *Rotor* magazine, I have the pleasure of revealing to you the bright future that awaits our high-speed demonstrator project, the latest instalment in the gripping adventure that is helicopter innovation.

Forming part of the Clean Sky 2 European research platform, this flagship programme allows us to continue with the work we successfully carried out on the X³ demonstrator. As you will recall, the prototype pushed the boundaries of helicopter flight, achieving a world-record level flight speed of 255 knots in 2013. It also gave rise to new technologies that can now be found in aircraft we are currently developing: the H160 and the future “X” projects.

The Clean Sky 2 project heralds the arrival of the high-speed helicopters of tomorrow.

“The Clean Sky 2 project heralds the arrival of the high-speed helicopters of tomorrow.”

Guillaume Faury

This programme is harnessing skills across Europe, with France, Germany, Spain, the U.K., Poland and Romania all contributing directly to the development of the prototype. While the European Union is providing half of the funding, we will meet the remaining development costs with our industrial partners. We have assembled a formidable team of stakeholders who need no persuading that speed will be a key factor in saving lives in the future, and that it will enhance performance in SAR operations, homeland protection and passenger transport.

It is with ever increasing enthusiasm that Airbus Helicopters is helping to shape the helicopter of tomorrow by turning the imaginary into reality. In this issue we share that passion with you.

IN THE SPOTLIGHT



9 AUGUST 2016

KUWAIT

**The Kuwait Ministry of Defence orders
30 H225M Caracal helicopters.**

BRAZIL

90 AIRBUS HELICOPTERS ROTORCRAFT TAKE PART IN THE RIO 2016 OLYMPIC GAMES

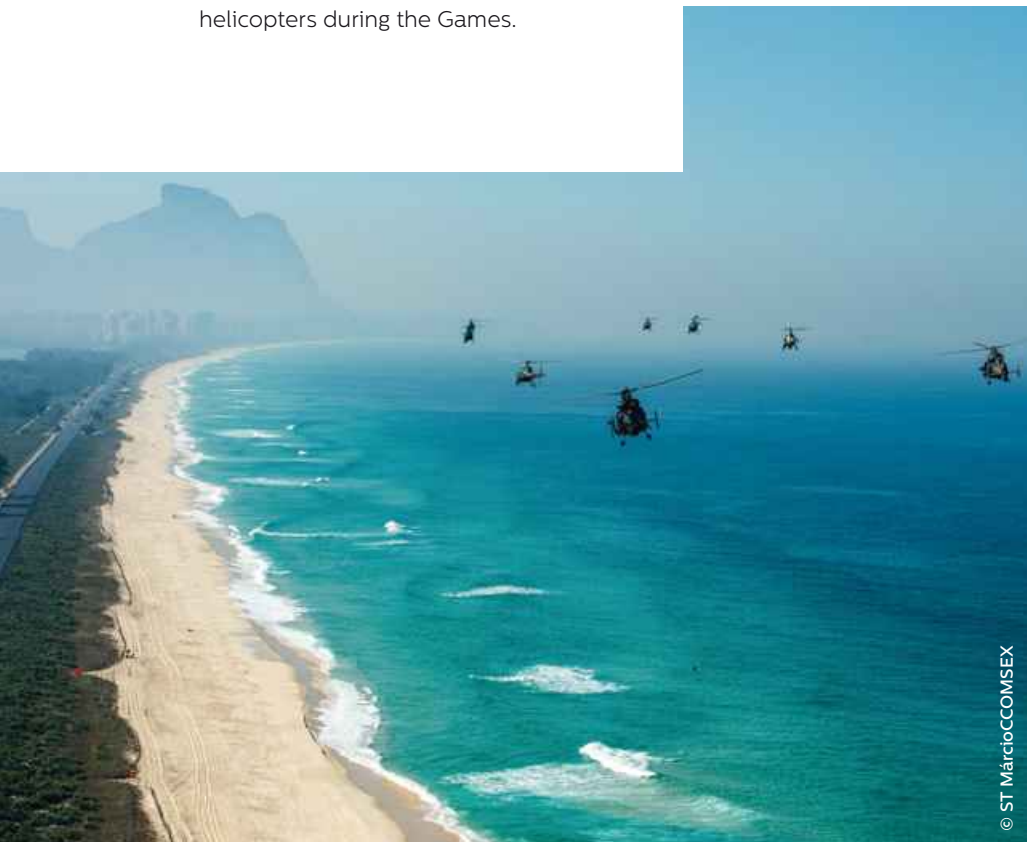
A fleet of 90 Airbus Helicopters rotorcraft was deployed at the Rio 2016 Olympic Games for use in surveillance, airspace defence, anti-terrorism, law enforcement, command/control/communication, air medical rescue and electronic image capture during the month of August in Rio de Janeiro and other states where competitions took place. This fleet was comprised of 83 military helicopters, among which were Caracals, and seven civil Ecureuils. To support these operations, Helibras built a specialised spare parts inventory and stationed dedicated support teams in Itajubá and in Afonsos Park, the Air Force base that housed the Army's helicopters during the Games.



FRANCE DELIVERY OF THE FIRST H175 IN VIP VERSION

Airbus Helicopters delivered the first VIP version of the H175 in July. Handed over to an undisclosed customer who will operate it in Europe as a complement to a yacht, the H175 offers a totally personalised VVIP cabin comfortably accommodating seven passengers.

The aircraft features a unique cabin layout provided by Pegasus Design, who has built a worldwide reputation in the design of business jet and super yacht interiors. It offers two distinct seating areas: a forward zone that provides a lounge atmosphere with facing club seating for four passengers and a galley, as well as sofa-style seating that comfortably accommodates three passengers at the rear.





© Airbus Group 2016 - P. Pfeyvre

UNITED KINGDOM

SECOND H145 TO YORKSHIRE AIR AMBULANCE

Airbus Helicopters formally handed over the second and final H145 to Yorkshire Air Ambulance (YAA) at the Farnborough Air Show 2016. The aircraft, hoist-equipped and night-flight capable, will be fitted with a Bucher medical interior specifically tailored to YAA's requirements. YAA will also benefit

from a unique long-term, comprehensive support arrangement, specifically tailored to the projected 800+ flying hours per year the charity plans to fly. The agreement, which covers material management and 24/7 Airbus Helicopters support across the U.K., will help optimise the aircraft's availability.



© Pacific Island Air

CHINA CHINESE CONSORTIUM ACQUIRES 100 H135s FROM AIRBUS HELICOPTERS

A Chinese consortium made up of China Aviation Supplies Holding Company (CAS), Qingdao United General Aviation Industrial Development Company (Qingdao United) and CITIC Offshore Helicopter Co. Ltd. (COHC) has ordered 100 H135 light-twin helicopters, becoming China's first customer to form an industrial partnership to launch an H135 final assembly line (FAL) in Qingdao, Shandong province. The FAL is expected to start operations by 2018 in order to assemble 100 H135s over the next 10 years.

This is an important step forward, fulfilling the commitment of purchasing 100 H135s signed in the Letter of Intent last year.



© Anthony Pecchi

FRANCE THE H160: A NEXT-GENERATION PASSENGER EXPERIENCE

The H160's aeromechanical configuration – a crucial milestone allowing the programme teams to confirm some key aspects of the helicopter's design and performance – has been validated. After more than 200 hours accumulated in flight-testing, the H160 has demonstrated exceptionally low vibration levels along with remarkable aircraft stability levels, setting new benchmarks in the field. Next steps of the flight campaign will focus on hot weather trials, to take place over the summer, followed by continued performance testing of the Arrano engines – now equipping both prototypes – as well as cold weather tests later in the year. A third prototype will join the flight-test programme next year to support the certification process ahead of the H160's entry into service.

DENMARK

THE H175 EXPANDS ITS OPERATIONS TO DENMARK

The H175 helicopter now counts Denmark among its countries of operation, increasing its total to five countries, with operations already underway in the Netherlands, Scotland, Mexico and Ghana. The start of operations in Denmark was announced on 23 August by Belgian-based NHV Group, which will fly oil & gas transport missions for Maersk Oil out of Esbjerg in the North Sea. NHV has already been flying

similar missions for other customers from the North Sea bases of Den Helder, Netherlands and Aberdeen, Scotland, and also in Western Africa. Since their entry-into-service in December 2014, NHV's H175s have completed more than 3,000 flights and accumulated almost 5,000 flight hours. The company is the global launch customer of the H175 and has already received 8 out of the 16 units ordered.



