No. 128 - OCTOBER 2022

ROTOR BY

AIRBUS HELICOPTERS

IN THEIR WORDS
It is all thanks to you

PROFILES
30 years of developing careers

OFF THE BEATEN TRACK
Behind the scenes with Fred North

Pioneering Collaboration

OPERATORS IN CHILE AND JAPAN PARTNER UP WITH AIRBUS FOR UAM SERVICES AS CITYAIRBUS NEXTGEN BREAKS NEW GROUND

Helicopter operators who have an interest in advanced air mobility services have decided to partner the Company for future zero emission flights with CityAirbus NextGen. Japan's Hiratagakuen aims to develop advanced air mobility services in the Kansai region and beyond, with a particular focus on non-urban environments. Airbus and Hiratagakuen will jointly tackle crucial aspects required to launch a commercial transportation service, specifically with the CityAirbus NextGen. Meanwhile in Chile, Airbus and Ecocopter signed a Memorandum of Understanding to collaborate on the launch of urban air mobility services across various Latin American countries, notably Ecuador, Chile and Peru. Construction has also begun at Airbus Helicopters' Donauwörth site on a test centre dedicated to CityAirbus NextGen. The building is scheduled to be completed in the first quarter of 2023.

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H160 LANDS IN BRAZIL AND FLIES ITS FIRST MISSIONS IN JAPAN

With a healthy order book covering almost every mission segment, momentum around the H160 programme continued its growth over the summer. The world's first ACH160 was delivered to a private customer in July and immediately began operating, becoming the first H160 to fly in Latin America. With over 70% of the Brazilian market share, Airbus Corporate Helicopters (ACH) offers highly desirable products for the country's private and business aviation customers and the early indication is that the ACH160 will be no different. A further programme milestone was reached in Japan, as All Nippon Helicopters' first H160 began its operations as a journalistic 'eye in the sky' for national television stations.

Groundbreaking

WORLD'S FIRST H145 VIRTUAL REALITY SIMULATOR IS IN THE WORKS

Airbus Helicopters and VRM Switzerland have announced that they are working together to develop a Virtual Reality (VR) training device for the twin-engine H145 helicopter. This innovative new tool will offer H145 operators an affordable, compact solution with realistic flight behaviour and full-body immersion, as well as the 3D vision and high-resolution scenery of VR technology. This collaboration follows the same companies' co-development of an H125 VR training device that was EASA-qualified in 2022 enabling pilots to train realistically and execute complete proficiency checks on the simulator.

SPANISH TIGER GETS ITS TEETH INTO SAF

Mid-July saw Spain's first-ever flight of a helicopter fuelled with SAF which took off from Airbus Helicopters' Albacete facility. The flight, conducted with a Spanish Army Tiger, featured a 50% SAF blend in both MTR390-E engines. Today, all Airbus helicopters are certified to fly with 50% SAF in their fuel while maintaining the same level of performance. In 2021, 100% SAF flight campaigns were launched to study the impact of this sustainable fuel on the different helicopter systems. Airbus Helicopters' stated ambition is to be able to use 100% SAF by 2030, which could lead to a reduction of up to 90% in CO_2 emissions.

Growth

LCI TO BUY SIX H175 HELICOPTERS

LCI, a leading aviation company, subsidiary of the Libra Group and long-term Airbus customer, announced an order in late July for up to six H175 super-medium helicopters from Airbus. The order is for two confirmed aircraft with the first set to be delivered to LCI in late 2023. The agreement provides for a further four options, and builds on LCI's previous order for new H175s. The H175 first entered service in 2015 and combines long-range capabilities with smooth flight qualities, excellent payload and cabin comfort. It is a highly versatile, super-medium aircraft that can operate in a range of different configurations.

© Airbus Helicopters


© Airbus

CHARITY CHOOSES THE H135 FOR ITS FLEET RENEWAL

London's Air Ambulance Charity (LAAC), the helicopter emergency medical service (HEMS) for the UK's capital, took the occasion of the Farnborough International Airshow to order two Airbus H135 helicopters. With the need to address fleet renewal, the two aircraft will be delivered in 2024 and will operate primarily from LAAC's helipad base at the Royal London Hospital in Whitechapel, which is one of the busiest HEMS bases in Europe. LAAC's advanced trauma team treated 1,713 patients in 2021. The H135 is the market leader in emergency medical services (EMS) worldwide and can be fitted with a wide range of EMS configurations, providing direct access and ample room for patient care.


©DR

CYPRIOT NATIONAL GUARD TO RECEIVE NEW AIRBUS ORDERS

The National Government of Cyprus has signed a contract with Airbus Helicopters for the purchase of six H145Ms with a further option for another six aircraft. The five-bladed helicopters will be operated by the Cypriot National Guard. The H145M is a multi-role light utility military helicopter. Derived from the civil H145, the latest version of the H145M features a new, innovative five-bladed rotor that increases the helicopter's payload by 150kg. Equipped with the Airbus HForce weapons system, the H145M can be operated as a light attack helicopter.

© Brazilian Air Force

BRAZIL'S ARMED FORCES SIGN UP FOR 27 H125 HELICOPTERS

The Brazilian armed forces have signed a contract for 27 single-engine H125 helicopters to boost the training capacity of the Brazilian Navy and the Air Force. They will be produced in the H125 final assembly line located in Itajubá, Brazil at Helibras' factory. The new H125 helicopters will have a G500H TXi double-glass cockpit and VEMD (Vehicle & Engine Multifunction Display) and will be compatible with the use of night vision goggles (NVG). They will also include different types of mission equipment such as a winch and a hook so that the training of future pilots is as representative of their missions as possible.

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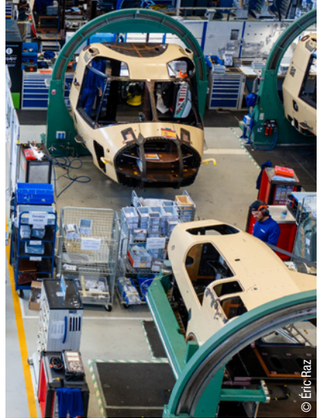
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Bruno Even, CEO of Airbus Helicopters

"We can reflect upon our history and use it as a source of inspiration."

Since September, across our four main European sites, we have been celebrating the 30th anniversary of the merger between Aerospatiale and MBB into Eurocopter — becoming what we today know as Airbus Helicopters. The fusion of these two aerospace players brought together knowledge and technologies which would facilitate even more progress. Airbus Helicopters offers the largest range of products on the market, while innovation remains at the heart of what we do.
We can reflect upon our history and use it as a source of inspiration. Today our unique industrial cooperation supports our determination to constantly offer more to our customers and operators. Utilising the skills and experience of our employees throughout France, Germany, Spain and our customer centres all over the world, our site specialisation increases quality and efficiency. This agglomeration of expertise from across our industrial sites is crystalised in our H160 — a helicopter packed full of innovations and also assembled in an innovative way.
Our history of success is exemplified by the delivery of the 7,000th Ecureuil. It is the very same helicopter that allows Fred North to capture such incredible images in the film industry. Fred and his trusty H125 have created unforgettable scenes in some of the world's biggest movie franchises and we are lucky that he could share some insight from his incredible career.
I would also like to thank our colleagues. There simply isn't space in a magazine to feature the thousands of people who make such a huge contribution to our activities but we can share a selection of stories which represent the passion and dedication that are at the core of our company. We can see how over the last 30 years, our people have evolved in their careers and abilities. Together, we have improved, refined and delivered, time and again.
Another reason that we are still here and thriving, 30 years on, is our customers. Whether it is militaries, coast guards, healthcare or private enterprises, our operators are delivering day in, day out. They rely on our helicopters for truly vital operations and we must work to ensure that they are available whenever required. We must ensure that we offer robust support packages — especially for our legacy fleet, on which operators around the world continue to depend.
For 30 years, industrial cooperation has been at the heart of our success and as we look ahead to exciting milestones and new technologies appearing on the horizon, we are confident that it represents the foundation of further success in the future.

