No. 121 - OCTOBER 2020

ROTOR

BY

AIRBUS HELICOPTERS

MISSION
Corail Hélicoptères on the front line

LIFE OF THE RANGE
H175 public services

AROUND THE WORLD
60 years in Japan

Aviation Safety: Our common objective

DELIVERY OF THE FIRST FIVE-BLADED H145
Launch customer, Norwegian Air Ambulance, will use the helicopter for research and development projects in the field of air rescue.

© Patrick Heinz

THC PURCHASES 10 H125 HELICOPTERS
The Helicopter Company (THC), which is fully owned by the Public Investment Fund (PIF) of Saudi Arabia, announced the signature of a purchase agreement with Airbus Helicopters to buy 10 H125 helicopters.
PIF established THC as part of its strategy to activate new sectors in Saudi Arabia that support the implementation of Vision 2030 and generate long-term commercial returns. The Kingdom's first local commercial helicopter operator, THC has been offering private flights since mid-2019 and is now expanding its services with the addition of the H125 to its fleet.

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CITYAIRBUS: AUTOMATIC HOVER AND TRANSFER TO MANCHING
After the ground test and ground run phase of testing in Donauwörth (Germany), with many tethered flights and manual flights, the CityAirbus recently performed an automatic hover at the Airbus Helicopters airfield in Donauwörth.
This flight successfully concluded the flight campaign in Donauwörth. Shortly after this flight, the vehicle was moved to the Drone Center in Manching to continue testing there on a broader scope and demonstrate its range of capabilities in a less restrictive environment.

© Nakanihon Air

NEW H215 FOR NAKANIHON AIR
Nakanihon Air, one of Japan's largest helicopter operators, has ordered one H215 heavy helicopter to shore up its capabilities for utility and aerial work.
Currently operating 45 Airbus helicopters, Nakanihon Air specialises in activities covering emergency medical services, electronic news gathering, as well as passenger and goods transport in Japan. The air services company also runs an Airbus-approved maintenance centre for H135 helicopters, while major inspections of the operator's existing Super Puma fleet are performed at the manufacturer's Kobe maintenance facility.

FUTURE

VSR700 PROTOTYPE PERFORMS FIRST AUTONOMOUS FREE FLIGHT

The prototype of Airbus Helicopters' VSR700 unmanned aerial system (UAS) performed its first free flight during the summer. The VSR700 performed a ten minute flight at a drone test centre near Aix-en-Provence in the south of France. The flight test programme will now evolve to progressively open the flight envelope.
This VSR700 prototype has changed over the last ten months since its maiden flight.
The programme implemented a geofencing function, as well as a Flight Termination System allowing the mission to be ended if necessary. Other changes include modifications to the air vehicle, alongside autopilot software evolutions and updates, as well as structural modifications and reinforcements.


© Thierry Rostang


© AH Inc


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NEW LAKOTA UH-72B

Starting with new orders placed this year for 17 additional Lakota helicopters, the US Army will welcome the newest series – known as the UH-72B – to their fleet in 2021.
The UH-72B is based on the successful H145, which incorporates various product improvements that have been developed during the lifecycle of the commercial aircraft. The efficient Fenestron tail rotor, more powerful engines, enhanced controls and the Airbus Helionix avionics suite, to name a few, will provide added benefits for mission safety and flight performance. With more than nine configurations available, the Lakota delivers proven performance, outstanding operational reliability, and unmatched versatility for a broad spectrum of military missions.

H175 TO BOLSTER OMNI'S OIL AND GAS OPERATIONS IN BRAZIL

Omni Taxi Aereo, Brazil's leading oil and gas transport company, becomes the first operator to introduce the H175 in Brazil. The aircraft has arrived in Brazil, where it will perform cargo load and passenger transport missions for the country's key oil and gas industry.
OMNI's current fleet includes Airbus H135, H155 and H225 helicopters, which are largely dedicated to transporting passengers and cargo to offshore platforms and ships, while also providing emergency medical services for the oil and gas industry.

DELIVERY OF TWO H135 TO NASA

NASA has received two Airbus H135 helicopters, with a third to arrive in 2021, to be operated out of Florida´s Kennedy Space Center for a variety of missions, including security around launches, emergency medical services and qualified personnel transport.

© Diane Bond

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Bruno Even, CEO of Airbus Helicopters

"We are committed to going beyond the regulations whenever possible to win this battle together with you."

Due to the very nature of helicopter missions, which involve getting to places when and where nobody else can, the notion of exposure is intrinsically linked with our operations. Flights in high mountains with changing winds, rescues on high seas with ten-metre waves and external aerial work requiring surgical precision: the men and women who fly helicopters every day are perfectly aware that the tasks they carry out are anything but unexciting.

That's why our role as manufacturers is to ensure that our customers have all the assets they need to allow them to focus on the safety of their missions while we take care of the rest. This involves more than simply providing completely safe helicopters, but also supporting our customers every step of the way to achieving safety excellence: improving connected services, tailored training, SMS implementation, innovations in the field of automation and even sharing best practices through our Safety Roadshows. We are committed to going beyond the regulations whenever possible to win this battle together with you.

Safety is what Airbus Helicopters is all about. It is the basic pillar of the confidence our customers have in us. Every day, our teams – whether industry, support or operations – carry out their tasks having in mind that the lives of thousands of passengers and crew members are depending on them to do their jobs well. This is a source of pride for us, driving us to work harder to be the industry benchmark for aviation safety.

Even more than a competitive advantage, we see safety as a collaborative one. Only through the joint efforts of manufacturers, regulators, operators and associations will we be able to achieve our common goal – our common denominator. I firmly believe that all accidents can be avoided, and even one accident is already one too many.

16

NEW H125s

Airbus Helicopters, Inc. delivered this summer the first of 16 new H125s uniquely configured for the US Customs and Border Protection (CBP).

1st

HTM will be the first operator to use the new five-bladed H145 in the offshore wind segment.

4,000

LITRES

The water capacity of Airtelis' H225 that has been fire fighting in Corsica this summer.

28

SUPER PUMAS

are currently flying in Japan with civil operators, parapublic operators, and the Ministry of Defense.

10th

anniversary of the first flight of the X3.

Airbus Helicopters has joined hands with over **20 Australian partners** to form Team Nightjar, offering a fleet of H145M helicopters and in-country support in response to the Commonwealth of Australia's request for proposal for a four-tonne class, rapidly deployable, multi-role helicopter for the Australian Special Forces.

1,400

HELICOPTERS

of the H135 family have been delivered to customers around the world.

857,476

PARTS

have been delivered and manufactured on the Lakota fleet to date. 463 helicopters have been delivered to the US Army, all on cost, on quality and on time, reaching 800,000 flight hours this year.

311

RESCUE MISSIONS

and 111 people saved. This is the result of five years of operation of the Belgian NH90 NFH. On 21 August 2015, the naval version of the Belgian NH90 got its operational capacity and started performing SAR missions.

5,000

FLIGHT HOURS

As the global launch customer of the H175 public services version, Hong Kong-based Government Flying Service (GFS) has accumulated a total of 5,000 flight hours and performed over 5,000 life-saving missions.