© Stéphane Kervella

BELGIUM

FIRST FIRING CAMPAIGN WITH HFORCE SYSTEM

Airbus Helicopters has completed a first round of firing tests in Belgium with HForce, a generic weapon system in development for the company's helicopter range. The firing campaign, involving an HForce-equipped H225M, allowed Airbus Helicopters to demonstrate HForce's performance with ballistic weapons, including 12.7 mm guns, 70 mm rockets, and 20 mm cannons.



LITHUANIA

NEAR 100 PERCENT AVAILABILITY FOR DAUPHIN AS365 N3+

The three Dauphin AS365 N3+ aircraft of the Lithuanian Air Force (LAF), configured for 24/7 search and rescue (SAR) operations, have achieved a 99 percent availability rate in their first year of service. Lithuania is one of the first Airbus Helicopters clients to have opted for an HCare Infinite contract, under which Airbus Helicopters is responsible for guaranteeing greater than 80 percent operational availability. In addition to technical assistance and access to the parts inventory consigned to the main base (Šiauliai), Lithuania can draw from the Airbus Helicopters parts-by-the-hour (PBH) pool. Moreover, engine availability is guaranteed through a special contract with Safran Helicopter Engines.



© Airbus Helicopters

KAZAKHSTAN

HPILOT CLUB NOW IN CENTRAL ASIA

Airbus Helicopters launched the HPilot Club in Central Asia during the inaugural Helicopter Flight Safety Seminar organised by the Eurocopter Kazakhstan Engineering Joint Venture in early June in Kazakhstan. The helicopter flight safety seminar was the first of its kind to be organised in Central Asia. It was a great opportunity for

around 50 to 60 pilots and technicians to get together and exchange on subjects related to aviation and safety. Currently, the HPilot Club has more than 1,200 members in 96 countries. Approximately 60 percent of them are pilots, 30 percent are mechanics and another 10 percent are crew members.



More information in Rotor online

H125

The H125 outclasses all other single-engine helicopters for performance, versatility, safety, low maintenance, and low acquisition costs, while excelling in high & hot and extreme environments.

Lowest maintenance and operating cost in its class with a continuous reduction action plan (-7% DMC expected in Conklin Fall 2016 vs. Fall 2014)

AERIAL WORK

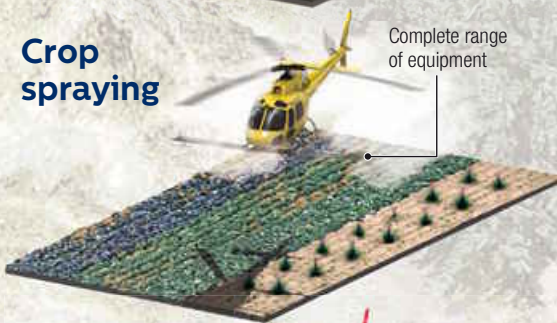
The H125 can be configured, and easily reconfigured, with a long list of certified optional equipment for any aerial work mission. With its lift power capacity, endurance and manoeuvrability, the H125 is always up for the most rigorous high and hot missions and sling work.

News gathering



Camera

Crop spraying



Complete range of equipment

Fire fighting

Bambi Bucket



External cargo:
Cargo swing load capacity: 1,400 kg / 3,086 lb

Tech Data

Engine	Max. speed (VNE)	Range with standard tank	Max. takeoff weight
1 TURBOMECA ARIEL 2D turboshaft engine	287 km/h 155 kts	651 km 351 NM	2,250 kg 4,960 lb
			2,370 kg (Dual hydraulic)

Facts & Figures



Some 5,000 single-engine H125 /AS350 series delivered in more than 100 countries



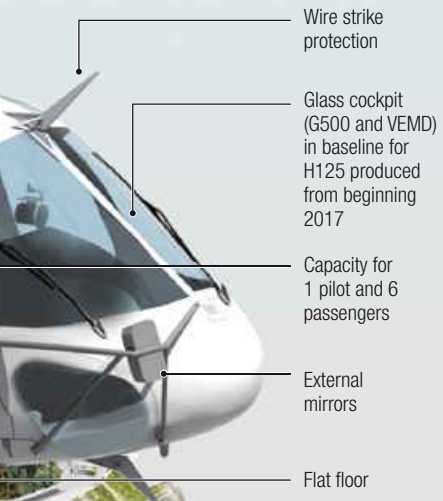
For some 1,600 operators, accumulating more than 23 million flight hours

PASSENGER TRANSPORT

Thanks to its wide, unobstructed cabin, and high cruise speed, range and payload, the H125 can carry more passengers on more roundtrip flights per day than any competitor's helicopter.



Huge STC portfolio

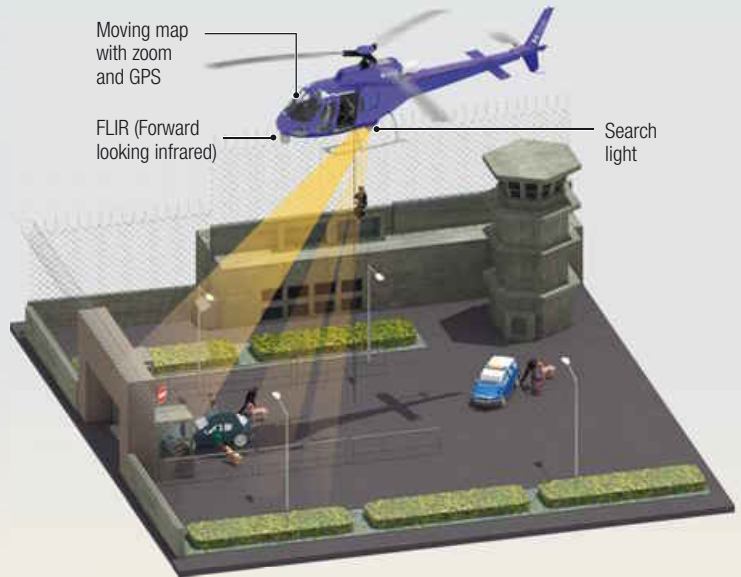


Stylex[®] interior



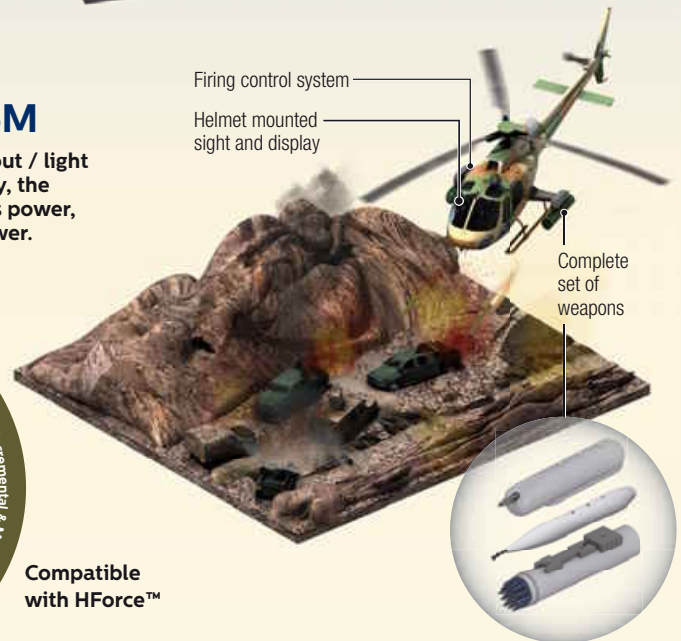
PUBLIC SERVICES

The H125 is well adapted to multi-role law enforcement missions: surveillance, command and control, search and rescue, SWAT unit transportation or hoisting canine units, as well as flying border patrol in high & hot conditions.



MILITARY – H125M

As the most capable armed scout / light attack helicopter in its category, the single-engine H125M combines power, discretion and targeted firepower.