450
harnesses measuring 26.5 kilometers are contained within the H160.

60,000
ATTENDEES
at Airbus Helicopters Pioneer Day events across its four main sites.

156
HELICOPTERS
in service with the Brazilian military.

1st
Light Civil Helicopter (LCH)
delivered to a local operator, Gloria Aviation by Airbus and Korea Aerospace Industries.

100th
H135
delivered in Japan.

1,000m²
the size of the purpose-built test centre for the CityAirbus NextGen.

4,000,000
PARTS
delivered per year by 1,540 suppliers.

1 + 1 = 2
The first ACH130 Aston Martin edition sold in Latin America and the first one delivered in the US were announced at NBAA.

2,300
ASSEMBLY OPERATIONS
are required to assemble one H225.

30
YEARS
since the support centre for military helicopters was founded in Germany.

Pioneering collaboration for 30 years

When MBB and Aerospatiale merged to form Eurocopter, each entity brought with them unique innovations which could be combined and integrated to produce game-changing new helicopters that would drive the new company to become a market leader. Today this spirit of innovation and cooperation remains embedded in the heart of the company and has grown.

Articles: Heather Couthaud, Alexandre Marchand and Ben Peggie

© Eric Raz

Site specialisation is an essential part of Airbus Helicopters' plans to prepare the future. Whether it is the blades, gearboxes, fuselages or Fenestrons, each site continues to innovate, improve quality, enhance sustainability and increase efficiency; ensuring that the products the company delivers are vastly more than the sum of their parts.

Disruption comes quicker than you would think

Tomasz Krysinski, Airbus Helicopters' Head of Research and Innovation, reflects on a history of innovation and optimistically looks to a future of new sustainable technology.

© Lorette Fabre

© Light&Shadow

1: The H160M benefits from the most modern technology.

2: The groundbreaking Alouette was an early success.

HOW HAS THE PARTNERSHIP BETWEEN AEROSPATIALE AND DEUTSCHE AEROSPACE, THAT CREATED AIRBUS HELICOPTERS, ENHANCED INNOVATION?

Tomasz Krysinski: Our products are a mixture of the best innovations that have stemmed from the legacies of both Aerospatiale and Deutsche Aerospace. The Tiger has excellent rotors thanks to its MBB (Messerschmitt-Bölkow-Blohm) heritage and benefits hugely from Aerospatiale's Sarib suspension. If you look at the five-bladed H145, for example, it benefits strongly from another two Airbus Helicopters firsts; the Bearingless Main Rotor (BMR), which is robust, vibration free and increases the MTOW, as well as the Fenestron, which enhances safety and reduces noise significantly. Crucially, at Airbus Helicopters, ideas can come from anywhere, either internally from any of our colleagues but also from external sources, such as start-up partners—so we innovate collaboratively too. The RACER, which is another example of our disruptive technology, is a European project involving 42 partners from 13 countries. This opens the door to new suppliers and new approaches. It will be the same thing for UAM.

WHAT ARE OTHER KEY DRIVERS OF INNOVATION?

TK: We go from an idea to experimentation, as quickly as possible. Our innovation framework is always based on three time frames. In the short term, we currently have 12,000 helicopters flying, so we must continue to propose solutions to our customers which upgrade and improve their in-service fleet. Mid-term we look to prepare new products and longer term, we look to introduce the disruptive mobility solutions of the future. Innovation is also about new solutions finding a market. The first revolution in our industry was when someone paid for a ticket to be able to cover a lot of distance quickly for their work. A car would have taken hours, a plane took 20 minutes. The second was when a turbine engine was introduced, allowing helicopters to fly a diverse range of missions, saving lives, connecting people, protecting people and flying everywhere. Innovation is about people. With our history of innovation, a pioneering spirit has always formed part of Airbus' DNA. The courage, creativity, ingenuity and dedication of the next generations will be essential to ensure we continue to deliver valuable solutions to our customers and operators.

WHAT'S COMING NEXT?

TK: We are working on solutions in many fields: new sensors, radars, LIDARs and cameras. These open the door to new functionalities, such as detecting obstacles and offering greater awareness. A pilot's workload will be reduced so that they can focus more on the mission. In many areas we can make significant improvements to the architecture of the aircraft. For instance, completely new rotor systems which reduce drag and require fewer components (for improved and simplified maintenance), a Fenestron with much fewer pieces, a new active isolation system, which would cancel vibration in the cabin. The most important thing on the horizon is our industry's third revolution—sustainability—and we have an ambition to be a leader in this field. Technology, such as electrification and hybridisation, is arriving which will make helicopters safer but also make sure that rotor wing aircraft fly sustainably. In the last 30 to 40 years we reduced fuel burn by 50%. In the next 10, we have a target to do exactly the same. Disruption comes quicker than you would think. If you think about New York in the 19th century, the main mode of transportation was horses—it did not take long before the streets were full of cars and petrol stations. Ten years ago, people had doubts about electric cars and now look how many there are.

© DR

H160 How to build a game-changer

Ground-breaking manufacturing methods, workplace ergonomics, and short time to market cycles… Industrial innovation at Airbus has hit its stride. And the H160 is leading the pack.

1: Benjamin Holveck, H160 Industrial Officer.

2: Hervé Brugeaud, Head of Product for H160 and H175.

3: Components arrive in Marignane for assembly and testing - saving time.

4: On the transformed shop floor, large structures lift and rotate at eye level.

5: A close up inspection of the Fenestron.

6: Thanks to site specialisation, by 2025 the H160's final assembly lead time is expected to be just 50 days.


© Thierry Rostang


© Hervé Brugeaud

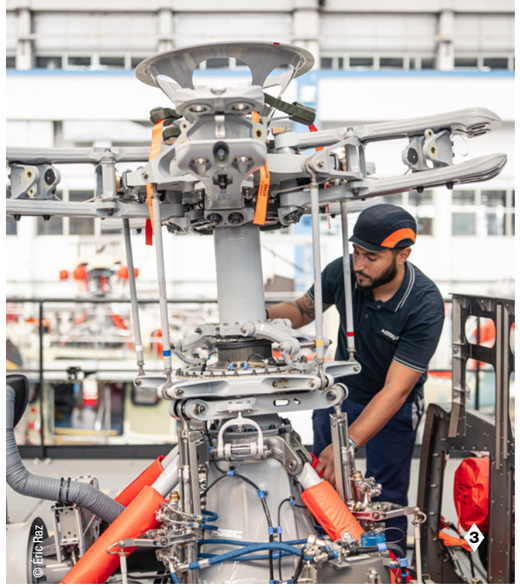
Leave it to the H160 to be the lucky first to be fully produced via site specialisation, Airbus Helicopters' industrial strategy based on the division of a helicopter into major components and the specialised sites making them.

