

No. 120 - JULY 2020

ROTOR

BY

AIRBUS HELICOPTERS

MISSION
**The French Armed
Forces: A historic
partnership**

NO LIMITS
RACER taking shape

SERVICES
**Supporting the heroes
of COVID-19**

COVID-19
Helicopters
at the forefront



THE H160 RECEIVES STAMP OF APPROVAL FROM EASA

Airbus Helicopters' multi-role twin engine H160 has been granted its type certificate by the European Aviation Safety Agency (EASA), marking a new chapter for the programme. The company is expecting FAA certification to follow shortly prior to first delivery to an undisclosed US customer later this year (read the whole story on page 24).

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© Japan Coast Guard

JAPAN COAST GUARD ORDERS TWO MORE H225 HELICOPTERS

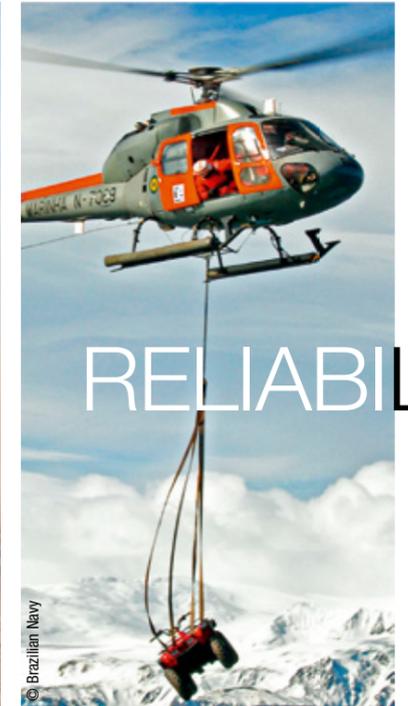
Japan's largest Super Puma operator, the Japan Coast Guard (JCG), has placed a new order for two H225 helicopters. This follow-on order brings JCG's Super Puma fleet to 15, comprising two AS332s and 13 H225s. The new helicopters will be utilised for territorial coastal activities, security enforcement, as well as disaster relief missions in Japan. The JCG's H225s are covered by Airbus' HCare Smart full-by-the-hour material support. This customised fleet availability programme allows JCG to focus on its flight operations whilst Airbus manages its assets.



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H145M: NEW TECHNOLOGIES, ADVANCED NETWORKING AND INTEROPERABILITY

In close cooperation with industrial partners, Airbus Helicopters is expanding the digital capabilities of its H145M helicopters. Following a demonstration of manned-unmanned teaming with a UAV up to the highest level of interoperability in 2018, Airbus is working on solutions for a robust satellite-based data transmission system, making possible the transmission of encrypted data from the helicopter to virtually anywhere on Earth in real time. Equipping the H145M with jam-resistant Link 16 Variable Message Format (VMF) technology and a Battle Management System (BMS) for enhanced networking is one of the next steps. At the same time, deliveries of H145M helicopters to customers like Hungary and Serbia are ongoing.



© Brazilian Navy

H125: RETURN TO BASE AFTER ANOTHER SUCCESSFUL ANTARCTIC CAMPAIGN

Two Brazilian Navy H125s – also known as the UH-13 – came back home after spending five months in the Antarctic on board the "Ary Rongel" ship, one of the Navy's research vessels, which along with fellow icebreaker, "Almirante Maximiliano", participate every year in the Brazilian Antarctic Programme (PROANTAR). As part of the logistics support to the PROANTAR programme, the Brazilian Navy is in charge of the transport of personnel, equipment and supplies to Antarctica, but also assures the maintenance of Brazil's Comandante Ferraz Antarctic research station, including its laboratories and shelters. The multi-mission capacity of the H125 helicopters as well as their reliability and performance in polar weather are real assets for the Navy's very demanding operations in the Antarctic.

RELIABILITY

SUPPORTING KENYA AFTER HEAVY FLOODING

Heavy rains from March to May resulted in floods and landslides across many parts of Kenya, leaving thousands of households marooned. The Airbus Foundation, Airbus Helicopters and Airbus Defence and Space have played a key role in helping the Kenya Red Cross Society (KRCS) serve vulnerable communities following seasonal flooding.

Two missions were supported by Airbus Helicopters. One H125, from Tropic Air Kenya, carried approximately two tonnes of shelter and non-food items to the community of Pakase in Kajiado county, where 200 households were stranded for almost two weeks. The relief aid met the immediate need for survival. The second helicopter mission transported KRCS personnel to Garissa and Tana River to carry out the aerial assessment mission.



THE FRENCH NAVY'S SIX DAUPHIN SPI FOR PUBLIC SERVICES SET SAIL

The six Dauphin SPI of the French Navy, usually based on land for public service missions, have been modified to be carried on ships. In particular, they have been retrofitted with lashing rings and a modification of the rotor head to allow manual folding of the blades. The first on-ship mission for a certification campaign took place from 20 to 25 April aboard the frigate, La Fayette. This capability will increase the efficiency and capacity of Navy vessels at sea, while helping to maintain their expertise, pending the arrival of the first Guépard helicopters.

NH90s FROM OMAN EVACUATE 23 PEOPLE FROM FLOODING

The NH90 of the Royal Air Force of Oman (RAFO) carried out the medical evacuation of 23 civilians in late May and early June after the tropical rains that hit the south of the country left hundreds of people isolated. The NH90s involved in the operation, based in the south of the country, rescued the citizens with the hoist and transferred them to the Salalah hospital. The Sultanate of Oman has 20 NH90 TTH in its fleet, which they use for missions such as troop transport and search and rescue missions round the clock in the most demanding conditions.

RELIEF



THE FIVE-BLADED H145 RECEIVES TYPE CERTIFICATION FROM EASA

The five-bladed H145 has been certified by the European Aviation Safety Agency (EASA), clearing the way for customer deliveries in summer 2020. The certification covers the full range of capabilities, including single pilot and instrument flight rules (IFR) and single engine operations (Cat.AVTOL), along with night vision goggles capability.