Aviation Safety: Our common objective

No matter how many years of experience are behind a manufacturer, crew member or maintenance technician, aviation safety drives each of them for continuous improvement. There will always be room to be better until the aviation industry reaches its target: zero accidents.

Articles: Heather Couthaud, Courtney Woo and Belén Morant

© Anthony Pecchi

Although the volume of accidents of the Airbus Helicopters fleet has decreased by 34% from 2004 to 2019 thanks to industry-wide efforts and partnerships, even a single accident is one too many. This is why manufacturers, operators, regulators and associations must continue to work together in all areas – from design to maintenance, training, and operations – to identify and mitigate the contributing factors. The following pages take a deeper look at some of the most recent efforts going into this shared battle.

Stronger together

Maintaining an active dialogue with industry bodies by contributing to initiatives and studies aids all sides in the sharing of best practices, while allowing Airbus to improve the operational safety of its fleet. Some examples.

INTERNATIONAL HELICOPTER SAFETY FOUNDATION (IHSF)

The IHSF (former IHST, formed in 2005) is open to all aviation safety professionals, particularly those within the helicopter community. With a presence in 40 countries, the organisation works with global partners and regional teams to develop strategies and to harmonise safety efforts in key areas.

EUROPEAN SAFETY PROMOTION NETWORK ROTORCRAFT (REGIONAL PARTNER OF IHSF)

If the best way to incite change is from within, the ESPN-R is taking the right approach. Comprised of participants from EASA and the helicopter industry, including Bernd Osswald representing Airbus Helicopters, its objective is to contribute to rotorcraft safety promotion.

With members from national air forces, offshore operators, law enforcement agencies, and OEMs, the ESPN-R works on safety improvement of the rotorcraft industry. One of its recent key activities is the Hoist task force working on hoist-related accidents. The ESPN-R also recommends solutions, from instituting crew checklists, self-checks and pre-flight briefings, to identifying mitigation actions in uncontrolled scenarios. The task force which focused on hoisting operations has concluded its work. The document summarising the results of the study is in validation before its publication. But a key topic for the next task force has already been identified: transport via sling load.

HELIOFFSHORE

HeliOffshore is a safety-focused organisation formed initially by offshore operators where other organisations like OEMs and oil and gas companies contribute. Its purpose is to share best practices among the offshore helicopter industry and to encourage it to implement relevant product safety enhancements.
"What we have achieved as HeliOffshore would have seemed far-fetched at the start. We took a leap of faith, convinced that our industry is stronger and safer when we work together for our shared frontline," said Tim Rolfe, HeliOffshore's new CEO since July 2020.

"Safety is the responsibility of everyone in the vertical-flight industry, across all levels of an organisation, and we all have a role to play in improving it. In Airbus, HAI is grateful to have a global partner committed to advancing safety. Our joint efforts to create, share, and promote a safety culture and risk-management resources among the international helicopter community simply make us a better, safer industry."

James A. Viola, President and CEO of Helicopter Association International.

Working with human factors

Simple steps can prevent accidents: a pilot taking stock of his emotional state; a technician taking the time to ease eye strain. This is the goal behind human factors analysis: identifying the various and very different physical, organisational and cognitive factors we experience in the exercise of our jobs.

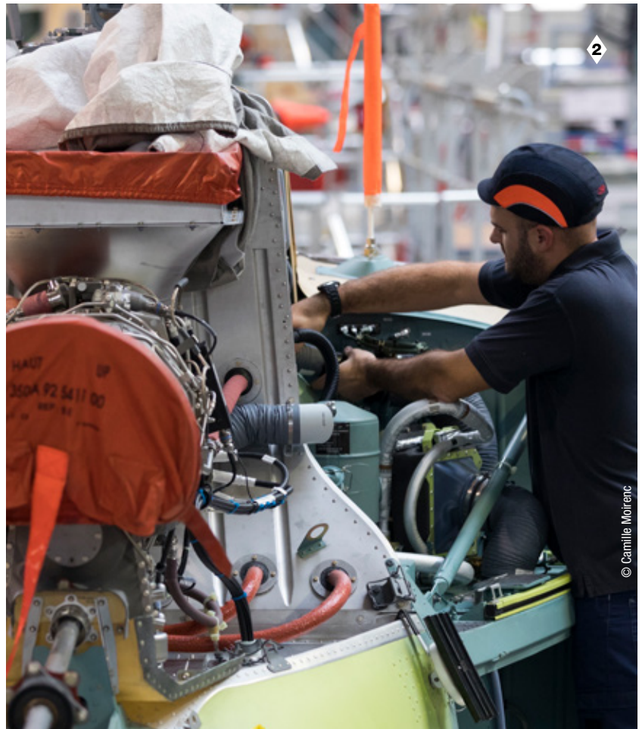
1: HeliOffshore promotes a common language, framework and priorities for the oil and gas industry's collaboration for safety.

2: Today, a dedicated team within Airbus Helicopters is devoting its time to studying, quantifying and qualifying human factors in maintenance operations.

The field of human hazard analysis seeks to reduce accidents by anticipating errors, and adding barriers via a targeted process and design.
In the lines below, *Rotor* takes a closer look at how to limit one of them -- human errors during maintenance -- responsible for about 6% of helicopter accidents.

A GLOBAL APPROACH TO REDUCING ERRORS

Three human factor components are evaluated: the cognitive component (understanding of documentation, workload, etc.), the physical component (posture, effort, etc.) and the organisational component (management of equipment, people, etc.). This global understanding of the activity helps to identify potential human errors. For each operation, the difficulties encountered by the mechanic are analysed and a solution is then proposed for each potentially risky situation.



DIGITAL SIMULATION TO UNDERSTAND OPERATORS

"Our objective is to better understand operators, observe them and simulate their actions to limit human risk situations and thus advance further in flight safety," says Fabien Bernard, Doctor of Ergonomics at Airbus Helicopters.
"We are currently taking our simulations even further by integrating the skills and physique of the operator and all cognitive aspects using digital simulation tools such as virtual reality. Considering the human factor and anticipating it in the design office is not only a real cultural change, but also a responsible act in the service of safety."
"We are the first in the helicopter industry to delve into this subject," explains Raphaël Paquin, Maintainability Expert at Airbus Helicopters.
"At present, the team is very much involved with the H225 programme – the initiator and driver on the project – and the H145, H160 and H175 programmes. Today, concrete solutions are now being applied by our customers."

Watch the video here

Continuously innovating for safety

Enhanced product safety comes from research, development and the implementation of new technologies.

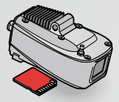
1 DATA MONITORING

Data collection and analysis can identify risks before they lead to incidents or accidents. From hardware to analytics, here's the latest:

Tail fin camera

External cameras provide important video footage that supplements internal cameras. The forward-facing tail fin camera monitors parameters such as engine exhaust and boarding from the cockpit in real time.