Around **500 H125** are currently in service worldwide



An AS350 B3 broke the world record for the highest altitude landing and takeoff in 2005: Mount Everest – 8,848 m



In the context of the European Clean Sky 2 project, Airbus Helicopters aims to validate the X³ technology and prepare a commercial application.

SPEED WITHIN THE REACH OF EVERYONE



© Eric Raz

The concept of “high speed” for an aircraft that is capable of hovering and making vertical landings is not merely an engineer’s dream. It is, in fact, driven by the needs of operators.

For Airbus Helicopters, there’s no point in innovating if the research being carried out doesn’t match customer expectations. And these expectations are crystal clear: customers want helicopters that are

faster, safer and more environmentally friendly, but also more cost efficient. Until now, aircraft that could combine vertical take-off with high speeds were reserved for the military. But these days, civilian operators also want to optimise their response times—to save more lives, reduce distances or increase the number of round trips.

The European Clean Sky 2 programme offers Airbus Helicopters a unique framework for developing this helicopter, drawing notably on long years of research and on the success of the X³. The goal: to combine vertical take-off and speed in safe conditions and at an optimised cost.

Jean-Brice Dumont, Technical Director of Airbus Helicopters.

CLEAN SKY 2

FROM CONCEPT TO MISSION

Tomasz Krysinski, Head of Research and Innovation at Airbus Helicopters, explains the project for creating a high-speed hybrid aircraft as part of the European Clean Sky 2 research plan. Interview.

Article: Belén Morant

Could you tell us about the origins of the hybrid helicopter project in the context of Clean Sky 2?

Tomasz Krysinski: First, I want to remind everyone that it's not every day that we create a new formula for aircraft. Since the development of the tiltrotor in 1955, it's been more than sixty years since a similar innovation has led to civilian applications. But now, successful experiments with the X³ demonstrator, which massively surpassed our expectations, have enabled us to design a hybrid aircraft that's extremely effective in terms of both performance and cost. We had already succeeded in developing a machine that was agile and easy to fly, combining the helicopter's low-speed hovering with the high-speed flight comfort of an airplane. But the things we've learned from the X³ prompted us to go further, to offer our civilian customers a fast aircraft at a low cost.

What's the secret to this new formula?

T. K.: Our hybrid helicopter has no tilting components. We used a main transmission along with a classic rotor and lateral rotors originating from general aviation. Our formula flies more than 50 percent faster than a classic helicopter and its cost per nautical mile travelled is 25 percent cheaper. What's more, it's worth noting that this new formula meets significant environmental requirements. Basically, the blades have been optimised to reduce the noise level, and opting for lateral rotor propulsion allowed us to cut the sound signature by 60 percent

for low-altitude flights thanks to very specific approach trajectories. Finally, in flights at the economical cruising speed (180 knots), the fuel consumption is 15 percent lower (per kg and per hour) than that of a classic helicopter flying at 150 knots. Less fuel consumed while flying faster: the benefits are obvious.

Is this a new demonstrator?

T. K.: In the context of the European Clean Sky 2 project, we're aiming to validate the technology in order to prepare a commercial application. If the X³ was a concept demonstrator, Clean Sky 2 is a mission demonstrator. We can test highly advanced concepts such as the architecture, component integration and the components themselves (lateral rotors, flight controls). We want to offer an aircraft capable of transporting passengers or making business flights, but also of flying missions for the broader public sector – not to mention in the area of emergency medical assistance, where speed plays a vital role in the “golden hour.” Use of this hybrid concept expands the flying range by up to 50 percent. This results in significant savings for the operator, which can reduce the numbers of bases and aircraft, all while increasing the number of lives saved. Maintenance too is simplified, since in the absence of the tail rotor the helicopter has no rear drive shaft. All of that comes back to the idea of setting up a virtuous aeronautical circle, based on simplicity, with the aim of creating added value for operators.

What are the other changes introduced by Clean Sky 2?

T. K.: The European context offered by the Clean Sky 2 programme is a real opportunity for us, and the perfect setting for the development of this new concept. This collaboration with other European countries enables us to work with non-traditional partners and discover new talents and new ways of working. It's a real opportunity to spread the aeronautical culture and to forge new partnerships around innovative ideas. ■



Tomasz Krysinski, Head of Research and Innovation at Airbus Helicopters

© Lorette Fabre

For the emergency medical assistance sector, speed plays a vital role in the “golden hour.”

Key dates



2014: Launch of the Clean Sky 2 programme

July 2016: Definition of the general architecture

End of 2016: Preliminary design review

End of 2017: Critical design review

December 2018: Assembly launch for the first demonstrator prototype

2020: First flight of the high-speed hybrid helicopter demonstrator



al Center

© Airbus Helicopters
Design Studio - 2016

According to Tomasz Krynski, “Successful experiments with the X³ demonstrator massively surpassed our expectations.”

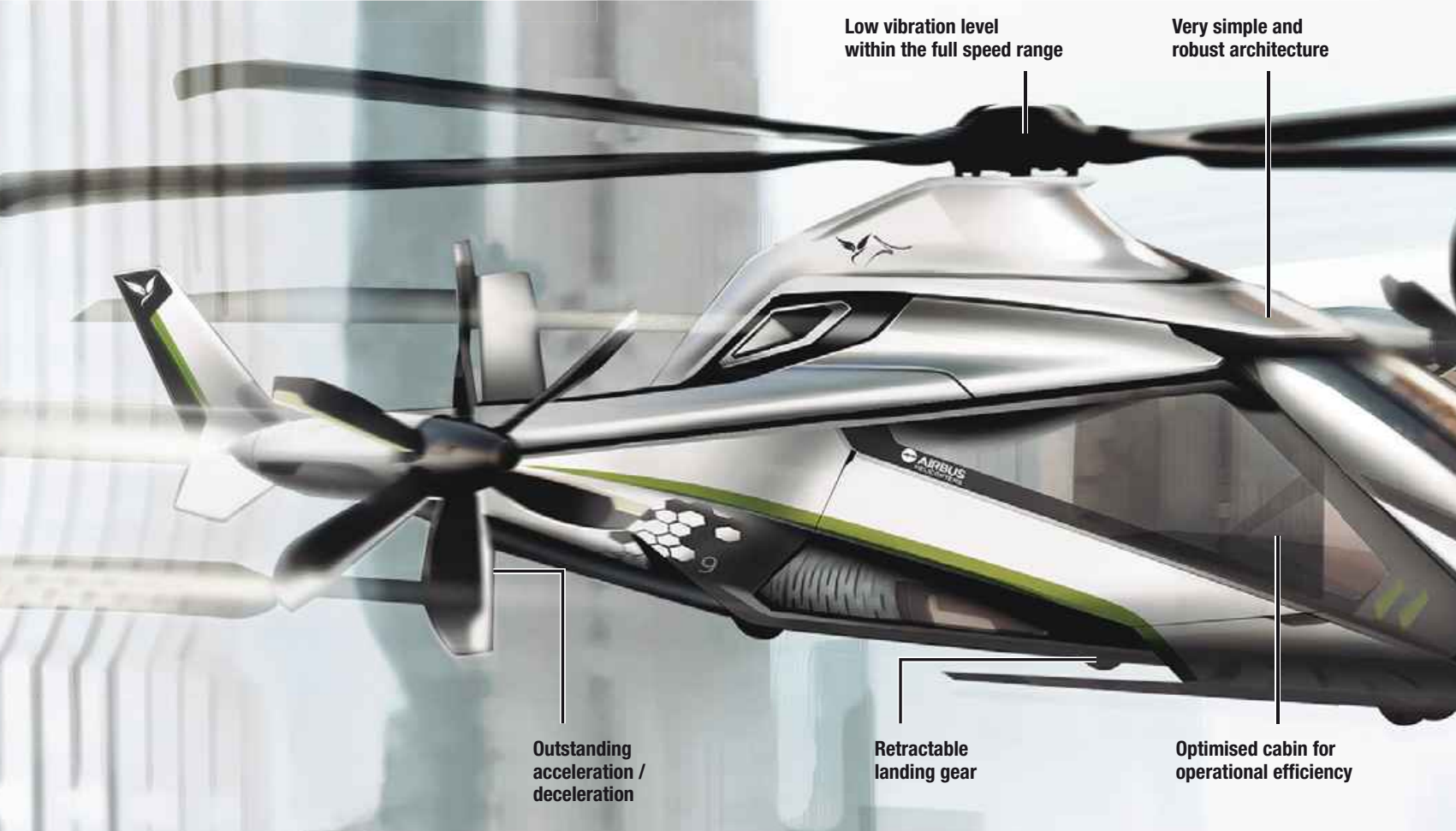


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FEATURED ARTICLES



Airbus Helicopters is one of the participants in the European Clean Sky 2 Programme, developing – with extensive European partnership – a demonstrator for a high-speed rotorcraft. Flights of an airworthy demonstrator are planned for the dawn of the next decade, with the looked-to aim of performing EMS, SAR & parapublic missions, as well as passenger transport.