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Communication Director: Yves Barillé (Publication Director), Editor in Chief: Belén Morant (contact: rotor-magazine.ah@airbus.com), Director of photography: Jérôme Deulin, Translation: Airbus Translation Services; Amplexor. Published by: **because. la nouvelle** (Copyright Airbus Helicopters 2020, all rights reserved). Airbus Helicopters' logo and the names of its products and services are registered trademarks.



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Bruno Even, CEO of Airbus Helicopters

“All the helicopters that have airlifted urgent supplies, eased the burden on hospitals or ensured we observe lockdown measures have also saved hundreds of lives.”

The pandemic we continue to face – because it is clearly not yet over – has proven once again that helicopters are irreplaceable when it comes to saving lives. Apart from their obvious benefits during the ‘golden hour’, there are many ways to save lives, as all of you have demonstrated. All the helicopters that have airlifted urgent supplies, eased the burden on hospitals or ensured we observe lockdown measures have also saved hundreds of lives.

Our responsibility as manufacturers and service and support providers is to ensure you have everything you need so that you can focus on your mission. During the height of the lockdown this was admittedly no easy task, but the dedication and rapid response of our teams has allowed us to provide all the support you need, as well as to deliver the helicopters you had ordered. We have also achieved progress with our operational targets, proof of which is EASA’s certification of both the five-bladed H145 and the H160. However, our responsibility as manufacturers goes beyond that: we also owe a social and industrial responsibility to our network of suppliers.

Their situation is even more drastic as they are directly suffering the crisis faced by commercial aviation. Therefore, one of our priorities will be to provide them with relative stability in this uncertain context, working side by side with them to anticipate risks and support the strength of our supply chain.

Last but not least, we also owe a responsibility to our own teams: the huge responsibility of looking after them and protecting them from the invisible enemy of the COVID-19 pandemic while they are working from home or on site to ensure business continuity. We have worked against all odds to ensure that all the barrier measures and social distancing, safety and hygiene requirements are met. I would like to take this opportunity to thank all of them for so ably adapting to this new reality. Without further ado, I leave you now with the images and stories of the people who have fought and continue to fight on the front line to keep us healthy and safe from harm. They are the ones who deserve the biggest applause, and this edition of Rotor Magazine is our way of making sure they hear it.

175

PATIENTS

DRF transported more than 175 COVID-19 patients in April. In more than 100 cases, the transports were inter-hospital (among them, French patients). Eleven DRF stations are equipped with EpiShuttles, allowing teams to safely separate the crew from an infected patient.

9

HELICOPTERS

Dutch HEMS operator ANWB took delivery of a new H135 at the beginning of June. With this new unit, ANWB's fleet has expanded to nine helicopters of the H135 and H145 family.

20,000

The global H145M fleet recently reached the 20,000 flight hour mark. Currently 37 H145M are in operation in five different countries, for six different armies.

24

ROTATIONS

The French NH90, known as Caiman, performed 24 rotations to transport 48 COVID-19 patients.

268 missions

Since the beginning of the COVID-19 pandemic*, the French Civil Security have carried out 268 helicopter missions all over France, in particular to transport patients with coronavirus, thereby relieving congestion in hospitals.

*Data: beginning of June

575

test hours have been done on the Dynamic Helicopter Zero to ensure the H160's maturity from the very start.

470 km

OFF THE COAST

The Brazilian Air Force rescued an injured person from a cargo ship 470 km off the Brazilian coast with one of their H-36 Caracals.

1,200

DOCUMENTS

have been necessary for the certification of the H160.

1st

Helitrans of Norway has become the first customer to take delivery of new Airbus helicopters using the e-delivery process in use during the pandemic, ensuring compliance with COVID-19 restrictions.

COVID-19 Helicopters at the forefront

As COVID-19 stresses healthcare systems and disrupts daily life and business operations, many Airbus Helicopters customers have found themselves on the front lines of the crisis. They have played an essential role in their countries' efforts to combat the virus, helping hospitals and governments provide air medical transport and other critical services.

Article: Courtney Woo, Heather Couthaud and Belén Morant



M

Most regions of the world have seen additional demand for emergency medical transfer flights for intensive care COVID-19 patients as hospitals have become overwhelmed and overloaded. However, there has also been growing demand in most countries for normally non-HEMS equipped helicopters to transport critically ill patients. This is especially the case for military and para-public fleets. In some situations, aircraft adaptations and modifications have been completed in record time to support the fight against the coronavirus.





1



2



SPECIAL PROCEDURES FOR A UNIQUE SITUATION

Many HEMS or public services operators began transporting COVID-19 patients using “standard” helicopters and medical equipment, but this changed when new procedures were put in place following special guidelines issued by the European Aviation Safety Agency (EASA).

“Many of our HEMS operators continue transporting patients with their helicopters and own medical equipment, but they have all adapted their daily operations with special procedures to protect the crew and passengers,” says Stefan Bestle, EMS Marketing Manager at Airbus Helicopters. “These procedures cover, for example, the use of personal protective equipment (PPE), night vision goggle curtains or other cockpit separation devices or solutions, the use of patient isolation devices (PIDs), disinfection measures, and even specific operating procedures.”

WORKING AGAINST THE CLOCK, TOGETHER

Since the beginning of the pandemic, Airbus Helicopters has worked closely with EASA and the European Helicopter Association (EHA), providing support and recommendations whenever possible. In late April, the company set up a dedicated team of Airbus EMS experts to give advice to customers working on the front lines, and organised webinars to share experience and best practices.

“We’ve found opportunities to team up with operators, suppliers and regulators to make available protective solutions that shield pilots and crews from contamination, while reducing the turnaround time for helicopter disinfection following transport of a COVID-19 patient,” explains Christoph Zammert, Executive Vice President of Customer Support & Services at Airbus Helicopters.

PATIENT ISOLATION AND PROTECTIVE DEVICES

Through a partnership with the Airbus Foundation, in collaboration with the French Fondation de l’Académie de Médecine (FAM) and operator Babcock, Airbus Helicopters has supported the certification of the BRAVE COVID-19 protective units – spearheaded by the CHU Dijon Bourgogne



3

and a local French company, Bache 21 – for installation on H135 helicopters. Twenty-four of these have already been fitted for the French SAMU, with five more on order, and discussions with authorities in other countries are in progress in hopes of making this solution more widely available.