TIME IS ON THEIR SIDE

Site specialisation and with it the Major Component Assembly (MCA) concept, represents a move toward greater industrial efficiency while protecting Airbus' workforce from variations in production. "It's a way of sharing work across Airbus Helicopters," says Norbert Peer, Vice President for products at Airbus Helicopters. Because each MCA site works in parallel yet independently, by the time the components arrive in Marignane's final assembly line (FAL), it's a matter of connecting it together and running final tests —an assembly and testing cycle savings of 50% compared to traditional manufacturing.
From twenty MCAs assembled this year to a 'cruise mode' of 35 annually by 2024, collaboration between sites is tight. Technicians from the MCAs are stationed at the FAL and vice versa, to immediately cover issues that crop up. "The individual sites are responsible for the MCA until the delivery of the aircraft. That means they are closer to the end customer and a proud part of the H160 journey," says Hervé Brugeaud, the head of product for the H160 and H175.

H160: WILL INNOVATION NEVER CEASE?

The H160 represents the first time Airbus designed a helicopter to be built in major components — an industrialisation concept inspired by its fixed-wing division. Thus, its design takes into account the junction between the main airframe and rear fuselages, for example, and includes respective cuts in the harnesses. Similarly, it's the first time the cockpit avionics bay is being built as a separate MCA, allowing it to be organised to the customer's configuration. Its installation takes just a few hours. "It's a pure savings in time for its integration and testing, and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an ergonomic gain because we build it on a table, plus it gives a better level of quality," says Hervé Brugeaud.

1, 2, 3 REASONS WHY

Site specialisation also led to the celebrated digital workplace and ergonomic stations which have transformed the shop floor. Large structures lift and rotate the fuselage at eye level. An adjustable platform eliminates ladders. "It's an impressive feeling for workers to feel safe and work in good conditions on the aircraft and it contributes greatly to delivering the utmost quality and safety for the H160 product," says Benjamin Holveck, H160 Industrial Officer. Along the way, the company's gain in competitivity matches customers' gains in quality and a shorter time to market. Thanks to site specialisation, by 2025 the H160's final assembly lead time is expected to be just 50 days.

A BRIGHT FUTURE

It's a busy period for the H160. In July, the fourth civil model was delivered to a Brazilian customer, transported by a Beluga A300. In parallel, the MCAs need to reach maximum capacity and be ready for a second phase, as demand in the military market kicks in. With production set to span ten to twenty years, "the mood is good among staff," says Hervé Brugeaud. "They know the H160 brings a massive workload."


© Eric Raz

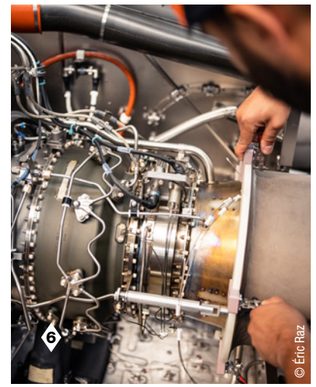
KEY DATES

2009 – X4 (later H160) project begins

2013 – site specialisation goes from idea to planning and MCA/FAL production is split between France, Germany and Spain

2016 – new Paris-Le Bourget site commissioned for blades

2019 – production of H160 begins, the first to be built wholly with site specialisation process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H160

The pinnacle of innovation

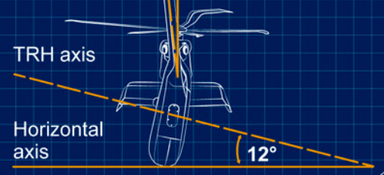
The H160 encapsulates Airbus Helicopters' pioneering spirit of innovation. Benefitting from its predecessors' technological advancements and introducing 68 new individual patents, its entire design is focused on creating added value for customers, in terms of performance, economic competitiveness, safety, and comfort

FENESTRON

The H160's Canted Fenestron is at a

12° angle

allowing for improved performance with additional payload and increased stability, especially at low speed



The pioneering Fenestron has been emblematic of Airbus Helicopters, and its predecessors, since it was introduced on the **Gazelle in 1968**

ENGINE

The Safran Arrano engine reduces

fuel consumption by 15% ↓

for the same operations, compared to the previous class of engines

ROTORS

Quieter operations with **Blue Edge™** rotor blades

that deliver a

50% sound reduction

compared to similar sized helicopters

Conventional blades

REAR STABILISERS

The H160 introduced the **Biplane Stabilizer™**, whose unique design involves a staggered placement of the dual-level, interconnected stabilisers.

This feature facilitates pilot manoeuvres

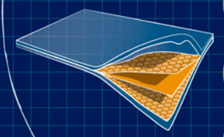
and significantly reduces aerodynamic penalties in low-speed flight and hover

FUSELAGE

The H160 is the first civil helicopter with a

100% composite fuselage,

The advantages of which include:



a lighter fuel-saving airframe

performance optimisation

and simplified maintenance

The **NH90** was the first helicopter with a fully composite fuselage, introduced in **1995**

AVIONICS

Airbus Helicopters' Helionix avionics suite was developed to:

reduce pilot workload

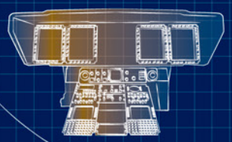
and provide greater operational safety

and mission flexibility

Today over

700 Airbus helicopters

flying are equipped with



Helionix

Source: **Airbus** Infographic: **BeatrizSantacruz.com**

An uplifting craft

Airbus Helicopters' site at Paris-Le Bourget is a centre of excellence for the production and repair of rotor blades. Engineering Leader for Composite Dynamic Components, Charles Louis, talks about the vital work that ensures the blades remain at the cutting edge...


© Charles Louis


© PLB Amélie Laurin

WHAT ARE THE ADVANTAGES OF HAVING A SITE SPECIALISING IN ROTOR BLADES?

Charles Louis: The Paris-Le Bourget site delivers an end-to-end process, from the first pencil stroke, to the qualification of materials and on-site customer support. The only thing we don't do at Paris-Le Bourget, which we work on with our colleagues at Marignane, is to define the aerodynamic shape of the blade. As we provide support, we receive valuable feedback from customers, allowing us to integrate the information we receive on current blades, when we design a new one. As we design blades from scratch, we are also experts at repairing them. The advantage of a composite blade is that we can fix many things and can literally rebuild the blade so it's as good as new.

WHAT ARE LE BOURGET'S MOST RECENT ACCOMPLISHMENTS?