Cockpit cameras and data recorders



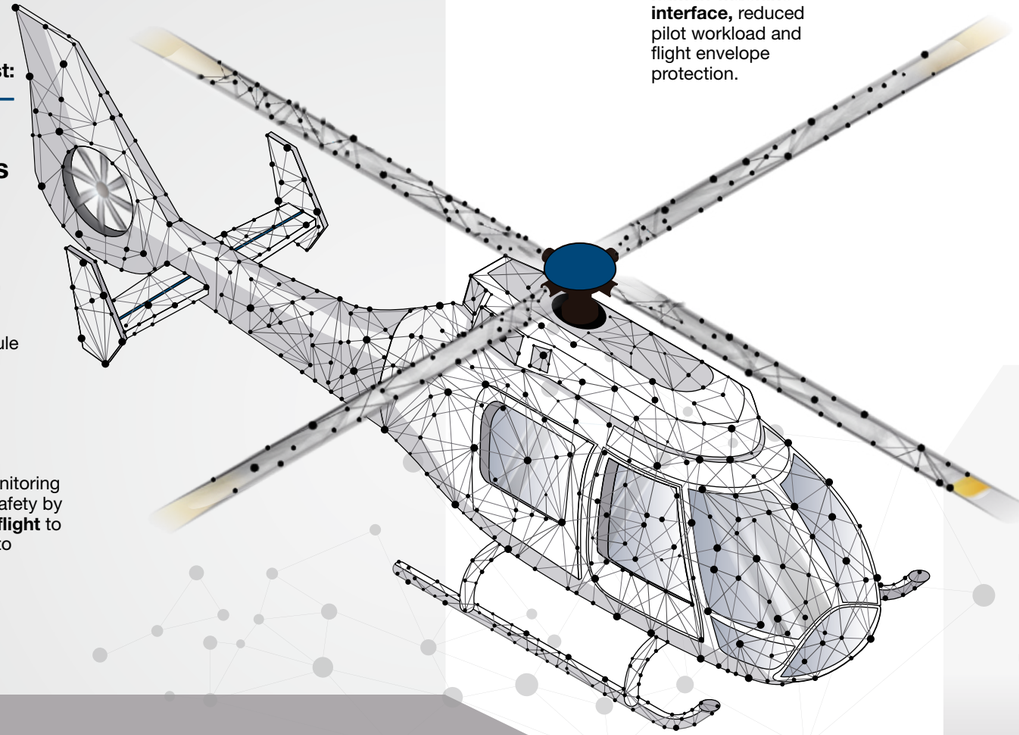
Since 2016, all newly manufactured helicopters are equipped with a cockpit camera. **The device collects inertial and positioning data, ambient acoustic data and cockpit imagery,** stored on a crash-hardened memory module and a removable SD card.

Flyscan predictive maintenance

Analyses an aircraft's HUMS vibration data and proactively **recommends when to replace a component** before a fault occurs, limiting AOG situations, increasing availability and enhancing safety.

Flight analyser

This Helicopter Flight Data Monitoring service supports operational safety by **analysing aircraft data post-flight** to identify risks before they lead to incidents.



2 SURVIVABILITY

Airbus designs improve safety and ensure survivability, going beyond regulatory requirements when possible.

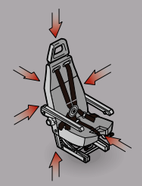
Crash resistant fuel systems

Safety features of the Airbus CRFS include a **rubber bladder, aluminium faring, reinforced cradles** and **double skin fuel lines.**

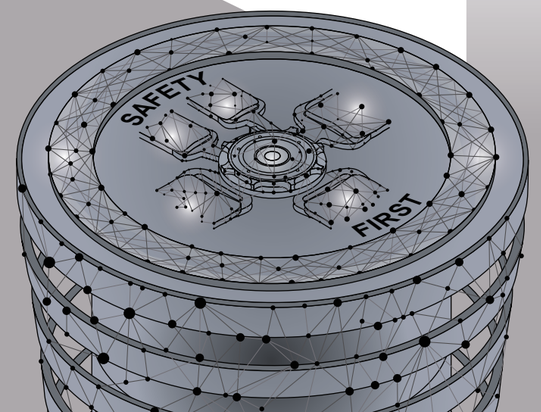
New window jettison concept

In the event of an emergency evacuation, new opening systems **provide fast and easy egress underwater, by night or when capsized.** Edges are rounded to prevent damage to the life raft, floatation balloon, or people.

Crashworthy seats



These are designed to plastically deform upon severe impact, **absorbing all or a portion of the crash energy transmitted to the seat.**



3 SYSTEMS, DISPLAYS AND AUTOMATION

Technology can reduce pilot workload and improve situational awareness, resulting in fewer accidents from collisions with obstacles, disorientation, or human error.

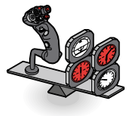
Helionix®

An advanced avionics suite offering unrivalled pilot assistance in **an intuitive human-machine interface,** reduced pilot workload and flight envelope protection.

Vortex pre-alerting system

This new feature available on the H160 increases safety by **warning pilots when they enter flight conditions** that could lead to a vortex ring state if immediate action is not taken.

Autopilot



Airbus proposes **3- and 4-axis autopilots that reduce pilot workload and improve flight safety.** The **automated recovery modes help disoriented pilots to stablise** the attitude and altitude of the helicopter by double-clicking on the control stick. The autopilot will automatically arrive back at the last-known altitude, speed, and heading in level flight.

Ground helipad assisted takeoff procedure

A world first, available on the H160, **this enables a secure and optimal helipad takeoff,** with reduced pilot workload and less risk of human error.

4 DOCUMENTATION

Computerised rotorcraft flight manual (C-RFM)

A first-ever on the H160, **providing the crew with essential information** about the performance of the aircraft in accordance with the conditions of the day, the optional equipment, and the desired flight profile.

Flight crew operating manual (FCOM) and flight operation briefing note (FOBN)

These documents communicate **Airbus' guidelines for enhancing operational safety during routine and abnormal situations.** They provide detailed descriptions of different systems and recommended best practices.

5 CONTINUOUSLY INNOVATING

Discover the works in progress around automation here.

Source: Airbus Infographic: BeatrizSantacruz.com

Raising the safety bar

Aviation safety starts with each person at Airbus Helicopters, not only during training and test flights, but beyond, to the company culture and mindset. Here, *Rotor* looks at the role of pre-flight risk assessments and the Aviation Safety Management System (SMS).


© Jérôme Deulin

1: Airbus Helicopters insists on a mindset among its employees that puts safety at the forefront.

2: Safety roadshows bring industry parties together with operators' safety organisations. Video conferences are favoured during the pandemic.

"Convinced that safety starts with us, we are continuously reflecting on the management of risks and opportunities, to emphasise prevention and anticipation, with the aim of passing those learnings on to all stakeholders," says Matthias Klein, head of Aviation Safety Management and Corporate Aviation Safety Manager at Airbus Helicopters.
This ambition is nowhere more evident than with Airbus Helicopters' introduction of a worldwide internal aviation SMS covering several approved organisations and its whole range of flight operations. This deployment is partly done even in advance of dedicated regulations pushing to raise the "safety bar". This has also included a new approach to pre-flight risk assessments.