Airbus helicopters have been equipped over recent months with more than a dozen different devices adapted to several models of the range. These include for example the EpiShuttle, a solid plastic chamber with integrated bed, adjustable knee angle and backrest, that is currently being used by civil and military operators in different countries. IsoArk is probably the second PID more frequently used, already used in Spain, Germany and South Africa (see article on page 16).

Likewise, a greater number of customers have installed cabin-cockpit separations to protect pilots from the cabin. This type of solution is now certified not only for the H155, H175 and Super Puma fleet, but also for the medium AS365 and the light H125. Customers newly flying with such cabin-cockpit separations include Heli Austria and Poland’s Lotnicze Pogotowie Ratunkowe (Polish Medical Air Rescue).

BUSINESS RESILIENCE IS THE ANSWER

Despite the confinement measures taken over the most difficult weeks of the COVID-19 crisis, Airbus Helicopters sites maintained activity whether by having employees working on site or from home. Even if some operations have slowed down, Airbus Helicopters has been able to ensure its commitment to its customers during these challenging times. On German and French sites, industrial activity has been adapted to ensure compliance with safety and hygiene measures. On the delivery side, new processes have evolved, such as electronic delivery (e-delivery). This system relies on the customer accepting flight-test and inspection findings conducted by authorised Airbus staff, taking the place of employees from their own company who usually perform those tasks.

These developments, together with the traditional deliveries on site respecting social distancing, enabled the successful delivery of fifteen helicopters from mid-March to mid-May (H125, H135, H145, NH90...) On the support and service side, teams have been mobilised to ensure that customers facing COVID-19 can continue to fly without worrying about support and logistics (see full details on page 32).

1: The transfer of patients from congested hospitals; transport of basic sanitary items; evacuation of the seriously ill; monitoring of stay-at-home measures ... the missions carried out by Airbus helicopters have been numerous, demanding and above all, very intense examples of teamwork.

2: The use of personal protective equipment (PPE) became one of the key procedures during this period.

3: PIDs are the most sophisticated type of protective unit available because they contain the patient in their own environment and eliminate the need for disinfection. In the picture: BRAVE device.

COVID-19 Airbus helicopters in action

Airbus helicopters and operators have been on the front lines of many countries' efforts to combat the virus, helping hospitals and governments provide air medical transport and other critical services.



H145

The H145 is well suited for primary and secondary EMS missions and intensive care transport.

Personal protective equipment (PPE)

Crew members should take as many precautions as possible to minimise their direct contact with potentially infected patients, including wearing PPE such as:

Eye protection
N95 face mask



Pilot with mask

Nitrile or latex gloves
Gown
Boot covers

Ventilation

Airbus Helicopters has issued an information notice detailing the various air-distribution systems onboard its helicopters. The explanation includes how to use fresh external air only, when possible, and how to minimise the circulation of air from cabin to cockpit.

[All details here](#)

Disinfection of cabin, tools and equipment

Airbus Helicopters has issued guidelines for properly cleaning and disinfecting helicopters, workspaces and tools that have been contaminated by COVID-19.

[All details here](#)

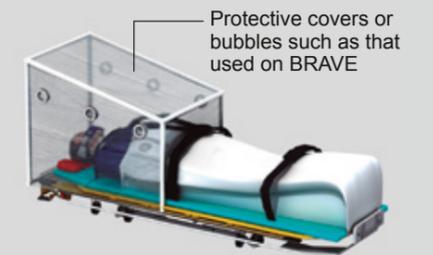


Isolation stretcher

Patient Isolation Devices (PIDs) protect medical staff and crew from any contagion during flight.



The EpiShuttle® is a solid plastic chamber with integrated bed, adjustable knee angle and backrest, that protects the environment from an infected patient



Protective covers or bubbles such as that used on BRAVE

Cabin/cockpit separation

Provides a protective barrier between the patient and flight crews, available for the entire Airbus Helicopters range.



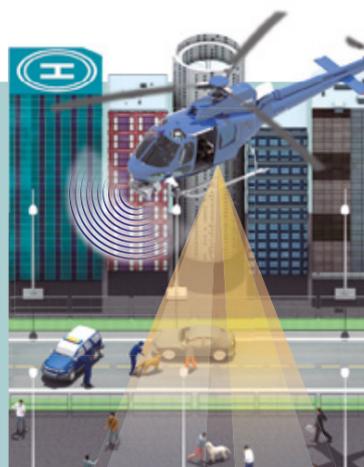
H135

The H135 is the market leader in emergency medical services (EMS) with 635 units in operation worldwide.



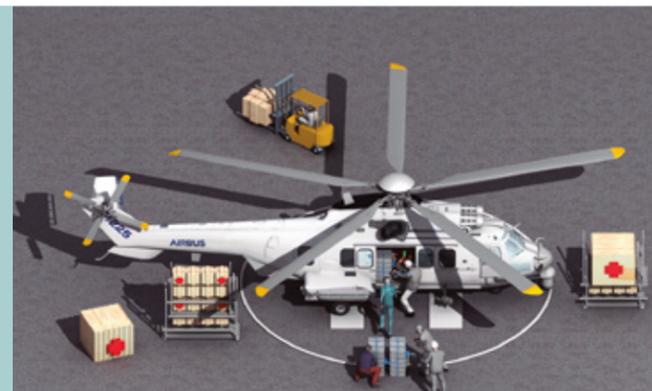
H125

Fast, agile and simple to use, the H125 is operated by police forces in some 30 countries around the world. During the height of the crisis, the H125 was able to carry out patrol and surveillance missions to ensure lockdown respect.



H225

High payload and versatility allow the H225 to transport essential goods up to 4.75 tonnes (external), 4 tonnes (internal) or up to six stretchers or two medical walls.