Low vibration level within the full speed range

Very simple and robust architecture

Outstanding acceleration / deceleration

Retractable landing gear

Optimised cabin for operational efficiency

High safety standards



No transition between hover & cruise



Very easy to fly



Full autorotation capability

Facts & Figures



>50%
faster than a conventional helicopter



25%
cost reduction per NM



Lower sound footprint



< 15%
fuel consumed per NM at 180 kts compared with a helicopter at 130 kts



2 times
the area covered in 1 hour

High Speed Hybrid Helicopter



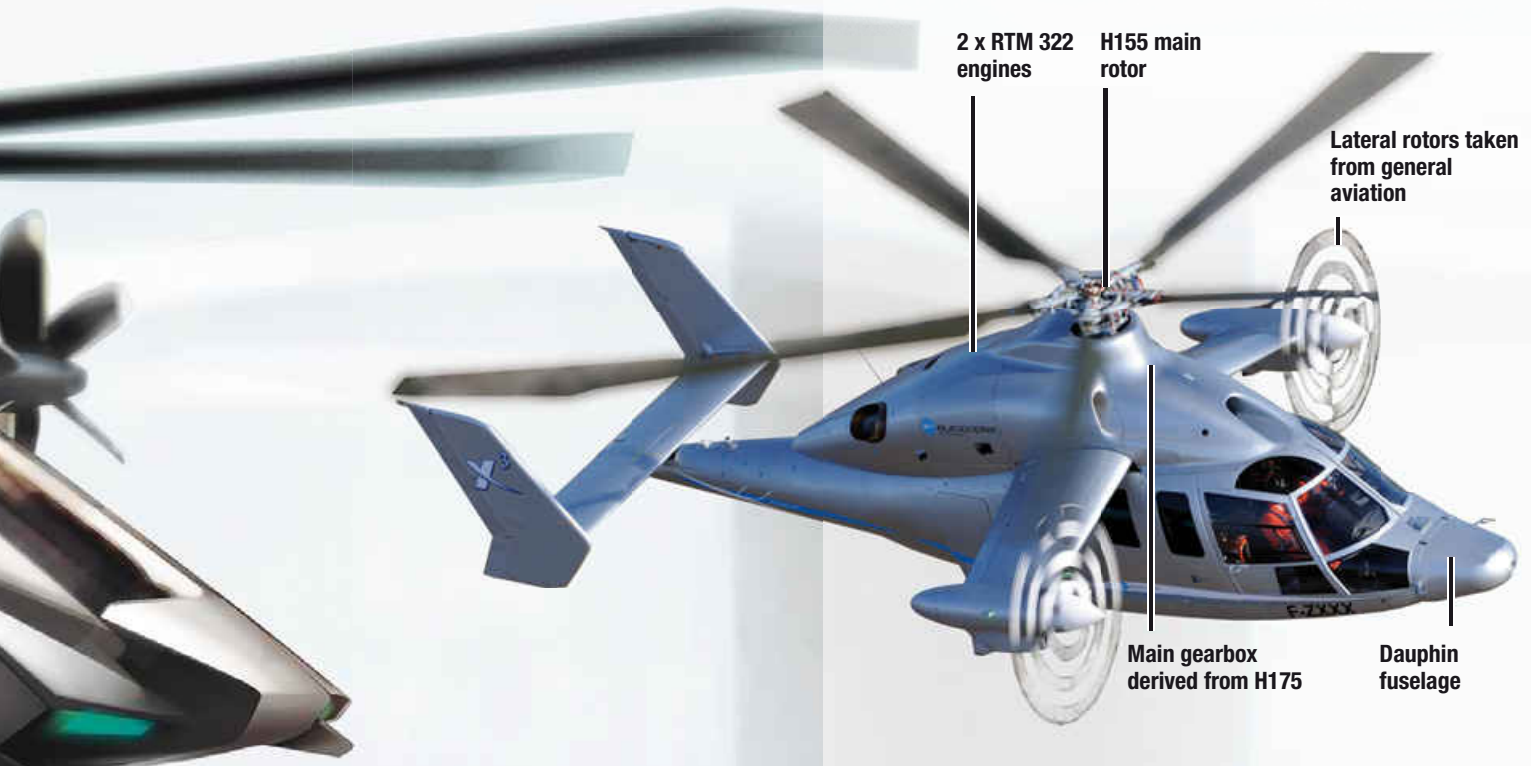
Opportunity to bring greater levels of maturity to new technology, improving efficiency of both high speed (H³) concept and conventional rotorcraft



Affordable acquisition price & direct maintenance cost

Developed from proven X³ results

X³ demonstrator concept reused: Go fast at an affordable cost. X³ has demonstrated the concept's performance through the use of current helicopter and general aviation technology



© Airbus Helicopters - Anthony Pecchi - 2013

Missions

EMS/SAR

- More lives saved:
- Time to target reduced
 - Much greater area covered in the "golden hour" timeframe



PASSENGER TRANSPORT

- Less time on-board for a given mission
- Avoids need for several transportation means for a medium distance
- Increased comfort



PARAPUBLIC

- Improved cost efficiency by need for fewer bases
- Increased productivity



EVERYONE IS CONNECTED

To successfully collaborate with the thirty European partners involved in the Clean Sky 2 project, the decision was made to extend the innovation to Airbus Helicopters' work methods. The 3D digital mockup of the helicopter means that everyone involved in the project can track the progress of the design process in real time.

Thirty-seven partners, twelve countries, one goal: to jointly design the high-speed aircraft of the future. To work on this project in real time, designers from Airbus Helicopters and their partners have access to a shared digital mockup in which each entity can view, in 3D, the systems for which they are responsible, along with interfaces with the other sub-assemblies of the helicopter.

"In the context of Clean Sky 2, we have to coordinate the projects of the thirty-seven European entities who are working on designing parts from A to Z," explains Cédric Latanski, who is responsible for full integration of the Clean Sky 2 3D digital mockup. "To do this, each entity is invited to work directly on the 3D digital mockup. For its part, Airbus Helicopters has taken responsibility for integrating the various systems so that each piece of the puzzle fits perfectly." As well as integration, Airbus Helicopters is directly responsible for developing and/or manufacturing 40 percent of the aircraft, including part of the main mechanics, the avionics, the rear fuselage, the flight control system, and the hydraulics. Airbus Helicopters is also in charge of the final assembly and for having the aircraft cleared to fly by the DGAC (French General Directorate of Civil Aviation).