A SAFETY RISK ASSESSMENT FOR FLIGHT TESTING

At first deploying an SMS with standardised flight incident reports, the Airbus Helicopters flight test team went further, building a pre-flight risk assessment, in the form of a checklist, for the company's flight tests. The assessment enables pilots to assess efficiently the various factors that might present a risk for a flight, from meteorological conditions to the type of flight and considering human factors. "Taken alone, each risk might be manageable, but aggregated together it could become a ripe condition for an accident," says Klein.

Six years on, pilots see the added value. "To make an SMS efficient you really have to implement certain processes, and it takes time. If you want people to adhere to it, it has to be helpful," says Hervé Jammayrac, chief test pilot at Airbus Helicopters. When crews first saw the feedback the SMS generated from hazard reports, "they started to understand the added value. Flight tests always had a safety culture. The SMS brought us from an oral safety culture to a written one."

AN OPEN-DOOR POLICY

In March 2020, Airbus Helicopters implemented a tool called "Safety Cube" available to SMS managers in France and Germany. The platform includes electronic reports, monitoring, and action plans designed to manage risks and ensure effective barriers to new ones. By using the bow-tie methodology, which helps understand risks by feeding them into potentially undesirable events, the company can target preventive actions and coordinate a coherent response across all organisations.

"To make an SMS efficient you have to implement certain processes and encourage the right behaviours and culture, and it takes time."

Hervé Jammayrac,
Airbus Helicopters
chief test pilot.


© Airbus Helicopters

SAFETY ROADSHOWS IN FIGURES

- 191 external safety events including 112 safety roadshows in 2019
- 3 safety roadshows with EASA and CAAC China

Generating the change

In 2007, Airbus Helicopters launched its series of aviation safety roadshows as a cooperative effort with customers to increase fleet safety around the world.

Safety roadshows are headed by the Airbus Helicopters Aviation Safety International Network and are attended by local aviation authorities, safety supervisors, pilots, maintenance engineers, and operators' top management. The purpose of the events is clear: generate positive changes in operators' organisations, by helping and encouraging them to develop operational safety solutions such as SMS, and best practices such as pre-flight risk analyses or flight data monitoring.
"In these seminars, Airbus Helicopters shares with small operators all the lessons learned and best practices that were created in the working groups in which we actively participate (IHST, ESPN-R, etc.)," explains Alexandre Maugé, Head of the Aviation Safety International Network at Airbus Helicopters. "The goal of safety roadshows is to make sure that small operators benefit from this knowledge, and the best way to do this is to go and see them."

CREATING A SAFETY DIALOGUE

Each seminar gives an overview of international accident statistics as well as highlights the importance of analysing rotorcraft incidents, to proactively derive and implement preventive measures, an effective means of preventing accidents. This is followed by an in-depth look at safety management systems (SMS) as well as the notion of a 'safety culture'. Maintenance practices and maintenance controls are covered as well. Each roadshow includes workshops where all of the various parties (Airbus Helicopters, authorities and customers) can evaluate and consolidate action plans for their own operations.
"Safety roadshows are also an opportunity to create a dialogue between manufacturers, authorities and operators around operational safety, as authorities are invited to all safety roadshows," continues Maugé. "As an example, EASA [through their Aviation Partnership Project (APP) branch] recognised the value of these safety roadshows and has been supporting the events we hold in South Asia, Southeast Asia, China and Latin America. EASA has integrated these existing events into its cooperation programme, which amounts to the best endorsement."

SOLUTIONS DESPITE CURRENT EVENTS

Aviation safety promotion activities are evolving in 2020 due to the pandemic situation. Even if in-person activities have slowed, operators can find podcasts, video conferences and safety notices available on the Airbus Helicopters website or on the AirbusWorld collaborative customer platform. Operators interested in a free safety promotion video conference can contact the aviation safety team at contact.aviationsafety.ah@airbus.com

“Airbus has a key role to play in safety”

Safety is also the driving force behind the European Union Aviation Safety Agency, EASA. John Franklin, Head of Safety Promotion at EASA, answers *Rotor’s* questions about common challenges and achievements in the field of rotary wings.

© John Franklin

WHAT IS THE REPUTATION OF HELICOPTER TRANSPORTATION AMONG THE GENERAL PUBLIC, REGARDING SAFETY?

From a statistical perspective, Europe averages one non-fatal helicopter accident per week with a rotorcraft and 1.3 fatal accidents per month, all manufacturers considered. The rate of accidents has been almost constant for the last 10 years. The EASA Rotorcraft Roadmap was developed specifically to tackle this safety challenge. Modern media means that high profile accidents are extremely visible in the media and this reinforces a negative view of helicopters by some people. While every accident is one too many, it’s important to remember that rotorcraft provide vital, life-saving services to our European and global society. When you consider the high risk situations that helicopter crews find themselves in every day while saving lives and supporting vital infrastructure, compared with other activities or modes of transport, we can still be proud of our safety records.

WHAT ARE THE DIFFERENT ROLES OF MANUFACTURERS, REGULATORS AND OPERATORS TO IMPROVE AVIATION SAFETY?

Operators, manufacturers and regulators are part of the same system and contribute to making the operations safe. Through the EASA Rotorcraft Committee, stakeholders from the different areas of the industry work together and coordinate our efforts.

Manufacturers design and build aircraft in compliance with certification specifications, monitor in-service fleets through quality programmes, provide operators with support, contribute to innovation through research and development projects, analyse data and perform safety management at fleet level, perform safety promotion and reach out to their operators to help them operate safely and effectively.
Regulators define the regulatory framework to ensure safe operation and a level playing field. This includes the definition of certification specifications, operational rules, maintenance, air traffic management, environment protection standards and other types of rules.
Operators are the final part of the picture and in addition to operating both safely and effectively, they have a part to play in implementing safety management principles at a local level to identify hazards and manage local risks to keep them acceptable. Some also perform maintenance work and deliver training.
There are other important actors in the system. These include maintenance organisations, universities (Academia) and training organisations, ANSPs, ATC and FIS, EUROCONTROL, research institutes, associations like EHA, HAI, HeliOffshore, FSF, RaeS, GASCo and safety partnerships like IHSF (formerly IHST) and ESPN-R (formerly EHEST) in Europe. All have complementary roles to play!

WHAT ARE THE MAIN CHALLENGES TO IMPROVE AVIATION SAFETY IN THE HELICOPTER INDUSTRY?

First, it’s perhaps useful to outline where the information comes from to identify these challenges and how we use that information to identify and act on the strategic safety challenges. Every year EASA publishes the Annual Safety Review (ASR) which provides an overview of the accident statistics from the previous 10 years.
The analysis shows that in terms of accident prevention, the main focus is on reducing the following accident types: aircraft upset/ loss of control, terrain collisions, airborne collisions, and obstacle collisions in flight.
To help counter these safety challenges the EASA Rotorcraft Roadmap focuses on six safety pillars. The first pillar is “Design and maintenance”: to help reduce the likelihood of critical technical failures leading to accidents. The next one is “Training and operations”: to help tackle the operational side of accidents. Given that a number of accidents occur during flight training, we are working to increase the use of simulators that can enable pilots to perform critical emergency manoeuvres in a safe environment. There are also pillars on “Safety Management” to help us manage our risks in a more coordinated manner and this links also to another pillar titled “Be more integrated and efficient”. Finally, there are two closely linked pillars to help us harness the power of technology to improve safety: these cover “Research and innovation” and “Encourage and facilitate new technologies.”