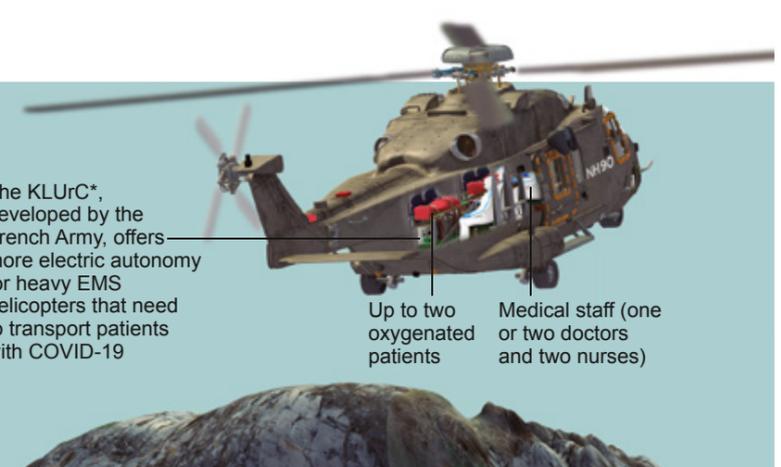


NH90

Among other critical missions, NH90 helicopters were used to evacuate COVID-19 patients from overwhelmed hospitals to areas that were less affected by the outbreak.

*Kit Leger d'urgence Cairman.

The KLUrC*, developed by the French Army, offers more electric autonomy for heavy EMS helicopters that need to transport patients with COVID-19



Up to two oxygenated patients
Medical staff (one or two doctors and two nurses)

Operators take up the fight against COVID-19

During these months of fighting against COVID-19, operators around the world have seen their daily routine completely changed in order to meet this unprecedented challenge. Some of these stories follow.

NORWAY THE NINE-DAY PUSH

National Air Ambulance Services of Norway needed to temporarily expand the evacuation capacity for citizens in the icy northern reaches of the country. They contacted Luftransport with an urgent request for a helicopter. The AS332 L1 Super Puma was at the operator's Stavanger maintenance facility, where it was in the midst of an overhaul and "not exactly in a thousand pieces but it needed a lot of work doing," says Luftransport COO Kjetil Indrevik.

MRO provider, Heli-One, quickly got the helicopter up and running again, installing an EMS interior which had to be tested and certified for use with a patient isolation and transport system (the EpiShuttle from Norwegian company, EpiGuard). Just nine days after the first urgent request, the helicopter was ready for operation at Tromsø, where it is transporting COVID-19 patients to the University Hospital of Northern Norway.

Luftransport has performed several missions to evacuate COVID-19 patients safely to hospital in the north as a supplement to the national service that Nolas performs in Norway with 17 aircraft, also using the EpiShuttle.



FRANCE LIFE-SAVING KIT ABOARD THE CAÏMAN (NH90)

In France, Operation Resilience is the name given to the French military's actions in the fight against COVID-19. As part of this all-out mobilisation, the adapted NH90 KLUrC was born.

The KLUrC emergency kit (Kit Léger d'Urgence Caïman) is a compact device that allows the army to transport and operate all of the medical material necessary to evacuate two patients aboard an NH90 TTH Caïman helicopter. First developed to evacuate soldiers in Mali, the KLUrC was adapted in record time for COVID-19 cases through the cooperation of the French Army's airmobile group engineering section (GAMSTAT) and French military health services. The kit had a trial by fire just after the country entered stage 3 of the virus. Between 28 March and 8 April, Caïman helicopters operated by French Army aviation carried out 24 rotations, evacuating 48 patients to facilities in France, as well as Germany, Switzerland and Austria. This extreme reactivity was possible due to the close and unprecedented cooperation between the French Army and the French emergency service (SAMU).

The KLUrC – which offers enough electrical capacity to power the medical equipment needed in transporting COVID-19 patients – is currently being developed for the army's Puma and Cougar helicopters.



**SOUTH AFRICA
VITAL SERVICES DURING
THE COVID-19 PANDEMIC**

After more than 10 years of operations and over 5,000 EMS missions for the helicopter operator, the pandemic arrived in South Africa and changed the daily life of EMS operator, HALO Aviation. But while many operators decided the risk was too high to transport possible COVID-19 patients onboard, HALO adapted their procedures, equipment and behaviour to ensure their teams' protection while ensuring the same high quality of EMS service to the public. HALO incorporated a 'COVID-19 screening procedure and checklist' used on every flight, that facilitated a detailed investigation should it raise a flag for a possible COVID-19 patient. A barrier curtain in the aircraft systematically protected the pilots from the cabin, and all crew members started to wear personal protective equipment just in case they had to fly a possible COVID-19 patient. Also, the aircraft and all equipment were sterilised after each and every mission.

"Since the beginning of the lockdown and until today, we have performed 60 missions, which is a marked decrease from our normal cases," clarifies Ryan Horsman, CEO of HALO Aviation. When asked about the reason for this decrease in the number of EMS interventions, Horsman



© HALO Aviation

is categorical: "The restriction of sales on any alcohol has had a positive impact, limiting the number of cases we attend to where driving under the influence of alcohol is a factor! And the limited number of people and vehicles on the roads has had a significant impact on emergency services." Initially, a number of hospitals were reluctant or not permitted to refer COVID-19 cases. However, the fact that HALO was using the IsoArk isolation chamber (equipped with its own negative pressure filtration system), provided them with a greater level of comfort. The IsoArk isolation chamber, which has a filter performance of 99.9995% and provides seven access openings, is currently being used around the globe in the H145 family, the H155, and the Super Puma family.

[Read more in Rotor On line](#)

**BRAZIL
FOR EVERY PROBLEM, A SOLUTION**

The H125 is the most widely-used Airbus helicopter for parapublic missions in Latin America. A valuable asset for the fight against COVID-19.

In April, the customer centre in Brazil, Helibras, got a request from the national aviation authority, ANAC, and parapublic operators to join a working group on using patient isolation devices (PID) to transport COVID-19 cases.