THE ORGANISATIONAL ASPECT, A REAL CHALLENGE

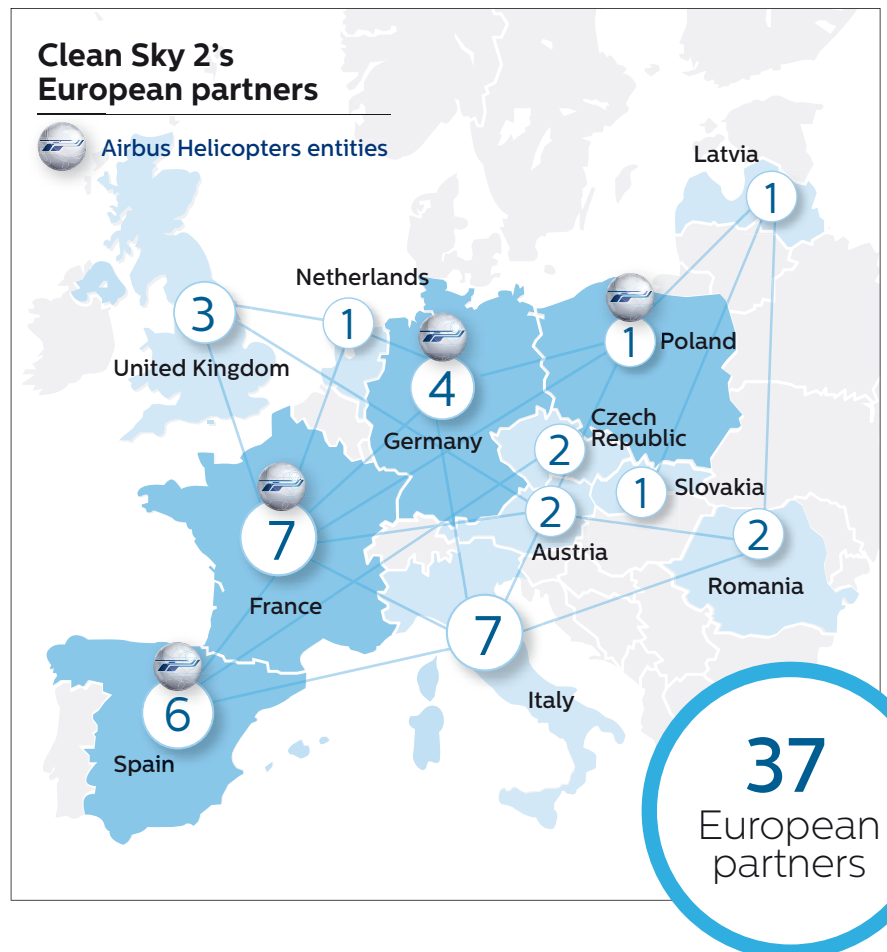
The Clean Sky 2 project offers Airbus Helicopters the opportunity to collaborate with companies that are not currently well known in the industry. The selection process was completed through an open call for tenders, led by the Clean Sky Joint Undertaking, and complied with the specifications supplied by Airbus Helicopters. The objective of this project is equally strategic for the project partners.

"Even if we're used to working with partners on certain development programmes, the Clean Sky project poses an even more complex challenge. It involves uniting and matching all of the work performed by these thirty European partners, which each have their own culture and methods of working. This way of operating

requires innovative technical resources, but the organisational aspect alone is a real challenge," emphasises Damien Couloumies, who is responsible for the general coordination of the Clean Sky 2 project. "We're trying to impress upon everyone involved the value of being a team player, which has been our strength since the very start of this adventure; the aim is for us all to be working toward the same goal, which is to make aeronautical history by flying a mission demonstrator based on the H³ concept." ■

"The time when you could carry out large-scale industrial programmes on your own is long past. Today, developing the biggest aeronautical projects means making international alliances."

Damien Couloumies,
in charge of the general coordination of the Clean Sky 2 project.





Companies involved in Clean Sky are, among others, Airbus, Airbus Helicopters, Fraunhofer, Saab, Liebherr, and Rolls Royce.

FUELLING ENVIRONMENTAL PROGRESS WITH AERONAUTICAL TECHNOLOGY

The European aeronautical sector is a global leader, comprising the talent and initiative of Europe’s centres of industry. With a steady rate of growth and need for aircraft in the thousands over the next decades, concerns have been raised about the sector’s environmental impact. Clean Sky is the European Union’s response.

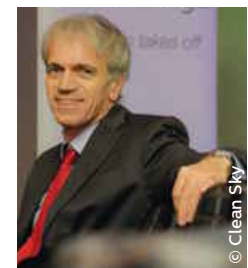
Article: Heather Couthaud

Clean Sky is a joint undertaking of the European Commission and the European aeronautics industry (Airbus, Airbus Helicopters, Fraunhofer, Saab, Liebherr, Rolls Royce, and others), and is part of the EU Horizon 2020 research and innovation programme. Its mission is to develop innovative, cutting-edge technology with the goal of making a substantial positive impact on noise reduction, CO₂ emissions, and fuel economy.

With a budget consisting of contributions on a 50/50 basis, made by the Commission and the aeronautical industry, Clean Sky delivers technology demonstrators in all segments of civil air transport, grouped into areas called integrated technology demonstrators (ITD).

Under the management of the Clean Sky Joint Undertaking (CSJU) the programme’s first phase, Clean Sky 1, put each ITD under the leadership of two industry leaders. Examples of successful demonstrators include Airbus Helicopters’ Bluecopter which, by optimising the design of certain shapes on the fuselage of an H135 helicopter, successfully showed improvements in drag

reduction; and the Tech 800 demonstration engine, which showed advances for small- and medium-size helicopter engines with savings of 15 percent fuel burn. “Such demonstrators incorporate mature technology – developed through the talent of industry, universities, research centres and small and medium-size enterprises – into full-scale demonstrators. The result is a rapid evaluation and testing that helps bring advanced levels of maturity to projects’ designs and techniques,” said Éric Dautriat, Executive Director of Clean Sky. “With this, the hoped-for end result is implementing innovative technology in future products and markets.” The technology of the Tech 800 demonstration engine, for example, was integrated into the product development of the new Turbomeca ARRANO engine, recently selected as the engine of Airbus Helicopters’ H160. Following on the progress of CS1, Clean Sky 2 – which represents a budget of €4 billion over seven years (2017 to 2024) – will deliver break-through technology which will be incorporated, from 2025 onwards, into future generations of aircraft. ■



Éric Dautriat,
Executive Director
of Clean Sky.

UP ABOVE





© Jean-Marc Kessely – An H135 on the deck of the super yacht Vanish in front of the Nederlands Scheepvaartmuseum (Amsterdam).

MISSION

1



© Jason Franson/CP

2



© Paul Spring - Phoenix Helicopter Flight

3



© Paul Spring - Phoenix Helicopter Flight

Aerial fire fighting in Canada

On 1 May 2016, one of the worst wildfires in Canadian history broke out in the Fort McMurray area of northern Alberta. Paul Spring, president of Phoenix Heli-Flight,

Peter Jordan, base manager at Highland Helicopters, Fabien Moreau, pilot with Wood Buffalo Helicopters, Ryan McAssey, president of Vortex Helicopters, and Vortex chief pilot Todd McCormack, talk about their companies' efforts fighting the fires from on high.

Article: Heather Couthaud

During your time in the Fort McMurray area, this must be the most personal fire you've had to fight.

Paul Spring: You can't let it become overwhelming. There were times when you had to sit down and compose yourself, because you saw the effect on the people and on the town. The first two days were probably the worst because of the shock of losing so many houses. But we got into a rhythm, and you started to realise how much of the town was actually left. The core infrastructure of the town didn't get damaged. But we were all displaced by the mass evacuation.

Peter Jordan: Fort McMurray is my home. I have lived and worked in the area for 15 years. While we have had numerous forest fires in the past, this one was extremely close to the city, making it a very personal issue with regards to both family and professional responsibilities. My role as base manager was to ensure that my aircraft were ready and available, should the call come; my role as husband and father was to ensure the safe evacuation of my family.

What are some of the stresses on machines and people in a wildfire?

Todd McCormack: The stress was more due to the number of hours we were flying. Physically, it was taxing. The helicopters performed like they were supposed to. We had FDC air filters. Maintenance crews inspected them at night, and there'd be lots of ash and tree particles, twigs, and leaves. The engineers cleaned them once a week or more, and we had brand-new filters, so we weren't keeping the aircraft on the ground at all.

P. S.: Our pilots were required to have some time to rest. We're only allowed to work a 14-hour clock day, of which we're only allowed to fly for eight hours. For the first three days of a major fire, you can be ten hours in the air. After three days, it reduces to eight hours max flying per pilot until you have a day of rest, and then you go back to three tens. And our maintenance staff shifted over. Besides one person working the day shift, all of our maintenance staff were working the night shift. We'd bring the machines back and they'd work all night.