WHICH HAVE BEEN THE MAIN ACHIEVEMENTS IN THIS FIELD IN RECENT YEARS?

There have been many improvements that are worth mentioning and Airbus is one of our key safety partners in this activity. In particular there have been some fantastic achievements in design and maintenance, training (classroom, in-flight and simulator training), operations and safety management. As a manufacturer, Airbus has a key role to play in bringing new technologies with safety benefits into operational use and there are many different enhancements that have helped to improve safety. On the safety management front, the “Before your flight” app from Airbus has been a vital step forward in helping operators to identify and manage risks prior to take off.
The level of industry collaboration in the helicopter industry is another key achievement. Airbus Helicopters has been vital in helping EASA to bring together industry stakeholders at global and European level to discuss our priorities and to develop practical solutions. We are very grateful for the active role that Gilles Bruniaux, Matthias Klein and their teams play in our different activities such as the Rotorcraft Committee and the European Safety Promotion Network – Rotorcraft, which is co-chaired by Bernd Osswald. Airbus Helicopters has also been instrumental in working with EASA and other manufacturers to organise worldwide safety seminars and workshops that have greatly benefited the whole industry.

Read here the full interview


© Jonny Caroll

FIRST H160 FLIGHT FOR ARMY CHIEF OF STAFF

Army General Thierry Burkhard visited Marignane, France to thank Airbus Helicopters employees for their work during the COVID-19 crisis. It was also an opportunity for him to experience the H160 in flight and get a real feeling for the future Guépard.

Article: Alexandre Marchand – Photos: Éric Raz

"The comfort of a helicopter that is also relatively quiet, with very little in the way of vibrations."

Army General Thierry Burkhard

The light helicopter programme (Hélicoptère Interarmées Léger, HIL), now known as Guépard, is getting strong support from French government authorities. The weapons system will play a vital role in the modernisation and rationalisation of the country's helicopter fleets as it is set to replace a total of five existing army fleets. The overall target for France is 169 helicopters: 80 for the Army, 49 for the Navy and 40 for the Air Force. Several ministers have visited Marignane since the programme was launched, demonstrating the French government's commitment. During the summer, the current army chief of staff also visited the site and took a test flight in the future champion of French Army light aviation.

NEW GENERATION COMFORT AND FLUIDITY

Interviewed after his flight, General Burkhard highlighted "the comfort of a helicopter that is also relatively quiet, with very little in the way of vibrations." This is the result of skilful innovation, with for example the entry into service of new-generation Blue Edge rotor blades that reduce helicopter sound by 50%, and the design of a biplane tailplane that gives it greater stability. "The helicopter demonstrates great fluidity and agility in flight," the General added.
"The space available on board gives it the ability to carry out missions the Gazelle couldn't fly, such as transporting fully equipped commando teams. Also, in terms of accessibility, its large doors will enable us to use it as a military helicopter."
There is no doubt that military use was included in the initial H160 platform design. Today this foresight, together with the early implementation of studies involving the French Armament General Directorate (DGA) and operational staff to gather and align the needs of the three French forces, make it possible to reduce the costs and risks specific to the Guépard's development. The H160 combines the advantages of a helicopter designed for both the civil and military markets. Its level of performance, speed, agility and low sound levels will hugely benefit the military version. The integration of new cutting-edge equipment will also allow the Armed Forces to develop their helicopter's functionality in increasingly demanding theatres of operation.
"I was impressed by the level of pilot assistance, making it possible for them to devote their full attention to the mission," said General Burkhard. "The system doesn't have a negative impact on flying; it helps pilots complete their mission."

EFFICIENT MAINTENANCE IN OPERATIONAL CONDITION

When asked what the Army had in mind for the Guépard, General Burkhard got straight to the point: "That is the real issue," he stressed. "The Army wants to buy a combat helicopter and what we really need is a war machine. That means performance! And I believe that this helicopter has the resources and capabilities to provide a high level of performance and accommodate equipment. However, there's also a real issue with maintenance: it isn't enough to simply own the helicopters; we also need to be able to use them. This is what we need and this is where Airbus Helicopters must remain vigilant. A Formula 1 car wins a race but not the war. We need to win the war!"
The Chief of Staff can rest assured: the civil and military versions' similarity will enable the Guépard to take advantage of efficient maintenance in operational condition (MOC), with controlled support costs, based on the demands of commercial operators. As with the H160, maintenance will be based on fully digital technical documentation, integrated from the early stages of the helicopter's design. Initial feedback from commercial operators will also guarantee the helicopter's high level of maturity when it enters into service with the Armed Forces. In addition, the existence of a single fleet in the French Armed Forces will make it possible to pool training, technical support and spare part management resources.

1: Army General Thierry Burkhard visited the H160 FAL accompanied by Bruno Even, CEO of Airbus Helicopters.

2: The target for the French Armed Forces is 169 Guépard helicopters: 80 for the Army, 49 for the Navy and 40 for the Air Force.

The H160 races a Formula 1 car during a photo shoot. — © Morgan Mathurin

FRANCE

CORAIL HÉLICOPTÈRES ON THE FRONT LINE

On 25 July 2020, the Japanese bulk carrier Wakashio ran aground on a reef in Mauritius. Very quickly, Corail Hélicoptères mobilised an H130 to fight the threat of pollution.

Article: Alexandre Marchand. Photos: Corail Hélicoptères

"Our mechanics and pilots received special training for the work on the different ships and work sites on shore. They did a great job!"

Jeremy Heuls, Chief Pilot of Corail Hélicoptères Mauritius.

"We officially started the operation on Saturday, 2 August," explains Jeremy Heuls, the young chief pilot of Corail Hélicoptères Mauritius. "We had an H130 available, backed up for three days by our AS355 NP from Reunion Island. The Ecureuil then returned to its base and the H130 now remains the only aerial work helicopter being used at the site of the shipwreck."
The aircraft was present in Mauritius for passenger transport and tourist flights. But once the pilot door had been removed, and equipped with its hook and a sling, it instantly became a high-performance aerial work platform with Heuls at the controls.

A TEAM EFFORT

"The first days of work were intense," recalls the pilot. "I started by transporting a large amount of equipment to the wrecked ship – pumps and generators – so that the salvage team could get to work. The heaviest load weighed in at almost 1.2 tonnes! We also delivered our 'task specialists' on board, either using the boat's helipad, or doing skid touches when the ship was listing too much. Our mechanics and our two other pilots received special training for the work on the different ships and work sites on shore. They did a great job and without them, it would have been a different mission…"

The proximity of the vessel to the shore is a positive factor, as turnarounds are very fast. Operations are also helped by the weather conditions in the southern winter, with moderate temperatures and winds.