Discovering that PIDs weren't available for the H125, Helibras undertook an H125 feasibility study for the body-length bag used to isolate infected patients.

The study took account of risks and solutions, and involved tryouts using a PID with stretchers approved for the H125. "During these studies, Helibras invited some parapublic customers to actively participate in the tryouts with its own aircraft to highlight the H125's multi-functionality," says Alberto Duek, Head of Support & Services, Latin America. Following these tests, Helibras was able to suggest changes to the PID's design for a better fit in the cabin.

As a result of the Helibras study and working group, ANAC issued a temporary authorisation for the use of PIDs together with an approved stretcher, opening the way for operators to contribute to their country's effort against COVID-19.



© Helibras



© HALO Aviation



© Helibras



© ADAC Luftrettung

**GERMANY
“YELLOW ANGELS” COME
TO THE RESCUE**

The German helicopter emergency medical services operator, ADAC Luftrettung, has been working around the clock with its fleet of 50 helicopters to transport COVID-19 patients. With helicopters in the H135 and H145 family, aircraft whose cabins are large enough to be able to treat COVID-19 cases and carry medical equipment, ADAC Luftrettung was able to rapidly put its fleet to use in the fight against the virus. In March, two ADAC aircraft transferred French patients from Metz to a hospital in Homburg/Saar in Germany. A week later, ADAC used an H145 to transfer a patient with severe lung disease in the middle of the night from Bocholt to the University Hospital in Essen. And pairing with the German Bundeswehr, an ADAC helicopter was used to transport an Italian COVID-19 patient from the airport in Hamburg to the German Army hospital in Westerstede. In total, the German HEMS operator carried out more than 350 missions related to COVID-19

by mid-May – 10% of those were inter-hospital transfers. This tremendous effort comes with risks, and imposes increased security measures on its pilots, paramedics and support staff. This includes special training for ADAC Luftrettung’s crews and increased financial resources for protective equipment for the crews. Yet ADAC Luftrettung’s commitment rings clear: “the ‘yellow angels’ rescue service is fully available.”



© ADAC Luftrettung

**USA
“THIRTEEN HOURS OVERNIGHT
IN A NYC HOSPITAL”**

When the COVID-19 crisis slammed into New York City in April, NYC hospitals became overwhelmed in a matter of days. Urgent requests from the Department of Public Health went out to critical care transport companies, seeking help in moving the worst cases to other hospitals. Air Methods responded. From 1 to 6 April, the air medical transport provider flew an average of three to six patients a day from JFK International Airport to facilities in upstate New York. “I had the opportunity to work with the nurses and doctors to figure out who needed [transport] and assign them to an aircraft. That was my first experience with COVID-19: 13 hours overnight in a NYC hospital. That night we transported six patients out,” says Aiden O’Connor, Director of Business Development Northeast with Air Methods. On 7 April, the company made an abrupt move to mass casualty mode following an incident at an overcapacity hospital. Drawing on the fleets of various partners, they were able to mobilise

15 aircraft. “Part of our logistics and morning brief was to decide which bases were going to be activated,” says Bill Stupa, Air Methods Area Manager. “Primarily we went with the H135 and H145. We geared towards the larger platform because of the confines of the compartment and the pilot’s proximity to the patient.” Each COVID-19 transfer took about three hours, from moving the patient via ambulance to the waiting helicopter, the hour-long flight and delivery, and two hours of helicopter decontamination afterwards. Adding to the complexity, crews worked in full protective gear. “All you could see was their eyes. We’d take Magic Markers and write our names on our suits,” says O’Connor. “These were individuals who had PPE on top of them, their equipment was wrapped in plastic, they were prioritising what to touch, because once you touch something it has to be decontaminated. It was really an extraordinary feat on behalf of our flight crews.”

[Watch the video in Rotor On line](#)



© Air Methods

The H145 above the land of the long white cloud*



*The Maori name for New Zealand.

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FRANCE

THE FRENCH ARMED FORCES : A HISTORIC PARTNERSHIP

Article: Alexandre Marchand

It's a story that began in 1956 with the SO-1221 Djinn and the first Alouette IIs. Today, the French Armed Forces is the leading operator of French-made rotorcraft, with 464 units which have accumulated 8.8 million flight hours.



1

From metropolitan France to Polynesia, from Afghanistan to the Sahel, from one ocean to another, the French armed forces have deployed their helicopters in recent years at all longitudes... and practically all latitudes. Alone or as part of a coalition, the French Army, Air Force and Navy have faced many different scenarios that have put the versatility of the aircraft and crews harshly to the test.

Recent events have provided another example, with the role played by helicopters in Operation Resilience for transferring COVID-19 patients. Based in Phalsbourg, the 1st Combat Helicopter Regiment of the French Army's ALAT light aviation unit was the first to go into action in the Grand Est region with its NH90 Caimans, specially equipped to transport patients and their life support equipment. The Caimans were soon followed by the H225M Caracals of the 1/67 Pyrenees helicopter squadron of the French Air Force, deployed at Villacoublay Air Base.

HEAT AND DUST

Resilience was an operation on the home front, with the participants equipped with masks, gloves and respirators as their only weapons. Nevertheless, this new combat did not allow us to forget that other battles were being fought every day a few thousand kilometres further south,

1: Since entering service in 2006, the Caracal has been in all military operations.

2: The NH90 Caiman has brought new operational capabilities to the French Navy.

3: The ALAT Puma and Cougar are still very present in the armed forces' ranks.

4: The Gazelle is well-deserving of its retirement and will be replaced by the H160M Guépard very soon.



2



3



4

in the heart of the Sahel. French helicopters are well acquainted with the African continent; Pumas and Gazelles have been engaged in dozens of operations there for more than half a century. It is now the turn of the new generation to take over.

Since 2014, army and air force helicopters have been engaged in Operation Barkhane in a semi-desert territory as vast as western Europe. Close air support, commando raids, destruction missions, medical evacuations... from the Tiger to the Caracal, from the Gazelle to the upgraded Cougar, all of the helicopters' capabilities have been brought into play. The Caracals even used their in-flight refuelling capability for the first time in operations, performing missions lasting several hours without touching down in hostile areas.