Could you describe what was going on in the air?

P. S.: We'd never seen a fire in such an urban environment. Our job was to keep the fire from getting into new

subdivisions. The H135 was busy with the evacuation of the hospital. The machine moved a couple of times as the medical clinic moved; there was a second evacuation because the fire turned and started going towards the camp everybody had evacuated to. The H120s were probably the busiest helicopter out there, flying eight hours every day, because they do a command and control service with a pilot and a forest officer. There may be up to eight heavy and intermediate helicopters three hundred feet below you. You pick out their targets for them, stagger their fuel rotations. You make sure they don't go over their flight time requirements. The H120 would fly about three hours per sortie, and then we'd go back and get fuel. Then you'd go back up and do another two or three hours. We'd have a rest while another HelCo (helicopter coordinator) would take over our group of heavies.

Fabien Moreau: I remember having to use roads, power lines and buildings to figure out where I was, the visibility was so bad due to the smoke. There were helicopters everywhere, with the non-local pilots struggling to find their way, and you could hear on the radio some instructions from pilots guiding other pilots: "Follow that road and turn right at the second set of lights."

Did any particularly vivid moment stand out for you?

Ryan McAssey: People water-bucketing the Ft. McMurray city hall, trying to save the communications centre. And the evacuation. All directions of the highway evacuating to the south. Seeing the people who were unprepared, with no fuel and no food, and vehicles abandoned on the highway. People on their motorcycles on the highway who had run out of gas. It stretched out more than 100 kilometres. That was probably something I won't see again. ■

1 - At the wildfires' height, between 80 and 90 helicopters were dispatched to fight one of the later fires. Of these, roughly 40 aircraft were from the Airbus Helicopters range.

2 - Phoenix Heli-Flight's Airbus Helicopters fleet comprises the H120, H125, H130, H135, AS350 and AS355.

3 - The fire in Fort McMurray resulted in the destruction of nearly one tenth of the city and forced the evacuation of approximately 80,000 residents.



Read the complete article in Rotor online

A race on land and on high

Guard rails are sprouting up all along the coast. Streets have been transformed into speedways, corners have become chicanes, the tunnel is a giant drum reverberating with the roar of V12s. Welcome to the 63rd Monaco Grand Prix, which mobilises a city, a country, a principality. And an operator: Monacair.

Article: Alexandre Marchand – Photos: Anthony Pecchi

Since 2009, Monacair has committed its entire fleet of H135s, H145s, H155s and Dauphins to carry Grand Prix participants and spectators safely to their destinations. They offer on-demand flights all over the Mediterranean coast, from Cannes, Le Castelet and Saint-Tropez, and as far afield as Geneva, Genoa and Milan ... and even to and from pleasure boats. Then there's the regular Nice-Monaco route, for which Monacair won the contract to operate from 1 January 2016. Six H130s are allocated to round trips. "Visibility, soundproofing, level of vibration... H130s are popular with our passengers," says Patrick Domenech, the operator's chief pilot. "The helicopter's layout, with two passenger seats in the front and four in the back, means that we don't have to split up couples. It's a small but important detail." The helicopter is not only perfect for passengers, it's also perfect for the residents of Nice and Monaco: it knows how to be discreet.

MEETING DEMAND IN RECORD TIME

From the Thursday before the Grand Prix, the Nice-Monaco route is beefed up to meet increased demand. But the real rush comes on Sunday, a day that starts with a bang at 7 a.m. The ten pilots called into action meet in the Monacair operations room. The battle plan is reviewed. Two H130s, one H145 and a B2 are flying the Nice route. Another two H130s are flying to Saint-Tropez, and the last two to Cannes, for on-demand flights. As soon as a helicopter is free, it goes back to the regular route to help soak up the constant flow of passengers.

By 10 a.m, about a hundred passengers have been transported to Monaco. Then a severe storm breaks

over Nice. The authorities take the exceptional step of closing the airport. Operations have to be suspended for 90 minutes. By 11:30, the clouds have scattered. The sky is clear, and operations resume from the "Mike" landing zone. In groups of six, passengers pour onto the H130s. Doors closed and locked, the helicopters rise rapidly, ascending to 300 feet (about 100 m) while banking right toward the sea to reach Tango Echo point. The procedure is well established: continue the ascent to 500 ft. There, authorisation for Echo Alpha point is given by air traffic control, which is monitoring the helicopters on the transponder. The Nice tower frequency has been left behind, and it's hello to Monaco on 124.00: "Coming in from Nice with 6 passengers on board, we'll need to refuel when we land." The Monaco tower is in charge of the six pads and two platforms available for helicopters. Half are dedicated to Monacair's operations. The approach to the heliport is direct, perpendicular to the sea wall to minimise nuisances, but it's never easy. The wind that twists and turns between the seafront buildings becomes turbulence when it reaches the shore. The lightweight helicopters shake gently as the pilots battle the wind, which is never head-on. For a few seconds they seem to hang between sky, land, and sea, but already the skids have touched the concrete. It's only been seven minutes since take-off from Nice. The passengers disembark and the refuelling truck approaches. The pilot asks for 220 kg, enough to make three round trips carrying six passengers. At 4 p.m, as soon as the Grand Prix is finished, the race starts all over again for the helicopters, this time flying from Monaco to Nice. ■

- 1 – Gilbert Schweitzer, CEO of Monacair.
- 2 – Since January 2016, Monacair has been flying six H130s. Their level of comfort makes these helicopters very popular.
- 3 – Monacair's helicopters can be chartered for flights to all the main centres in the Mediterranean region, from Cannes to Milan.
- 4 – The H130 is not only valued by passengers—residents also appreciate its low sound footprint.
- 5 – The approach to the Monaco heliport is never easy, due to turbulence created by the seafront buildings.
- 6 – Energetic and competent, the Monacair team is ready for the 64th Monaco Grand Prix. See you in 2017!



1

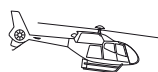


2



3

H130



- Capacity: 1 pilot + 6/7 passengers
- Engine: 1 Turbomeca Arriel 2D
- Max. cruise speed: 237 km/h (128 kts)
- Range: 617 km (333 NM)
- Endurance: 4 h



4



5



6

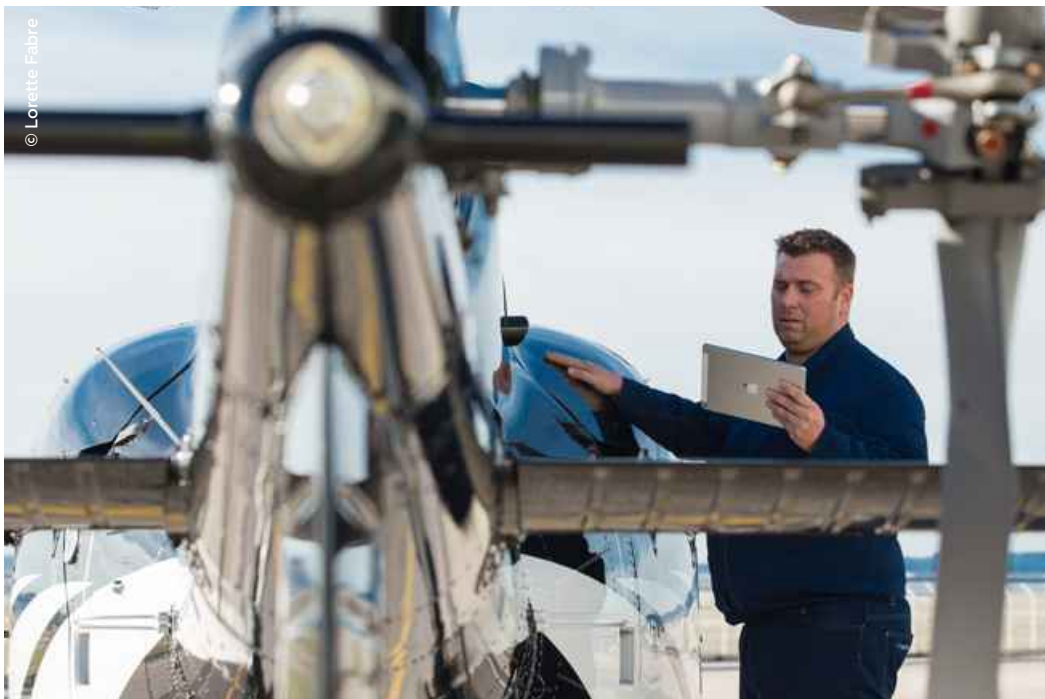
Technical documentation, at the heart of a helicopter's life

Technical documents follow helicopters throughout their operational life, and improving them is one part of Airbus Helicopters' top company objectives. Airbus Helicopters makes significant efforts to produce high-quality technical documentation, and to adapt such documentation to information technology and users' needs.