EXCEPTIONAL SLING OPERATIONS

In a second phase, the removal of pollutants still present on the ship was carried out with IBC tanks, which can carry several hundred litres of pollutants. The H130 transports them to the ship on the sling four at a time, then brings them back full one by one to the shore. "We transported a total of 98 in one day," says Heuls. "I worked the first few days with a 20-metre sling, but when the ship broke, the stern started to settle and the obstacles, antenna, masts, etc. became more troublesome. I then switched to a 30-metre sling. What made the work difficult was essentially the continuous movements of the wreck and the lack of vertical and lateral reference points since most of the work was over water."
By mid-September, after more than 30 days of operations, Heuls had exceeded 90 hours of flight time on the job. With his H130, he had transported more than 100 tonnes of equipment and participated in removing at least 50 tonnes of crude oil. An exceptional achievement for the first-ever sling operation in Mauritius!

CORAIL HÉLICOPTÈRES

Corail Hélicoptères has a main base on Reunion Island (France), with one H130, four EC130 T2s, one twin-engine AS355 NP and one H120. Its subsidiary on Mauritius, 200 km from Reunion Island, operates two H120s. However, one of the four EC130 T2s on Reunion Island had been leased to the Mauritian subsidiary before the start of the COVID-19 pandemic. As the borders between the two islands were subsequently closed, the helicopter was unable to return to Reunion at the end of the contract. A stroke of luck, since it was in the right place when it had to be mobilised for the anti-pollution operations in August.

1: After 30 days of operations, the H130 transported more than 100 tonnes of equipment. It was the first sling operation in Mauritius.

2: The ship started to leak oil after the accident, in the worst environmental disaster ever in Mauritius. The H130 removed at least 50 tonnes of crude oil.

3: Jeremy Heuls worked with a 20-metre sling before switching a 30-metre sling to avoid obstacles, such as the ship's antennae and masts.

SPAIN

HELP ON ALL FRONTS

Article and photos: Francisco Francés

Created in 2009, the Second Emergency Helicopter Battalion (BHELEME II) is the youngest unit of the Spanish Army Airmobile Force (FAMET). Its mission: to support the civilian population in the event of disaster or serious emergency.

BHELEME II has two helicopter units: the light helicopter unit, with four H135s based in Colmenar Viejo near Madrid; and the medium helicopter unit, consisting of three H215s based in Valencia. These are supported by Super Pumas from the other FAMET battalions where necessary. Both units provide support to command posts of the Military Emergencies Unit (UME) for reconnaissance, search and rescue (SAR) and fire fighting missions using collapsible buckets, along with internal or external airlift of both personnel and cargo.

SAR MISSIONS WITH THE H135

BHELEME II makes use of specific resources adapted to each helicopter model for SAR missions. For example, the H135s are fitted with the Wescam camera system and a hoist for rescue missions.
"The compact build of the H135 allows us to access confined spaces to perform rescues and evacuations which we might not be able to execute otherwise," explains Lt. Col. Miguel Sánchez, commanding officer of BHELEME II. "In addition, the outstanding reconnaissance capability of the Wescam system allows us to send real-time images to command posts."
"A key feature of the H135 is its ease of maintenance in terms of both costs and personnel hours, along with the low cost of spare parts. Because these costs are so low, it considerably facilitates the operation of this model," adds Lt. Col. Sánchez.

H215: GUARANTEED VERSATILITY

Meanwhile, the H215s are equipped to perform fire fighting missions using collapsible buckets with capacities of 1,960 and 2,850 litres. They are also fitted with adjustable mirrors for both the pilot and the co-pilot, a loudspeaker and siren system and a tank in the cargo cabin for flame retardants and foaming agents.
Due to their large payload capacity, the H215s used by the airmobile unit for fire fighting missions can carry water tanks for areas with difficult access and rugged terrain. Their assistance is vital to enable ground teams to bring fires under control. These water tanks can be airlifted both during the day and at night using night-vision goggles.
"What stands out the most about the H215 is its versatility. Its large payload capacity allows three configurations to be mounted simultaneously (rescue hoist, collapsible water buckets and Wescam) so that we can call on all three in the target zone, and once the helicopter is deployed we can quickly and easily change from one configuration to another. This means we can use a single helicopter to cater to all the UME's emergency needs," says Lt. Col. Sánchez.
"For example, its payload capacity for SAR hoist operations allows us to rescue various people from different locations in quick succession without first having to drop off any of those rescued in a safe area."

1: Thanks to the capabilities of the H215, the Air Mobile Unit (UAM) is able to deploy water tanks in external cargo to remote areas so that ground teams can fight the fire.

2: Good training is essential to guarantee maximum safety during real operations.

3: One of Battalion II's missions is to provide support to the UME ground teams during fire fighting operations, carrying personnel and cargo wherever required.

4: Four H135s work in the BHELEME II's Light Helicopter Unit.

18,000 HOURS OF CIVIL PROTECTION: EXAMPLES ON THE GROUND

- Flooding in Orihuela and Murcia – September 2019: deployment of five helicopters to rescue people stranded in their homes. A total of 27 aerial rescues were performed: 20 adults, six children and one patient suffering from cranial trauma.
- Operation BALMIS* from March to May 2020: a total of 21 flight missions to provide direct support during the COVID-19 crisis, including airlift of UME and army personnel primarily for rapid disinfection tasks.

*BALMIS: the Spanish Army's operation to combat the COVID-19 pandemic.

MALI

STARLITE AVIATION A MEDEVAC TEAM

Starlite Aviation Operations, an Irish/South-African company, has operated H215s for medevac operations in Mali for the European Union since 2013.

Article: Belén Morant – Photos: Starlite Aviation


1

Operator Starlite's H215s are currently deployed as part of the European Union Training Mission in Mali (EUTM), a programme for training and evacuation missions in hostile territories in Mali. The objective of this mission is to provide military training to Malian troops with the aim of achieving a lasting peace in the African country.

READY 24/7

In this context, Starlite is tasked with moving patients from remote areas to metropolitan regions where their needs can be better handled. As part of the mission, the team is on a 24/7 standby and ready to react to any medical emergency, which means sometimes flying with night vision goggles, in instrument flight conditions and also carrying out dusty landings and take-offs.

"We provide an emergency medevac standby service for EUTM in Mali, 24 hours a day. At times, we travel via helicopter to more rural locations in Mali where we may be based for 24 to 48 hours, providing medevac standby to EU military convoys," explains Dr Jacqui Amm, Starlite flight physician. "Our main service onboard involves monitoring the patient's condition while continuing the care that was commenced prior to loading the patient. We are also responsible for ensuring patient safety during the flight. Should the patient require medical interventions during flight, we are also able to provide these."

"Being a HEMS pilot is extremely rewarding… to help people in need and know that you might have saved a life at the end of the day."

Captain Daniel Erasmus, medevac pilot at Starlite.


2

EMS CREW: A TRUE VOCATION

"In 2014 I had my lucky break to start flying for Starlite Aviation on the bigger helicopters in Mali. I started as first officer in Mali building hours and in 2018, I had to do at least 100 hours with various requirements to be met. In 2019 I completed the programme and was signed out as command on the AS332, SA330 and the BK117," explains Captain Daniel Erasmus, medevac pilot from Starlite. "Being a medevac pilot means that you need to be part of a team that trust each other, where every team member knows exactly what their responsibilities are.