SERVING POPULATIONS

As spectacular as they are, Operation Resilience and Operation Barkhane should not allow us to forget another front—that comprising all the civilian support missions carried out day and night by armed forces helicopters. These are missions that are at times hazardous, yet always valuable, in the heart of our regions or sometimes very far from France, in French Guiana, the Caribbean and even the Pacific.



© Eric Raz 1

THE H160 ACHIEVES EASA CERTIFICATION

Certification is a complex but essential step in the life of an aircraft: it is the official recognition of its level of performance and safety, the key that opens the door to its operational career. For the H160 the time has come to demonstrate its full capabilities in the hands of operators.

Article: Alexandre Marchand

“It’s a tremendous source of satisfaction for me today to know that our customers will now be able to benefit from all the safety improvements that have been incorporated into the H160.”

Olivier Gense,
test pilot of the H160.

Work on the ground and in the air

Certification activities for the H160 picked up pace in early 2018, when the aircraft definition was able to demonstrate sufficient technical maturity to launch testing both to the satisfaction of Airbus Helicopters and its suppliers. “The certification process is long, complex and exhaustive,” comments Olivier Marcellin, Chief Engineer on the H160 programme. “It involves vast amounts of documentation, with input from hundreds of ground and flight tests, generating multiple convergence loops with EASA and optimisations to the aircraft aimed at

improving its level of performance and safety.” Flight testing was completed at the end of 2019 and ground testing two months later, but documentation work continued through the first half of 2020. A protracted effort that resulted in EASA’s validation of the documents submitted and the announced levels of performance. Digitalisation, which has been implemented throughout the development of the H160, has provided valuable assistance in managing this paperwork, centralising and updating thousands of drawings and documents.

Stringent new requirements

Regulations are constantly evolving, in line with technology, with the aim of achieving ever greater levels of safety. For the H160, the first member of a new generation of helicopters, EASA and Airbus Helicopters set the bar high. “We were faced with new requirements,” notes Olivier Marcellin. “For example, we had to demonstrate for the first time, through demanding physical tests, resistance to fire in the engine

area or in the baggage compartment. The robustness requirements for dynamic assembly components also led to tests on a scale never seen before.” Bernard Fujarski, Head of the H160 programme, remarks that “the requirements of both the certification authorities and the company in terms of safety, comfort, reliability, and the levels of maturity to be demonstrated never stopped increasing.”



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MAIN FIGURES

1,500 flight hours logged by the three prototypes and two pre-production aircraft for development and certification.

1,200 certification documents submitted.

500 people involved in the certification work.

Teamwork

Certification is also the recognition of a colossal amount of work carried out over many years by the development teams, together with the Industrial, Support and Programme teams. Dynamic assemblies, structure, vehicle systems, avionics, general engineering – all the departments and all the design office specialists involved in the H160 programme participated in the certification process. “In 2019, the equivalent of 500 full-time employees were involved in this effort,”

says Olivier Marcellin, who leads a project team of around 15 people responsible for overall coordination. At the same time, an ‘airworthiness’ team centralised and validated the technical certification documentation before sending it to EASA. “The H160 was a real human adventure. It isn’t the various milestones that we achieved along the way that have marked me the most – it’s the team spirit that we were able to create,” concludes Bernard Fujarski.

1: “The requirements of both the certification authorities and the company in terms of safety, comfort, reliability, and the levels of maturity to be demonstrated never stopped increasing”, explained Bernard Fujarski.

2: “The H160 was a real human adventure”, said Bernard Fujarski.

3: Certification was a long-term effort that has resulted in EASA’s validation of the documents presented and the performances announced.

RACER TAKING SHAPE

Following on from the X³, RACER aims to validate innovative technologies for a new generation of vertical takeoff and landing aircraft.

Assembly will begin in the coming weeks in Marignane.

Article: Alexandre Marchand

1

A NEW APPROACH TO SPEED

Increase helicopter speed and range while keeping costs under control: that is the goal of RACER (Rapid and Cost-Effective Rotorcraft), which uses an aerodynamic formula that is innovative, yet also simple and safe. The aircraft will be optimised to fly at a cruising speed of around 400 km/h, offering the best possible trade-off between speed, competitiveness, eco-friendliness and mission performance. For example, RACER opens up new horizons in the field of emergency rescue, since the reduction in response times for medical teams has a direct impact on the life expectancy of the people rescued.

INNOVATIVE TECHNICAL SOLUTIONS

The first RACER innovation is its general architecture, which combines the rotor of a helicopter and the pusher propellers of a fixed-wing aircraft. The propeller nacelles are attached to the fuselage by a box wing that provides high-speed lift while housing the landing gear and power transmission to the propellers. The engine developed by Safran Helicopter Engines will meet environmental and performance targets, thanks in particular to an 'eco-mode' that allows one of the two Aneto-1A engines to be shut down during the cruise phase, then to be restarted quickly and automatically at maximum power due to a new type of electric motor – an innovative operating mode validated by an initial bench test campaign.

2

3

FIRST GLIMPSE

In December 2019, the conclusion of the critical design review paved the way for the manufacture of the first technology demonstrator. Four months later, the nose section of the aircraft – made by FastScan, a German consortium from the automotive sector – was unveiled. Like the rest of the aircraft, this sub-assembly makes extensive use of composite materials, synonymous with light weight and strength, to withstand the stresses inherent in high-speed flight. Compliance with weight specifications, through the use of innovative materials and manufacturing processes, is another essential aspect of the project and its expected high level of performance.

4

EUROPEAN COLLABORATION

RACER is a technology demonstrator funded to the tune of €200 million by the European Commission's H2020 research programme, as part of Clean Sky 2. The project, led by Airbus Helicopters, combines the specialities of some 30 partners, companies, universities and European research centres. Participants include Avio Aero (Italy) for the design of the main transmission, and Romaero and INCAS Aerospace Institute (Romania) for the manufacture of the fuselage. Ultimately, RACER represents an important contribution to the competitiveness of the aeronautics industry in Europe.