CL: There are two major accomplishments of which we can be proud. One, the delivery of the Blue Edge blade for the H160. Its shape, which was defined with ONERA, a French research centre for all things aerodynamic, is highly innovative. We aimed to reduce the helicopter's noise and we achieved a 50% noise reduction. The second is the delivery of the blades for the five-bladed H145. To meet demand from our customers we delivered 800 blades last year, thanks to an amazing collaboration with the teams from Donauwörth. This helicopter has been such a huge success that from the start of industrialisation we have had to manufacture a number of blades that we never had before. Previously we produced 1,000 blades a year for the Ecureuil, but only after 15 or 20 years, when the process was up and running. Here we had to do the same thing, but with a brand-new process.

THE CITYAIRBUS NEXTGEN CONTINUES TO MOVE FORWARD. WHAT ARE THE CHALLENGES AND MOTIVATIONS OF THIS PROJECT?

CL: This project is hugely motivating for us, with major implications in terms of innovation and carbon footprint reduction. Any young engineer would be motivated by this kind of challenge. Technically, there are several challenges. Firstly, we must ensure the highest possible level of safety. Secondly, eVTOLs are going to fly over cities and if we want people to accept them we must reduce sound levels even further, which will require blades with very specific aerodynamic shapes. Thirdly and entirely consistent with a zero-emission project, we have to reduce blade manufacturing's carbon footprint, thinking about the materials we use, and their sustainability or recyclability. Finally, we have to reduce the blades' production time, as the number of blades on the CityAirbus NextGen means we will have to increase our production rate. Currently, blades need to be cured for eight hours, so to produce more we would have to either multiply the number of moulds—which would negatively affect our business case—or reduce the curing time. We are evaluating new materials that would cure much faster, potentially allowing us to reduce the time from eight hours to 30 minutes. We can also use automation and artificial intelligence to streamline certain quality control processes. These innovations can, of course, eventually be introduced to other programmes delivering efficiency savings.


© PLB Amélie Laurin


© PLB Amélie Laurin

WHAT ARE THE ADVANTAGES OF WORKING IN PARTNERSHIP WITH OTHER SPECIALISED SITES?

CL: The blades, along with the rotor, are the heart of the helicopter and that means that it is essential to work with other teams. For example, the General Engineering department knows more about the environmental conditions, for example lightning, as well as the aerodynamics, vibrations and dynamics. We therefore have co-engineering work which is essential to producing the most efficient blade possible. It is thanks to team work that we can offer the best product.

1: Customer feedback plays an important role in improving the quality of blades.

2: Production was increased to meet the demand for the five-blade H145.

3: The site delivers an end-to-end process.

The flagship

Setting a new standard of industrial excellence, the inauguration of a new state-of-the-art assembly building confirms Marignane's place as a centre of competence for mechanical assemblies.

"Everything is connected, from the Design Office and the needs expressed by the internal customer, to the reference of the tool used for assembly."

Jean-Louis Gaud,
Head of the assembly line project within MECA 4.0

1: François Kalckreuth, head of the MECA 4.0 programme.

2: Jean-Louis Gaud, head of the assembly line project within MECA 4.0.

3: MECA 4.0 provides a decisive competitive advantage.

4: Colleagues can focus 100% on the task in hand.

The MECA 4.0 industrial transformation programme was initially launched in 2017 by Guillaume Faury, then CEO of Airbus Helicopters. The initiative includes some 15 projects, with the common goal of thoroughly transforming mechanical activities, from the design of parts and their manufacture and assembly to their worldwide transportation. The new building for mechanical assemblies, rotors and transmissions is not the only element of this grand plan, but it is certainly the most spectacular.

AN INDUSTRIAL GEM

"A slightly over-pressurised atmosphere, access locks, anti-FOD mats, an isolated inspection circuit... everything has been done to guarantee the cleanliness of the assemblies, with the added bonus of a temperature and humidity controlled atmosphere," summarises François Kalckreuth, head of the MECA 4.0 programme, of the premises themselves. Now let's take a look at the industrial gem within. An area has been created ahead of the assembly line to rid basic parts of any possible pollution. "The building is clean, so it has to be supplied with clean parts," says Kalckreuth. The parts and tools required for production are then packed into kits and placed in a separate trolley for delivery to the workstations. All the data related to their traceability is recorded beforehand and checked during the assembly process. The workstations, which will eventually total 42 in the building, are also connected: the tools are automatically prepared and the manipulator arms adapt to different tasks via changing interfaces. "Everything is connected, from the Design Office and the needs expressed by the internal customer, to the reference of the tool used for assembly," emphasises Jean-Louis Gaud, head of the assembly line project within MECA 4.0. "This building is part of a real digital continuity from Design to Support."

DIGITAL CONTINUITY

This digital continuity, a first within Airbus as a whole, ensures better traceability and makes it very easy to adapt the building to fluctuations in production needs. As Gaud explains: "Manufacturing is made safer with this new tool. The displayed cycles are respected and risks can be identified well in advance." Operators also benefit from this new approach. Working conditions (low noise levels, regulated interior temperatures) and workstation ergonomics

are completely different to previous installations. The workstations make it possible to move heavy parts in all directions, without effort. This allows the operator to focus 100% on the task in hand. Achieving this result required an investment of €53 million and four years of intensive work by the project team, from the design phase to delivery of the building at the end of 2021. The next step is to start production of the first dynamic assemblies for the H125, H160, H175 and H225 series by the end of the year. According to François Kalckreuth: "This is an industrial tool that gives Airbus Helicopters a decisive competitive advantage and ensures an unprecedented level of quality and aviation safety in the assembly phases. We are one of the only manufacturers in the world, if not the only one, to have a connected workshop of this size allowing such assembly performance, both for series production and support." Airbus Helicopters is making history…

IN NUMBERS

€53 million of investment

4 years of intensive work, from the design phase to delivery of the building at the end of 2021

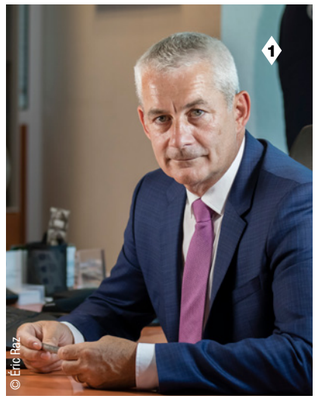
42 connected workstations

Putting the chain in Spain

Already a specialised site, thanks to its role in the production of the tail boom, Airbus Helicopters' site in Albacete, Spain, will also be the home of the company's brand new logistics hub. Aiming to simplify, optimise and modernise the logistic flows between its external suppliers and European production sites, the main beneficiaries will ultimately be the helicopter manufacturer's clients and operators.