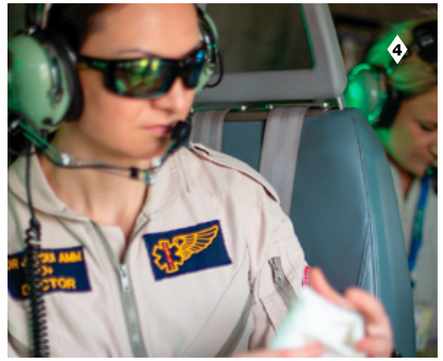
"I've always had an interest in emergency medicine, specifically trauma, and at the same time I enjoy working in unconventional environments," explains Dr. Amm. "Already on my first rotation, we transported a Priority 1 (critical) patient who had been involved in a motor vehicle accident. After being discharged from hospital, he was able to return to normal duty. It was a privilege to have played a small part in his path to recovery."


3

TAILORED FOR CHALLENGING ENVIRONMENTS

The H215 has already demonstrated its ability to perform medical evacuations in the frame of humanitarian missions with Starlite in Mali and in Kosovo for EU operations. These two H215s based in Bamako are configured as air ambulances for either one or two stretcher patients. There are always four medical personnel on site: one doctor and three paramedics. During a normal medevac flight, two medical personnel per aircraft equipped with all the necessary equipment can manage even critically ill patients.

The capacity and ability of the H215 has been fundamental in allowing Starlite to function optimally in their humanitarian capacity, such as providing medevac to injured EUTM personnel following the attack on Camp Kangaba in Dougourakoro, East of Bamako, in Mali in 2017. "Such intense operations are possible thanks to the helicopter's versatility in adapting to a host of different roles," said Alan O' Neill, Group COO for Starlite. This is truer than ever in this landlocked country with a variety of seasonal weather conditions, from week-long sand storms to intense tropical storms and micro bursts, along with year-round heat extremes.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1: Tabitha Nicholson is the Starlite medical manager since joining the company in 2019. Before that, she worked in the Surf Rescue helicopter service in Durban, also operated by Starlite.

2: Captain Daniel Erasmus started his flying career with Starlite Aviation in 2005.

3: From left to right: Dr Jacqui Amm, Captain Daniel Erasmus, Dr Tabitha Nicholson, and Regardt Van Rooyen, Co-Pilot on the Beechcraft 1900 also operated by Starlite.

4: Dr Jacqui Amm, Starlite flight physician, worked in emergency departments at both private and government hospitals, fixed wing medevacs in Africa, as well as oil rigs and cruise ships, before joining Starlite.

HONG KONG

STEP RIGHT UP!: THE H175'S PUBLIC SERVICES JUGGLING ACT

The Government Flying Service (GFS) uses seven H175s in the Hong Kong Special Administrative Region for everything from coastal surveys to mountain search and rescue. GFS's daily safeguarding duties are extensive, while the diverse operating environment – typhoons, mountains and maritime – pit the H175 and GFS team against challenges every day.

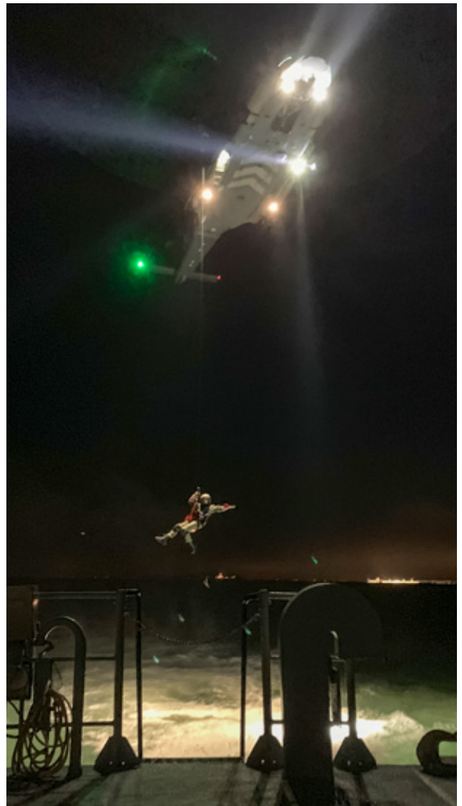
Article: Heather Couthaud – Photos: Government Flying Service

"The H175 is next-generation, no doubt about it."

Captain Graham Dann, pilot at GFS.

FIGURES AT GFS

First H175 delivery: July 2018
H175 flight hours: 5,000 FH
Helicopter pilots: 44
Air crewmen officers: 53



Search and rescue

In SAR missions, GFS's two pilots, hoist operator and winchman need to get on scene fast –the H175's hallmark. Its precise autopilot and range of equipment – from dual hoist and cabin hover control system, cockpit fifth screen (Mission Display) to a night vision goggle-compatible interior – help.
"One night on a SAR mission a crew spotted two missing hikers stuck on a three-metre rock," says GFS Air Crewman Officer Benny Chan. "Next to the rock was a 70-metre vertical drop off. From an offset hover position, the crew was able to initially relay safety instructions using the loudhailer before effecting the rescue."
The H175's overall performance plus upper SAR modes, EURONAV system, direction finder, SATCOM, mobile phone patching and AIS[1] mean pilots like Captain Graham Dann have a variety of options, en route and at the scene.

Fire fighting

In fire fighting, Captain Dann may use the video downlink to relay the fire's status in real time. He also uses the H175's various cameras to enhance situational awareness. "Fire fighting is a dynamic task from the water pick-up phase to the drop, and all the hazards associated with it," he says. "During pick up, the hook camera is used to monitor hook integrity, whilst in transit, the sling cam or hoist cam are useful for load monitoring." From the cabin, air crewmen officers like Chan provide guidance to the pilots and control the timing of the drop. "The way we operate as a crew is a team effort, relying on clear communication and strong CRM[2]," says Dann.

Anti-contraband missions

GFS can be tasked to carry out anti-contraband missions when required. "For the ground crew, this aircraft makes it easy to conduct a role configuration change within 45 minutes," says Benny Chan.
Equipment options further support the mission, from fast rappelling, search light, forward-looking infrared, and NVG compatibility for night missions. But for Dann, a key feature comes down to aircraft stability with a range of upper modes available, in particular to assist the maintenance of a stable hover when visual references may be limited.

Coast Guard

Medical evacuations from cruise liners, cargo or commercial vessels are among GFS's remit, as are rescues at sea. Here, the H175's 140 knots, 200 NM range or five-hour endurance at loiter are assets.
"On a long range SAR training exercise for a pilot's check ride we initially visited one of the oil rigs in the South China Sea," says Captain Dann. "Then we went on to a container ship simulating a casualty on board for evacuation. It was good training to explore the options and range of SAR upper modes that are available to us."
The merits of the aircraft's hoisting options, from its human external cargo capability to hoist control, join features like a cabin console, FLIR and search light, NVG compatibility and large cabin to effectively carry out demanding rescues at sea.

(1) AIS: Automatic identification system. (2) CRM: Crew resource management.