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“The H225 is a great platform in the clouds and is IFR-capable, as well as having NVG.”

“A SAR flight is like a chess game: for two or three hours you know that you are going to be completely focused, that everything has to be under control and that you have to anticipate what comes next.”

“I prefer construction flying. I like the precision work – how precisely you can work with the H215.”

1 Stan Kartes,
Chief Pilot and Director of Training at ACHI – H225
 I flew the H225 in Malaysia for the oil and gas industry for eight years before joining ACHI two years ago. Seeing the reputation it had in the oil and gas industry as well as in the military sector, we thought it would be a good platform to perform our aerial operations. One of the big benefits of the H225 is allowing us to fly five hours, reaching a range that most helicopters cannot do. It is my favorite helicopter to fly. What I like the most about it is the automation, the safety behind it and its capability in all different weather conditions. I hate to say ‘it flies itself’ but the systems behind it allow it to assist the pilot in the safety of operations. It protects you: it protects your airspeed, your altitude... if you are having trouble in bad weather conditions, you press some buttons and it takes over for you.

2 José Luís Chouza,
SAR pilot at Babcock – H225
 I have been flying in the H225 doing SAR missions since it entered our service in La Coruña back in 2014. Being a pilot was not

an obvious choice when I was young. In fact, I followed a traditional academic path, with studies, university... but I soon realised that this was not for me. I was bored. I was lucky that a relative guided me a little towards the world of helicopters, and 20 years later I am here, delighted with what I do. Starting to fly with the H225 was an opportunity for me, because I have always liked large machines. The H225 was quite a challenge to get the hang of, and today, it is surely the helicopter that I like to fly the most (and the one that flies the most from our base). If I had to highlight something about it, it would undoubtedly be its autopilot, because it has no comparison. The precision... the security it gives us in SAR mode or if there is an engine failure, is impressive. It is very decisive.

3 Jürgen Köll,
Deputy Chief Pilot of Heli Austria – H215
 What I like most about being a pilot is the view, the scenery – and how fast you’re moving from A to B. This morning, my view of the Tiroi Mountains was great. We started on a ski lift project. I flew 42 rotations in three hours. The day before, we did the deconstruction of the old lift, flying parts from the construction site back to the pick-up spot. I prefer construction flying. I like how precisely you can work with the Super Puma H215. We recently flew with a 120-metre long line. We flew a lot of huge metal things into a valley and a long line was necessary because it was so tight. I do this as a single pilot because we’ve got the bubble window on the right door on the H215, which gives me 90% vertical reference. As a pilot, I like to move big heavy parts. The H215 is really stable as a hovering machine. It’s perfect for precise work. It’s got a lot of endurance with full tanks, it’s a fast machine and it’s reliable. You start it and it runs all day long. That’s great for the kind of job we do.

Flying with giants

Three Super Puma pilots tell us what they like most about flying these heavy machines.

Article: Heather Couthaud and Belén Morant



SUPPORTING THE HEROES OF COVID-19

Whether emergency medical services, law enforcement agencies, infrastructure companies, or key governmental and military customers, operators have been performing helicopter flights their countries rely on. From spare parts to training and data analytics, Airbus Helicopters remains committed to supporting its customers and ensuring business continuity during times of crisis. *Rotor Magazine* takes a look.

Article: Courtney Woo

SPARE PARTS AND REPAIRS

Throughout the COVID-19 crisis, Airbus Helicopters' warehouses, logistics hubs and repair shops have remained operational, receiving and delivering parts as planned or performing repairs with the appropriate measures in place. While logistics became challenging at times, solutions were found to reach and support customers.

"From the beginning, Airbus Helicopters took aggressive action by temporarily increasing stock levels to cover longer transport lead times," says Gilles Armstrong, Head of Material Support and Logistics at Airbus Helicopters. "We anticipated stock shipments to ensure we would have enough, and we pre-planned for delays in cargo shipping. As a result, stock coverage at our platforms in the United States and Hong Kong has been at its highest ever."

For the rare cases where parts needed to come from Europe, the company implemented direct drop-shipments to customers. And while issues

have arisen with selected parts due to supply chain concerns, the company has implemented robust and targeted action plans followed at the highest level, ensuring the highest priority was given to urgent customer needs so as to avoid disruption to operations.