1: Gérard Goninet, Head of Operations Flows

2: Jérôme Fenain, Head of End-to-End Logistics Operations for Airbus Helicopters



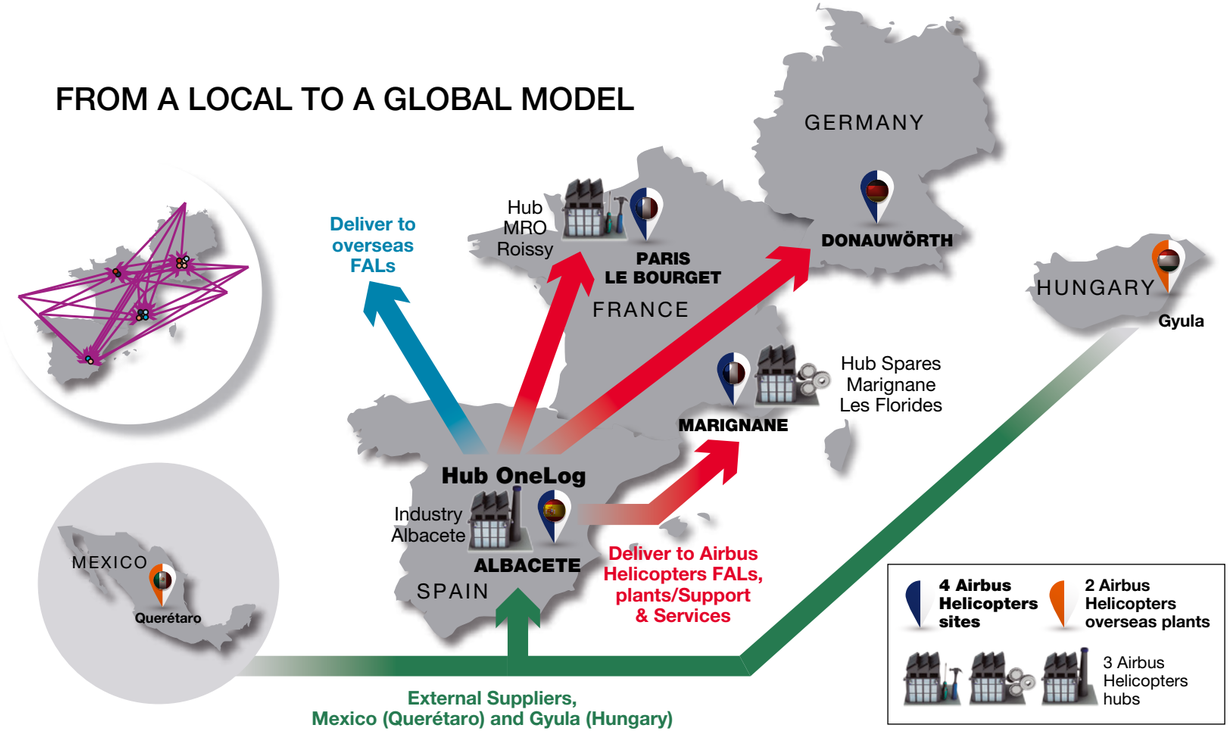
On 1 June 2022, ground was broken on what will be Airbus Helicopters' latest specialised site, a logistics hub that will be a focal point for all deliveries from external suppliers. Currently, each European site manages its own logistics, receiving thousands of deliveries every day and using different systems and processes to manage the transfer of material to the next location. "The new OneLog Hub along with our small platforms of proximity (called 'Xdocks') on each site will eventually replace all of this activity, managing incoming flows such as reception, storage, distribution to our final assembly lines, centres of excellence and to our spares hub in Les Florides, as well as shipments to our industrial partners and suppliers," says Gérard Goninet, Head of Operations Flows at Airbus Helicopters. Construction of OneLog will be completed in June 2023 and upon receiving EASA certification, the transfer of logistics activities from all four sites will begin in sequence, with this process expected to be entirely completed by the end of 2023.

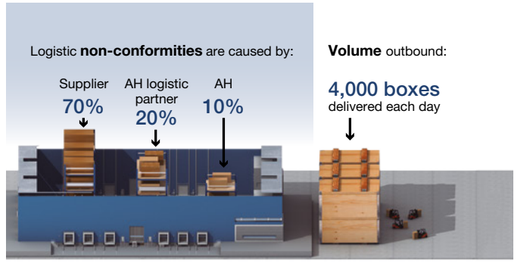
THE LOGISTICS TO IMPROVE LOGISTICS

"Undertaking a project to improve logistics on such a large scale comes with its own logistical challenges," notes Jérôme Fenain, Head of End-to-End Logistics Operations for Airbus Helicopters, however it will be worth it as "customers will benefit from more competitive products and services with the same level of performance in terms of delivering on time and on quality".
The new site will allow the introduction of increased digitalisation, automation and new standards of working and storage conditions maintenance. This automation will include the introduction of Exotec, a new state-of-the-art, robotised warehouse which will be a first anywhere within the aeronautic industry. The skypod system of Exotec is the new generation of high-density warehousing solutions with robots performing the shelf picking by climbing on the racks up to 12 metres high.

TARGETING MORE SUSTAINABILITY IN THE SUPPLY CHAIN

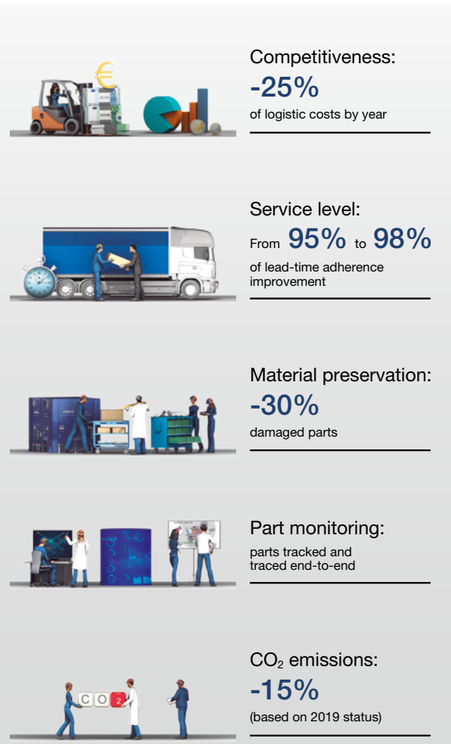
Despite its Spanish location, situated relatively far from other sites, this logistics hub expects to offer significant improvements in terms of sustainability. "We are taking more responsibility for the transportation process," explains Fenain, "so we will be able to impose our own standards. This will have an impact in terms of ensuring that we use alternative fuel and modern vehicles which are significantly more efficient in terms of emissions reductions."
"Locally, the onsite transportation—everything from forklifts to trailers and milk trains—will be fully ethically powered", continues Fenain. "Our ambition is to reduce our CO2 emissions by 15% in 2023 compared to 2019, covering the full scope: buildings, distribution means, inter site transportation and transportation of the external supply chain of around 1,000 suppliers."