Article: Alexandre Marchand

1 For who, and for what purpose?

We usually speak about "technical data" or "technical manuals." Their goal is to provide end users with the technical and logistics data to enable them to operate and support their helicopters using data supplied by Airbus Helicopters' Design Office. This accounts for 100 different types of technical documents, belonging to three main categories: crew manuals (including, for example, the flight manual), maintenance manuals (for workshops) and the illustrated spare parts and maintenance tool catalogue (for logistics departments). Airbus Helicopters' technical documentation is distributed to more than 3,400 users worldwide, resulting in 20,000 subscriptions to customers, MRO centres, authorities and others (universities, engine manufacturers, etc.). ■



2 Online services

After the days of heavy paper-based documentation and the first digital media on CD-ROM, now is the time for digitisation, with Tech Data fully available online. Since 2014, Airbus Helicopters' Internet portal for customers, Keycopter, includes access to technical documentation, new online publications and new services (an eTechPub app for iPad, downloads of O.R.I.O.N.⁽¹⁾ Light, data extraction from O.R.I.O.N., etc.) for an increasing number of users. ■

(1) O.R.I.O.N. : Optimized Reader for Internet and Other Networks

Do you speak Tech Data?

Airbus Helicopters' efforts are focused in particular on improving the quality of translation and harmonising technical reference terminology. Today, technical documents are available in English and, according to the helicopter type, in the other languages employed professionally at Airbus Helicopters (French, German and Spanish). Other translations are produced to meet the specific needs of certain customers.





3

A better interface between services

In the framework of Airbus Helicopters' corporate transformation plan, a first wave of projects allowed the company to improve its setup procedures for technical documentation. Efforts have been focused on better synchronisation between support activities and the Design Office, with a goal of providing, at the moment when it's required, the information the customer needs to operate their aircraft.

This requires coordinating the schedules for design (supplying the technical data), certification (approving a modification) and Tech Data detailing the operational activities to be performed by customers. A second wave of improvements applies to mobility and accessibility. ■

4

Greater accessibility with O.R.I.O.N.

The entire complement of technical documentation is published on Keycopter, in the form of PDFs for legacy aircraft, or in O.R.I.O.N. for more recent helicopters. By the end of the year, a new version of O.R.I.O.N. will offer the possibility of consulting technical documentation on a digital tablet featuring specially-adapted ergonomics. Moreover, technical documentation – PDFs or O.R.I.O.N. – will be downloadable to PC or iPad for later use with no Internet connection (offline mode). These consultation modes will not only enable customers to carry out their maintenance work in workshops in online mode with the latest up-to-date data, but also to troubleshoot an aircraft in an emergency situation in an area without any Internet coverage. ■



5

Better sharing with customers

Customer focus groups are the opportunity for Airbus Helicopters to exchange and validate Tech Data improvement actions with its customers. In addition, webinars (seminars on the Web) are organised in order to explain the changes and provide for efficient use of O.R.I.O.N. With a minimum of two sessions a month, Airbus Helicopters continues to expand its efforts to make the use of O.R.I.O.N. more widespread. ■

Supporting those who protect us

The creation of the Military Support Centers in Germany and France: two stories, one approach.

Article: Alexandre Marchand



© Anthony Pecchi

WHY WERE THE MILITARY SUPPORT CENTERS CREATED?

The Military Support Center Germany was founded in 1991 to provide targeted support to a large fleet of aircraft operating in Germany but which were manufactured by another OEM. Today, the MSC Germany has established its position as the System Support Center for the German Armed Forces, covering the complete helicopter spectrum. In addition, MSC Germany permanently supports the German Armed Forces at seven different sites in Germany and worldwide, in the event of a deployment.

The situation is somewhat different in France where, for a long time, most of the aircraft forming part of the state fleets were made in France; the customer also has its own in-country industrial stakeholder in the form of the Service Industriel de l'Aéronautique (SIA), the state-owned aviation workshop group. The MSC France only came into being on 1 January 2015: its creation was an essential part of Airbus Helicopters' transformation plan, and its brief was to respond to the convergence of three lines of action: high-cycle operations, the simultaneous management of a number of modernisation programmes, and the entry into service of a new generation of aircraft. ■

WHAT IS THE INDUSTRIAL APPROACH UNDERPINNING THEIR CREATION?

In both France and Germany, the Military Support Centers owe their existence to the need to provide government customers with better service, to analyse their needs, and to pool all support activities together in a single entity. In regards to the necessity of responding to customer expectations in terms of helicopter support and fleet availability, the MSC France defined and developed an action plan called the Industrial Performance & Improvement Plan (IP2). This plan draws on around five million euros of investment for the adaptation of industrial and IT fleet management resources, and for sectorial restructuring and reinforcement. The ultimate aim is to cut downtime by 35 to 40 percent, depending on the aircraft, and to raise the quality rate.

The MSC Germany also offers a broad range of services. In addition to MRO (maintenance, repair and overhaul), logistic and training activities for all German helicopters, MSC Germany offers engineering capacities, as well as those of software and system analysis, to perform complex helicopter avionics and structure upgrades, modifications and repairs. Furthermore, the MSC Germany offers different partnership packages to the German customer. As a major part of the transformation plan, MSC Germany is also currently working to further industrialise maintenance and to drastically increase the serviceability of the German Armed Forces. ■



© Charles Abarr



WHAT ARE THE KEY ACTIVITIES OF THE MSC IN THE YEARS TO COME?

Since 2016, the MSC Germany has been engaged in the retrofit of the NH90 fleet. The ramp-up of maintenance activities in parallel with the performance of the retrofits will be one of the future challenges for this fleet, as well as for the Tiger. The MSC Germany is also offering a plan to eliminate obsolescence of the CH-53GS/GE and to upgrade 33 Tigers to ASGARD standard, with 12 having already been successfully modernised. The production of the NH90 NFH (NGEN) helicopters to replace the Sea King Mk41 is ongoing. The first flight of this variant is expected for 2016 and the MSC Germany is ready to support its integration into the German Navy. MSC Germany will also assist the campaigns for next-generation aircraft (a heavy transport helicopter for the Air Force and the Sea Lynx successor for the Navy), and will offer the required support.

In France, the 2016-17 period will see the renewal of major MCO contracts for the Tiger, the NH90, the Caracal (including CAMO support) and multi-platform retrofits for the NH90 and Tiger, as well as the Cougar PBH, Gazelle, Puma and Alouette. Building on the review process undertaken as part of the Helicopter Action Plan, the setting-up of new contracts could well provide an opportunity to extend the scope of cooperation to include, for example, the monitoring of airworthiness and logistics management. Finally, Airbus Helicopters has proposed performance-based contracts guaranteeing parts and/or aircraft availability. ■

WHAT ARE THE MSCS' MAIN PROGRAMMES?

In Germany, the MSC launched the NH90 retrofit this year while Tiger maintenance activities are ramping up. Furthermore, the MSC Germany will soon finalise the modernisation of 40 CH-53GAs. MSC Germany started offering its performance-based cooperation for the entry into service of the H145M at Laupheim Air Base. Another example is the creation of a Joint Support Management Organisation (JSMO) in June 2016, offering support for the German Navy's Sea King Mk41s at Nordholz Naval Air Base.