ASSEMBLY LINE FLEXIBILITY

Flexible assembly lines have been introduced as a response to market volatility and are an important part of Airbus Helicopters' industrial transformation. But they also represent an opportunity for the customer.

Article: Alexandre Marchand

What do we mean by "flexible"?

The FAL (Final Assembly Line) is said to be flexible (or mixed) when two different aircraft can be assembled on the same line. The advantage is that the workload can be balanced by combining two potentially very different production volumes. Airbus Helicopters has had this type of line in Marignane since 2015 for the H125 and H130 light helicopters. Another, in Donauwörth, has been in operation since the end of 2019 and brings together the H135 and H145. A third flexible FAL, combining the H175 and H160, could be set up in Marignane in 2023-2024. Today, the flexible FAL is one of three pillars of the industrial transformation rolled out by Airbus Helicopters.

Combined with the use of major component assemblies (MCA), it plays an essential role in reducing manufacturing cycles. The third pillar involves the specialisation of production sites between France, Germany and Spain.

EXAMPLE: THE H135 AND H145 LINES
These two aircraft are now assembled in Donauwörth on two lines with a combined production capacity of 105 aircraft: the first line is entirely dedicated to the H145 and the second, flexible line combines the H135 and the H145, featuring production tooling common to both aircraft. After theoretical and practical training, employees assigned to this line have expanded their competencies by being able to work on either helicopter.

Why the need for flexibility?

Market volatility in recent years has led to rapid fluctuations in order intake, with consequences that are complex to manage from an industrial point of view. Light helicopters provide a typical example – a sudden slump in the US tourist market resulted in lower sales of the H130. At the same time, the H125 saw an upturn, confirming its leadership in its market segment. The FAL of the former was idling while the FAL of the latter was running at full capacity. Combining the two made it possible to restore stability and industrial efficiency. A similar phenomenon occurred from 2017 with the light twins, as market success of the newly introduced H145 and the demand for larger cabins shifted the demand towards the larger H145.

How does this benefit customers?

The flexible FAL reduces the manufacturing cycle, resulting in a faster time to market and therefore greater flexibility for the customer in managing fleets and orders. Balancing the workload between two aircraft and the resulting industrial efficiency also allows for better cost control.
Maintaining a good level of activity on a flexible FAL by bringing together best practice from existing lines helps to preserve personnel know-how by simultaneously avoiding two industrial pitfalls: the erosion of skills on a slow-running line and the pressure due to a line running at full capacity. This has a positive impact on quality and safety.

JAPAN

60 years of Airbus Helicopters

Airbus Helicopters marks 60 years of a long-standing partnership with Japan this year. Over that time, the company has achieved a 53% market share in the civil and parapublic market[1]. *Rotor Magazine* takes a look at this success story.

Article: Sahori Naoe

Since its predecessor Sud Aviation entered into an exclusive distributorship agreement with Nozaki & Co., Ltd. in Japan in 1960, followed by the company's first helicopter delivery – an Alouette II – in 1961, over 370 Airbus helicopters are flying in the country today with 100 customers for a variety of missions across several business segments.

Today, Airbus Helicopters has a team of 330 personnel based in Tokyo and Kobe, offering a strong suite of helicopter products and turnkey solutions across every market segment. Aircraft completion, maintenance, engineering, technical support and training are provided at the company's Centre of Excellence in Kobe, on top of aircraft and spare part sales. In January 2020, Airbus Helicopters extended its footprint with a new hangar in Kobe, growing overall capacity by 60%, to handle 40 medium-sized helicopters at the same time. This translates to over 80 helicopters per year for new aircraft and MRO projects.

"Since the entry into service of the Alouette II in 1973, followed by the introduction of the Dauphin in 1981, we have been operating two AS365 N3s. We believe that it is thanks to the great support of Airbus Helicopters Japan, we've been keeping safe operations without major accidents or troubles since 47 years! We hope to build up our long-lasting and strong relationship and to have your continuous backup support for the safe operations."

Commander of Nagoya City Fire Department Air Corps, **Mr. Yoshihiro Kouketsu**.

"We started the air taxi business in 1960 and received an Alouette II as the first Airbus aircraft in Japan in 1961. I used to work in the operational department as a pilot and have been flying Airbus helicopters for over 40 years. With many years of experience, we are grateful to build a good relationship of trust. We look forward to your continuous support for safe operations as a great partner!"

President of Toho Air Service, **Mr. Masayuki Udagawa**.

"We have been building up our capabilities in Kobe over the years and believe the site offers a lot of growth potential," explains Guilaume Leprince, Managing Director of Airbus Helicopters Japan (AHJ). "Japan plays a vital role in Airbus Helicopters' growth in the Asia-Pacific region thanks to a strong local market and loyal cutomers. Airbus Helicopters Japan is acting as the regional hub for engineering, blade repair, and H135 helicopter training, as it is equipped with a full flight simulator."

At the training centre, Airbus Helicopters Japan has been providing training to participants from India, China, South Korea, Australia, and Indonesia; since opening in 2012 its service has included approximately 730 mechanics and 980 pilots (including FFS Dry Lease trainees).
In addition to the full flight simulator, the training centre has an avionics trainer (AVT), Helionix trainer (HATS), virtual maintenance trainer (VMT), and a debriefing room and nine training classes.

(1) Figures from 2019.

1: Toho Air Service, AS350 utility mission.

2: AHJ Kobe with a new additional hangar.

3: IDEA Consultants, Inc.'s environmental research H130.

4: Guillaume Leprince, Managing Director Airbus Helicopters Japan.

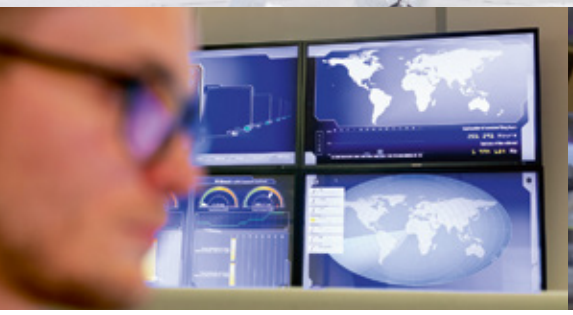
"Airbus helicopters are the most widely used helicopters for anti-disaster and fire fighting missions in Japan. We have a great confidence in it. We believe that prompt and reliable support from the OEM is indispensable for carrying out life-saving missions in harsh environments. We look forward to working further with you as a good partner always."

Chief officer of Kumamoto-prefecture Disaster Prevention Aviation Centre, **Mr. Yuichiro Fuchigami**.

"Congratulations on the 60 years operation in Japan! We believe it is the excellent result of efforts and achievements in Japan based on your reliable technology. As a comprehensive environmental consultant, we have developed an aerial survey method since 1996 and have operated two AS350 helicopters as well as fixed wing aircraft for environmental conservation with great results. Last year, we introduced the new H130, the most suitable helicopter for our business, has enabled more accurate data acquisition. We continue to shore up our safe operations with your strong and extended HCare support."

Chairman & CEO of IDEA Consultants, Inc. **Dr. Hideo TABATA**.

BEING FIRST ON THE SCENE NEEDS TOTAL SUPPORT BEHIND THE SCENES.



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