LOG 4.0 AT A GLANCE

- 1,000 suppliers
- Airbus Helicopters logistics hubs: 3 on a combined surface of 105,000 m² (OneLog ALB for Industry, Les Florides for Spares, Roissy for MRO)
- Hub OneLog:
  - 46,000m²
  - All cells fully temperature controlled
  - 30,000 m² of energy self-sufficient solar panels
  - Outbound volume = 4,000 boxes per day
  - Robotisation & digitalisation
- 300 people



A new heart is beating in Bavaria

Expert in composite manufacturing, parent to the H135 and H145, host to a world-class training academy and cornerstone of German helicopter technology, Donauwörth has made the shift to another achievement: competence-centre for helicopter main fuselages.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1


© JilluminArts e.K., Christian D. Keller

2


© Cara-Irina Wagner

3

“With this new industrial setup in Airbus Helicopters, implemented with the support of the Central Operations team, we’ve demonstrated we can produce the aircraft more efficiently with important improvements,” says Helmut Färber, Head of the Donauwörth site, speaking about site specialisation and the new role of the Donauwörth plant focusing on aircraft main fuselage.
Since the 1970s, the 575,000m² site in the Bavarian region of Germany was where the world’s BK117 helicopters—followed by H135s and H145s—were built: blades, airframes, tail boom… the whole package. “But we wanted to progress in new areas,” Färber adds.
From 2017, when the blades transfer got underway, the Donauwörth site has overseen a major transformation as it has become the centre of manufacturing for helicopter main fuselage MCAs*. From 2019, the plant has been producing MCAs for the H175, H160, H145, H135, H130 and H125, shipping them to final assembly lines in France, the US, China and Brazil.

A MORE BALANCED WORKLOAD

Switching to the site specialisation model means employees developed competence in new fields, such as electrical and mechanical installation.

Instead of simply producing an airframe, they’re now installing harnesses, antennae, fuel systems, and flight control systems. The new capability also offsets the handover of activity to Paris-Le Bourget, Marignane and Albacete. In fact, “we have a more balanced workload over the plant,” says Färber.
To convert a production hall into an MCA plant able to accommodate multiple models meant modernising the factory’s tools, equipment and organisation. “We wanted to have a new assembly system for the H160 able to integrate the H175 in the next step,” says Tobias Zembrod, Head of Production MCA centre.
Zembrod and his team designed a flexible production line with a system that lifts the part or rotates it, making it accessible from all sides and allowing operators to work with more elbow room and better lines of sight. The fuselage, secured at its front and rear ends between two automatic guided vehicles (AGV), is driven from one station to another according to its assembly. “People really like to drive the helicopter. This was an unexpected boost in onboarding workers while we were asking them to make a mindset change,” says Zembrod. Currently, four AGVs are sufficient but such is the flexibility of the design that, as capacity increases, it’s a simple matter of bringing in a new AGV to meet it.

Centering all expertise for main fuselages in one place is expected to bring benefits from lower costs, reduced lead time for overall assembly, increased quality and safety. “We are the specialists for this complex assembly task so when we identify a best practice, we can apply it to the whole helicopter family. In the past, such exchanges were not as clear-cut,” says Färber. Working together in integrated teams with clear focus on the product, on processes and technology, “this improves our productivity.”

WITH SUCCESS COMES… MORE SUCCESS

Productivity they will need. The German site is ramping up production for the new five-bladed H145 and its military version, as demand for the light twin is growing, particularly in European countries. Zembrod’s team is also gearing up in the face of the H160’s success, bringing production up to 35 by 2025. With the finalisation of the H160M military version later this year, Zembrod anticipates the team will start first MCAs by the second quarter of 2023. “And then we need to think about adapting our ideas from the H160 to the new programmes,” says Färber. “Our main challenges are costs, lead times, and delivering quality. This is our heart now.”

*MCA = Major Component Assembly

1: Helmut Färber, Head of the Donauwörth site.

2: Tobias Zembrod, Head of Production MCA centre.

3: Innovative ways of working make the preparation of the H160 fuselage as smooth as possible.

Techno bricks

ECUREUIL: A FAMILY WORTH ITS WEIGHT IN GOLD

Airbus Helicopters has delivered the 7,000th aircraft of the Ecureuil family, 48 years after the aircraft's first flight. The symbol of a dazzling success story that is still going strong.

Article: Alexandre Marchand

When it made its first flight on 26 June 1974, the Ecureuil (AS350B) already had everything it needed for its future success. It was neither the largest nor the most powerful helicopter, but has offered an explosive cocktail of intelligent design, solid technical performance and, above all, a capacity for adaptation (more than ten versions have been developed) whose limits, half a century later, have still not been reached. The aircraft was originally designed to replace the Alouette II and has succeeded in doing so with a brilliance that can be summed up in two figures: +100% in payload, -38% in operating costs. In fact, what better example than the rotor head to illustrate the technical innovation it represents: the revolutionary use of elastomers makes it possible to cut the number of parts by a factor of five from one helicopter to the next. The Ecureuil captivates people wherever it goes. It would be hard to list all the missions it carries out, all the flight gear it uses across five continents. When it isn't saving lives in the Himalayas, the Ecureuil is shooting a film in Hollywood, bringing supplies to refuges in the Alpine valleys or transporting scientists to Antarctica. In short, the Ecureuil can do it all, and does it really well!

THE ECUREUIL FLEET IN FOUR FIGURES

37 million flight hours

45% of the Airbus Helicopters fleet in service

2,000 operators in **124** countries

LIGHT BUT POWERFUL

Although it can adapt to any situation, the Ecureuil never stops evolving. Darwin would have been proud. In 1974, the 1,950kg aircraft was powered by a 478kW Arriel 1B turbine. And, 20 years later, the B3 appeared, powered by an Arriel 2B. The aircraft lost none of its comfort despite becoming a workhorse and the equal of another aerial work legend, the Lama. The EC130 appeared in 2000: the Ecureuil was equipped with a window, an extra seat and an Arriel 2B1 delivering 632kW. This turbine was replaced by a 710kW Arriel 2D in 2012. The Ecureuil B3e (renamed H125 in 2015) also benefitted from this, but with a restricted power output. In 2021, things changed: the H125 was certified to use all the Arriel 2D's power, with spectacular increases in performance in certain areas of the flight envelope, including 145kg of additional external payload and a weight/performance ratio that reached exceptional levels.

THE ECUREUIL IS TRULY AGELESS

After 45 years in operation, the H125 is still a resounding success, with a share of the intermediate single-engine market that exceeds 75%. This is because of the many improvements it has seen throughout its career, continually bringing the best in performance, comfort, safety and connectivity (Lean Instrument Panel, crash tank and WACS data transfer system, to name a few recent examples). The adaptability of the aircraft also makes it a great candidate for future developments. In terms of performance or environmental sustainability, the H125 can integrate the various technical innovations being developed by Airbus Helicopters and is already certified to operate on 50% sustainable aviation fuel. The Ecureuil doesn't get older, it just gets better.

AND 7,000 MAKES 6!

The 7,000th Ecureuil is the 6th H125 to fly the colours of Blugeon Hélicoptères, a family-owned aerial work company founded by Christian Blugeon. At the heart of its strategy, an exceptional playing field, the Northern Alps, and an indispensable aircraft, the H125. The versatility of the aircraft has enabled it to develop its activity in many fields: passenger transport, line surveillance, film making, avalanche control, mountain rescue and of course, its extensive lifting activities. A diversity of expertise that will not end with the delivery of this 6th aircraft.

1: Proving its worth in high and hot conditions.

2: Firefighting is just one of the operations the Ecureuil can perform.

3: Celebrating the delivery of the 7,000th Ecureuil.