The main programmes in France are the modernisation of the French Army Light Aviation's (ALAT) Cougar fleet and the MCO ("maintain in operational condition") of the 50 EC145s operated by the French Gendarmerie and Sécurité Civile. A number of other modernisation projects will also be carried out on the rest of the range, such as Gazelle weapon system development and kit supply, Tiger HAD retrofits, NH90 retrofits, and H225M Caracal new mission systems development. ■

KEY FIGURES

MSC Germany:

MSC Germany permanently supports the German Armed Forces at seven different sites in Germany and worldwide, in the event of a deployment.

270 aircraft accumulating 36,000 flight hours a year.

Providing support for: NH90, Tiger, CH-53, Sea Lynx Mk88A, Sea King Mk41, Cougar, EC135, EC145, H135, H145M

MSC France:

Besides aircraft maintenance, MSC France ensures a wide range of support services as needed to cope with the widespread support requirements of the large French fleet.

600 helicopters accumulating 68,000 flight hours a year.

Providing support for: NH90, Tiger, H225M Caracal, H225, H215M, H125M, AS365 N3, AS565 MB, Gazelle, Puma, Panther, Alouette

Ten years of cooperation with Korea

The cooperation between KAI and Airbus Helicopters began ten years ago, in 2006, with the development of an 8.7-tonne utility aircraft: the Surion. More than 50 helicopters have been delivered to date.

Article: Alexandre Marchand

It all began in 2005, when Korea issued an invitation to tender for the development of the 8.7-tonne Korean Utility Helicopter (KUH), in cooperation with local manufacturer Korea Aerospace Industries (KAI). Airbus Helicopters secured the bid with its proposal for a platform based on the Cougar family.

The challenge was, first and foremost, a technical one: the Koreans were still fairly new to rotorcraft, and the aim was to offer support with developing the aircraft while ensuring its qualification at the requisite performance levels. Airbus Helicopters took on a dual role as a consultant, transferring document technology and providing technical support, and as a supplier, delivering key features such as the future aircraft's transmission systems and autopilot.

A SUCCESSFUL COLLABORATION

However, the challenge was also a human one, as transfer technology head Isabelle Vardon explains: "The Koreans were used to working with the Americans, and it was our first major contract in Korea. The language barrier and the differences in terms of culture and working methods threw up plenty of problems to begin with, though we gradually managed to overcome them."

In the middle of 2006, a common KAI/Eurocopter engineering facility was set up at Marignane, France for a period of one year, while technical support was provided in Korea between 2006 and 2012. At its height, this cooperation saw some 40 engineers working in Sacheon; around 150 people spent time there in total. "In the end, the KUH Surion programme proved to be a very successful collaboration," comments Philippe Beurton, the head of the Korea cooperation programmes. "Our points of contact really surprised us with their ability to put the necessary resources in

place very quickly. Though the list of tasks was long, they attained qualification by the deadline fixed at the launch of the programme."

Over 50 aircraft have been delivered to date, most of them to the ROKA (Korean Army), with five KUH configurations having received or in the process of receiving qualification from KAI (police, fire fighting, forest protection, EMS, amphibious). Korea has estimated that it will need around 300 aircraft in total.

A NEW CHALLENGE

The success of that collaboration was undoubtedly an influential factor when a new invitation to tender was issued in 2013, for the development of a five-tonne-class aircraft in two versions: the LCH (Light Civil Helicopter) and the LAH (Light Armed Helicopter). Once again, Seoul chose Airbus Helicopters, in partnership with KAI. The LCH and LAH will be based on the H155 (an aircraft that proved its versatility with civil and military applications) and will comprise new features (the main gearbox [BTP-R] and the nose section, with KAI manufacturing the latter).

Responsible for the certification of the LCH, Airbus Helicopters will also support KAI in the development of the LAH version. Both complex and ambitious in nature, the contract envisions the certification of the first version in 2020 and the qualification of the second in 2022. The aircraft will be assembled in Korea, with the assembly line being transferred there from Marignane. As far as both Airbus Helicopters and Airbus Group are concerned, however, the story is far from over. Airbus Helicopters is in discussions over possible developments, such as the KMOH – the naval version of the Surion – while the Group also has much to discuss in terms of future collaborations in the field of satellites and mission aircraft. ■

The final assembly of the LCH and the LAH will be done in KAI's facilities in Sacheon, using kits sent from Airbus Helicopters in France.



1 - In the end, the KUH "Surion" programme proved to be a successful collaboration.

2 - The certification of the LCH will take place in 2020 and the qualification the LAH in 2022.



2

NEPAL

Rescues on the roof of the world

The legendary Italian mountaineer **Simone Moro** recently purchased his **first new H125**, in order to continue rescuing people who – like him – take their passion for climbing to the limit in the Himalayas.

Article: Belén Morant



PROJECT 2.0

Simone established Altitude Helicopter in San Diego, California, offering training to pilots from around the world, including from regions and countries he'd visited while climbing.

Altitude Air started in 2016 in Nepal to follow the path that Simone had forged with the H125 belonging to his friend Carminati. However, this time he wanted to have his own Nepal-based company, leading him to start up a business

with strong and trusted local partners. The H125 will mainly perform rescue missions at high altitudes, fly charter flights and transport pilgrims. In low season, he will also carry out aerial work with slings. "As a good Italian, I'd love to fly an aircraft built in my country. In the meantime, the H125 is the only helicopter capable of performing these types of missions at such high altitudes."

"I ordered my new H125 using a satellite telephone at an altitude of more than 4,000 metres while I was at Nanga Parbat base camp in Pakistan during the first winter ascent climb in January 2016. That purchase was a combination of my two passions: mountaineering and helicopters."

Simone Moro, Italian mountaineer





© Altitude Air

THE WHIMS OF DESTINY

Simone Moro's life changed on 25 December 1997 during an ascent of Annapurna. An avalanche left him and his companions buried under the snow: two lost their lives, but Simone fought to survive and when he reached base camp, was saved by an H125 operated by the company Fishtail Air. "I began to reflect on the crucial role the helicopter played and how lucky I'd been. Twelve years later I made a decision: I went to the U.S.A. and trained to be a pilot. I did my CPL-H training and got a turbine transition in only 69 days," explains Simone. "After an EASA license conversion and enough flight hours, I started working in Nepal with the operator that had saved my life. My knowledge of the mountain allowed me to take them to the places where climbers have the most difficulties. The world of helicopters became my parallel life." Simone was keen to have his own helicopter, eventually acquiring his first H125 second-hand in 2012 thanks to financing and assistance from the family of his friend, Gianni Carminati. After getting through the red tape, Simone eventually managed to transport his H125 to Nepal, where it flew intensively with the Fishtail Air fleet until it was involved in an accident and written off. With all this experience under his belt, Simone decided to take the plunge and buy his first new H125 to continue the work he had begun with the old H125 in Nepal: helping the locals and their economy as well as climbers who, like him, risk their lives to conquer the world's most coveted peaks.

On the ground



© Altitude Air

SLING RESCUES AT HIGH ALTITUDES

- **Altitude:** 7,800 metres
- **Location:** Mt. Everest
- **Challenge:** A climber who had both arms amputated requested assistance by radio while returning exhausted from climbing Mount Everest. Simone's H125 (piloted by his team pilot Maurizio Folini) remained in hover to raise him with the sling and carry him safely back to base.



© Altitude Air

ENGINE START AT HIGH ALTITUDE

- **Altitude:** 5,300 metres
- **Location:** Mt. Everest
- **Challenge:** After being forced to interrupt their flight due to intense fog, the team decided to turn off the engines given the limited amount of fuel that remained. They spent the night in Simone's tent and kept the battery warm in sleeping bags. In the morning, the H125's engine started up at once.



© Altitude Air

HIGH ALTITUDE TAKE-OFF PERFORMANCE

- **Altitude:** 8,600 metres
- **Location:** Mt. Everest
- **Challenge:** Two climbers had gone missing. Simone flew an H125 with pilot Enrico Cereia on a scouting mission near the summit. The climbers returned safely on their own, but the aircraft's performance prompted a later flight with more weight: three people plus video equipment.

THINK BUSINESS

When it comes to gaining a competitive edge in commerce, you simply need the best. With our helicopters, you will fly faster and more safely, while enjoying greater comfort and reliability.
Invest in an H130.



Important to you. Essential to us.