30 YEARS OF CUSTOMER RELATIONSHIPS

IT IS ALL THANKS TO YOU

Three decades of manufacturing rotorcraft means Airbus has the privilege of supporting its customers' vital missions. It also means the company must keep providing the very highest caliber solutions. A look at some operators who have been with the OEM from the first.

Article: H. Couthaud

← NAKANIHON AIR (NNK)

NNK bought an Alouette in 1974 and has been operating Airbus products ever since. With a total of 47 Airbus helicopters, their business ranges from construction support to electronic news gathering. HEMS makes up the greater part of its activities, with the Doctor Heli fleet mainly consisting of H135s. "It is thanks to these Airbus products that we are number one in this sector," says **Mr. Tsuyoshi Shibata, Corporate Officer of NNK.**
The fleet is a testament to their confidence in Airbus. With a range of models to suit the operator's extensive missions, "Airbus is well established with a total support system in the country," says Mr. Shibata.
NNK's reputation led them to be chosen to transport the mythical golden tiger-fish (Kinshachi) statue to the roof of the Nagoya Castle—a feat carried out in just five minutes using the reliable H215.

TRANSPORTES AÉREOS PEGASO →

Pegaso started operations in 1981 with H125s in the Gulf of Mexico. Today this Mexican operator flies 20 Airbus helicopters, with six H145s to join by the end of 2022.
In 2016, Pegaso took on an H175 for deep-water projects. "We selected the H175 as the best option for missions over a 140 NM range and because customers were happy that a real offshore aircraft was moving oil workers," says **José Erosa, Director of Operations at Transportes Aéreos Pegaso.**
The machine proved so adapted to these rigours that Pegaso was even able to fly 245 NM non-stop with seven passengers on board. "Pegaso and Airbus have worked to develop the offshore market in the Gulf of Mexico and shown the major oil companies that these products could handle the demands made in the American oil and gas market," says Erosa.

← ECUADORIAN AIR FORCE (FAE)

From 1972, Lamas and Gazelles made up part of the Ecuadorian Air Force's fleet—a fleet that would henceforth comprise Airbus helicopters for SAR, medevac, firefighting, humanitarian aid, troop transport and more. The military's use of Airbus aircraft links to their changing missions. A fleet renewal programme in 2019 put Airbus into a contest to propose a product that could fly CSAR and SAR missions over land and sea, while also being proven in the Andes Cordillera that run through the country.
The Air Force chose the H145 for the aircraft's outstanding high and hot performance. "This is not simply an aircraft purchase; it is a [show of] permanent cooperation and support to the Air Force, especially with personalised attention at all levels," says **Major Luis Armas of the FAE.**

US COAST GUARD (USCG) →

The USCG first took delivery of the Dauphin MH-65 in 1984 for national security and rescue missions. Today, the fleet of 98 has logged more than 1.5 million flight hours. The USCG uses MH-65s (the military designation for the helicopter) in every atmospheric condition, from the Equator to the Arctic and from maritime to mountains. It also uses them in every operational condition, from conducting shipboard operations to use of force, sling loads, arctic missions and more. In its four decades of service, the MH-65 has undergone five evolutions, a testament to the Coast Guard's stewardship as upgrades in avionics, engines, and main gearboxes push the aircraft beyond the life limit of most helicopters. "The U.S. Coast Guard's 40-year record of service and maintenance of its Airbus MH-65 fleet is evidence of the agency's belief that these assets must assure a diverse array of missions in support of our work as a law enforcement wing, military branch and maritime service. Such a record could not have been achieved without Airbus's assistance and partnership," says **Rear Admiral Bouboulis of the US Coast Guard.**


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© Jérôme Deulin


© Thierry Rostang

30 YEARS OF DEVELOPING CAREERS

It's not only Airbus' helicopters that have evolved over the last 30 years. Four colleagues who began working prior to the Messerschmitt-Bölkow-Blohm (MBB) and Aerospatiale merger remember their highlights and share their journeys with the company.

Article: Alexandre Marchand

1 Brigitte Weber

Brigitte studied Electrical Engineering from 1988 to 1991 while already working with MBB. After gaining her degree, she worked for other German aviation companies before returning to Eurocopter in 1996, putting her experience and skills to immediate use on the design of the EC135*. "Back then I was in direct contact with the customers, supporting the customisation of their helicopters in terms of communication and navigation equipment," she recalls. She then switched to the EC145 plateau as team leader for customer request design, before returning to the EC135 programme in the capacity of contact person for the engine manufacturers and Marketing. Today, as an experienced programme manager, Brigitte is also the point of contact for complex H135 offers. "The ongoing drive to meet customer requirements is hugely motivating, whether we are talking about design, the quotation stage or actually delivering an H135 to the customer. I always enjoy these successes."

2 Axel Humpert

Beginning his career at the MBB department responsible for test flights, Axel's main aim was to "tackle technical challenges and take on responsibility," he recalls. Now, 33 years later, you could say he succeeded. The young engineer stayed with the flight-testing programme for ten years before switching to programme management and heading up the Airframe & Vehicle department in Donauwörth. Today, he is responsible for the H145 programme and reflects on key milestones in the history of Eurocopter: "I was there for the first H135 flight and its certification; that was a momentous event for me. I witnessed the beginnings of the Tiger, I was involved in the qualification of the NH90... Eurocopter and subsequently Airbus Helicopters offered me excellent opportunities in a very open and multinational environment. And the story is far from over!"

3 Corinne Armand

"My passion is people and the helicopter has always inspired me, so when I finished my studies in communications, I applied for an internal communications position in Marignane in 1991." The merger with MBB and creation of Eurocopter gave her the opportunity to experiment with new forms of communications and experience several 'firsts'. "I took part in many events, with the delivery of the first NH90 to an Australian customer being a highlight." After communications came coaching work on supporting change, assisting transformation plans and creating an internal coaching service for teams and employees. Today, she uses her experience to help the business as a senior HR team member, where she advises, develops, supports guides, among other roles. Even though her tasks have changed, her passion remains the same, and her objective is still to put people at the heart of the company.

4 Jérôme Deulin

The teenage Jérôme Deulin never missed the Paris Airshow. When the opportunity to work as an apprentice in La Courneuve while doing his Certificat d'Aptitude Professionnelle (certificate of vocational aptitude, CAP) in photography arrived, he jumped at the chance. Hired as a photographer in 1991, he moved to Marignane four years later, touring the world for Eurocopter, meeting countless operators and customers. "What affected me the most was the switch to digital," he explains. "Practically overnight, we had to relearn everything, review all our processes… At the same time, the need for images skyrocketed, social networks appeared and new communication strategies were born." Jérôme shifted from working as a photographer to a more managerial role. With 31 years of experience in the company, he knows the product range inside out and understands implicitly whether an image is relevant or not. His job may have changed but his passion and commitment are as strong as ever!

* EC designations changed to H in 2015.

© Jérôme Deulin

GROWING A LEGACY

For a company with a history as long as Airbus Helicopters, it is only natural that there will be a sizable legacy fleet continuing to fly vital operations. Today there are some 2,000 helicopters, flown by 750 operators—accounting for 15% of the flight hours generated by the entire Airbus Helicopters fleet. Ensuring that they have the best possible level of support has become a customer service priority.

Article: Ben Peggie

© Airbus

© Airbus

PROGRAMME PLANNING

“Two years ago, we decided to make supporting our legacy fleet a priority,” says Christoph Zammert, Executive Vice President of Customer Support and Services. “We felt there was significant business potential to be tapped and ensuring legacy operators are happy with their current fleets would encourage them to choose Airbus helicopters, when the time comes to purchase new models.” This decision led to the creation of a Legacy programme in order to optimise the level of support for products that were no longer in production, offering a single solution that gathered together all of the necessary competencies to provide the depth of support legacy operators deserve. “Today our aim is to treat the legacy fleet the same way as every in-production helicopter. We have a Design Office, Industry, Quality and Support… The idea is to provide legacy customers a consistent level of care and support right to the end of life of the helicopter. This covers everything from the H120 to the Puma, Gazelle and Dauphin fleets.”
The first benefit of the programme is improved levels of support and services, including projects to secure the supply chain and ensure sufficient provision of spare parts—a challenge for the legacy fleet—as well as ensuring support was specifically tailored to meet the needs of operators. “We also part out aircraft as a means to inject parts into the pool thus adding an important lever to have a sustainable life-cycle management of our fleet ” notes Zammert.

CARE PACKAGES

Improving support and services falls under the umbrella of HCare Classics—a multi-service offering created with the philosophy of meeting the customer’s operational needs. Customers can choose the services they need, just like for in-service support. For legacy operators obsolescence monitoring and management of the aircraft is vital. “We take a proactive approach to managing obsolescence to avoid any supply chain disruption linked to obsolescence,” adds Zammert. Included in the offering is an account manager who acts as a liaison between client and platform. “They use their knowledge of every available service and offer to provide tailored advice to clients and operators—ensuring that everything we are delivering brings the promised added value to the customer.”
With Helidax recently becoming the first operator to sign up for HCare Classics, customers are already seeing the value of this offer. Using its fleet of 36 H120 helicopters to provide necessary flight hours for the basic and advanced training of armed forces pilots, shows that legacy helicopters continue to perform essential missions. Naturally, such operators need a guaranteed level of availability and support, which Airbus Helicopters is determined to provide.

LIVING LONGER AND GETTING STRONGER

The second advantage of HCare Classics is the possibility it offers to upgrade aircraft, the benefits of which would be huge, according to Nicolas Simon, Head of Legacy Programmes:

© Jérôme Deulin

© Eric Raz

“One example that we are looking at could be upgrading the H120’s avionics, extending its life and improving its performance. Our ambition is to keep this helicopter alive until at least 2040.”
With nearly 600 in service, the H120 continues to demonstrate its capabilities yet Airbus believes that it could offer its operators even more.
“This upgrade would be a switch from analogue to digital. We would be providing operators with the capability to adapt the new avionics to different kinds of missions. With such an upgrade the helicopter would rise to a new level.”

1: H120 helicopters continue to fly vital missions.

2: Christoph Zammert, Executive Vice President Customer Support & Services.

3: Nicolas Simon, Head of PSO Legacy & Korean Programmes.

4: Upgrading the H120’s avionics would extend its life and improve its performance.

5: High-quality support and service is essential to legacy fleet operators.

BEHIND THE SCENES WITH FRED NORTH

Fred North is a Hollywood stunt pilot with over 220 films. With more than 20,000 flight hours, including 16,000 in his trusty H125, he has helped create the breath-taking action sequences for iconic film series including the *Fast and the Furious*, *Mission Impossible*, *James Bond* and *Star Wars*. Fred took the time to give *Rotor* a glimpse of how helicopters make movie magic.

Article: Ben Peggie


© Eric Raz


© Eric Raz

1: With Airbus Helictopers test pilot Olivier Gensse.

2: Fred North (centre) with blockbuster director Michael Bay (left).

3: Discussing his career with Airbus colleagues.

HOW DO YOU MAKE SURE IT'S SAFE TO DO THE AMAZING STUNTS THAT YOU DO?

Fred North: To do a complicated stunt sequence safely, we have to do a lot of prep, especially if I have to do a crazy sequence where cars are flipping over, with explosions and filming between buildings. We did *Rampage* in downtown Chicago, filming between high rise buildings that were maybe 1,000 feet tall and with about 15 feet of space each side of the blades, so it felt claustrophobic… To feel comfortable I visit in advance to acclimatise to the environment. We visit with a team of experienced pilots and work with the FAA. We take measurements, check that there are no hazards that could come loose or suddenly fly at us. We notify the local authorities if they have to clean the location, or that they may have to remove traffic lights, or stop signs. In order to identify the best routes to film, we draw maps, noting every potential obstacle or hazard, then we put down red tape, so when I'm flying, I only have to follow the tape—I don't need to think about anything else—I know that I'll fit. We do practice runs, beginning a little higher and slower and then we do it more and more until I'm comfortable and then when I'm ready, we do the shoot.

WHAT MAKES THE H125 THE RIGHT CHOICE FOR THE INCREDIBLE FLYING THAT YOU DO?

FN: It is the best machine ever—it talks to the pilot. If the pilot does something wrong, the helicopter warns them, through its vibrations, before it's too late. The H125 is also very 'lean' so her manoeuvrability and responsiveness is extraordinary. The performance of the tail rotor is out of this world—it is absolutely unique in this industry. When you feel this connection with an aircraft, you can dance with it—you are as one—you can put it wherever you want to. The helicopter is the ultimate weapon of choice for a camera platform, because you can use larger cameras with long lenses on board and you have a human behind the camera, who can see the action, flying with me. We can share what we see and discuss things during the shot—we are living the shot as it happens. The H125's cabin is basically one big room. I am able to look at the cameraman and understand what he is thinking and where he wants to go. Many helicopters separate the cabin from the pilot, so this kind of connection wouldn't be possible.

SINCE YOU BEGAN YOUR CAREER, THE MOVIE INDUSTRY HAS EVOLVED. HOW HAS THE H125 EVOLVED?

FN: It is very powerful, which I need, because when I do a stunt sequence I don't have time to look inside the cockpit, so 95% of my attention is outside and if I have power, then I don't need to check my limits every two seconds—I'm talking just for a few seconds at a time—there is no distraction. The H125 has become so powerful that I feel very comfortable, as power equals safety. The improvement they have made is incredible, with the same platform, double the power.
The movie business also evolves rapidly. Now there is more streaming as opposed to movie theatres, which is a shame, but it means people are watching big movies with crazy action scenes at home. So the studios want more 'real' action. Which translates into us having to do the stunts for real. So we have to be ready, we have to be organised to do those stunts and we need to have the proper equipment. The H125 has so much power, so I have a range almost from sea level to about 8,000m, which is amazing because the director could have any kind of idea and I know that I have the power to do it with this helicopter.


© Fred North


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SMALL JOURNEYS DEMAND A BIG CHANGE

airbus.com

Reimagining transport through the power of innovation, the fully electric CityAirbus NextGen is designed to connect people. With an 80km operational range, this four-seat vertical take-off and landing aircraft will offer new options for community journeys, while zero emissions help keep the world a beautiful place.

AIRBUS