TRAINING ON CUSTOMERS' DOORSTEPS

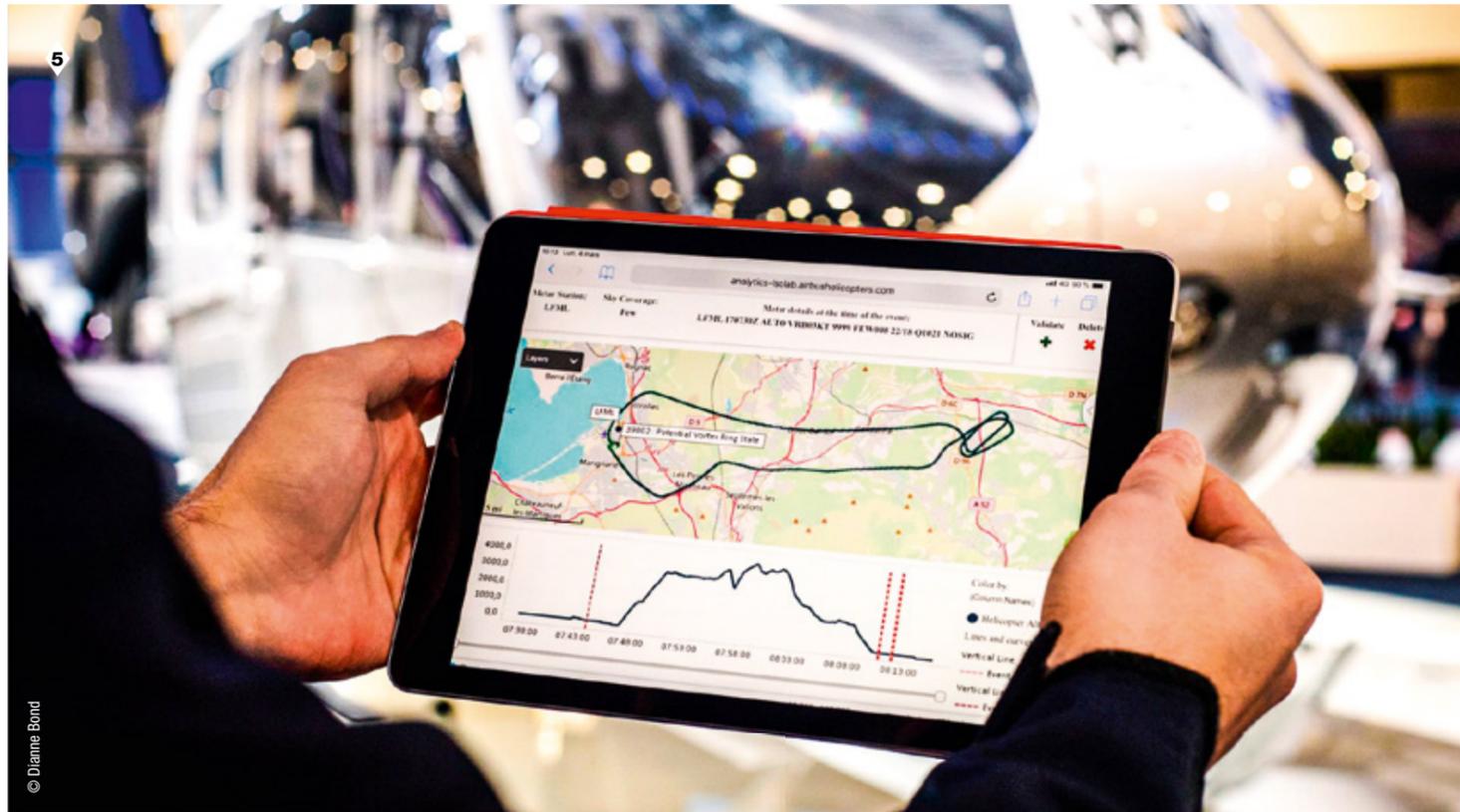
Airbus' network of 20 helicopter training centres has remained operational during the crisis, with many pilots and technicians having been trained over the past six weeks (April and May, at the time of writing). On-site training has continued in some cases, with all the necessary precautions in place for a safe and healthy environment. In addition, new distance learning solutions were put in place for some courses, with approval by national aviation authorities.

"These remote courses allow our customers to perform training locally, wherever they are and without having to travel. They have been specifically developed by the team in order to adapt ourselves

1: Stocks in the United States and Hong Kong were at their highest ever during the pandemic.

2: Training options like virtual classroom sessions and e-learning modules will remain in the future.

3: While logistics became challenging at times, solutions were found to reach and support customers.



5

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to the crucial needs of helicopter operators and continuously support flights safety,” said Sabrina Barbera, Head of Training at Airbus Helicopters. Training will continue to be an area of focus for Airbus Helicopters, with remote learning options proposed in a permanent way, and things like virtual classroom sessions and e-learning modules likely on the menu in the future.

MAKING THE MOST OF CUSTOMER DATA

With operations stressed to the limit, helping customers manage their fleets with data collection and analysis is a promising area. During the COVID-19 crisis, Airbus Helicopters assisted EMS operators in transferring data seamlessly from their site of operations to the Airbus Helicopters data platform. All of this data was available to Airbus technical support teams, ensuring that when they received a customer query, they had the latest information at their fingertips. Accompanying this data transfer is the Fleet

Monitoring website application, available from the AirbusWorld collaborative customer portal. This data analytics service provides overviews of flight sessions and associated usage parameters such as cycles, engines counters and events; data quality and consistency checks; and fleet airworthiness status. For EMS customers like Hungarian Air Ambulance and HTM Helicopters, in-house experts at Airbus Helicopters analysed their data on a daily basis in the early weeks of the crisis, thereby easing their data analysis workload by 70%, allowing them to focus entirely on their life-saving operations. The Flight Analyser application is at the heart of these analyses, automatically processing flight data and detecting potential incidents before they lead to accidents.

KEEPING MILITARY AND GOVERNMENTAL HELICOPTER OPERATORS IN THE AIR

Military and para-public operators often found themselves on the front lines, transporting

critical patients to hospitals. To support NH90 operators worldwide, the NH90 programme support office, together with NHI and its partner companies Leonardo and Fokker, mobilised to ensure the delivery of spare parts, faster turnaround times for repairs, the development and deployment of new solutions such as cabin isolation or disinfection among other measures, to ensure customers could perform their life-saving missions as planned.

To supplement Airbus Helicopters staff already working on customer bases such as in Sweden, Australia, New Zealand and Finland, the company dispatched teams to perform aircraft and/or component repairs at customer premises in order to prevent AOGs and increase reactivity and responsiveness.

EXTRA HELP FOR THE MILITARY SUPPORT CENTRE IN FRANCE

“The French armed forces have been on the front lines from the beginning, performing critical

missions such as transporting COVID-19 patients to other hospitals for treatment,” said Olivier Tillier, Head of the Military Support Centre in France (MSCF). “Our support has included responding to urgent demands to deliver spare parts, and finishing up scheduled maintenance work to deliver helicopters faster.”

The MSCF was one of the first areas to restart production activities after a four-day pause to implement the most stringent health and safety measures to protect employees.

Among others, the centre has been assisting the French armed forces with Operation Resilience with tasks ranging from dispatching equipment and supplies to disinfect their helicopters, extending scheduled maintenance tasks, adapting spare parts deliveries, maintaining personnel at the bases, and finalising maintenance or retrofit work to enable Cougars, EC145s, Caracals, Pumas, and NH90s to be put back into flight or to continue flying.

4: During the COVID-19 crisis, Airbus Helicopters assisted EMS operators in transferring data seamlessly from their site of operations to the Airbus Helicopters data platform.

5: Ensuring the delivery of spare parts to NH90 operators worldwide was absolutely key during this period.



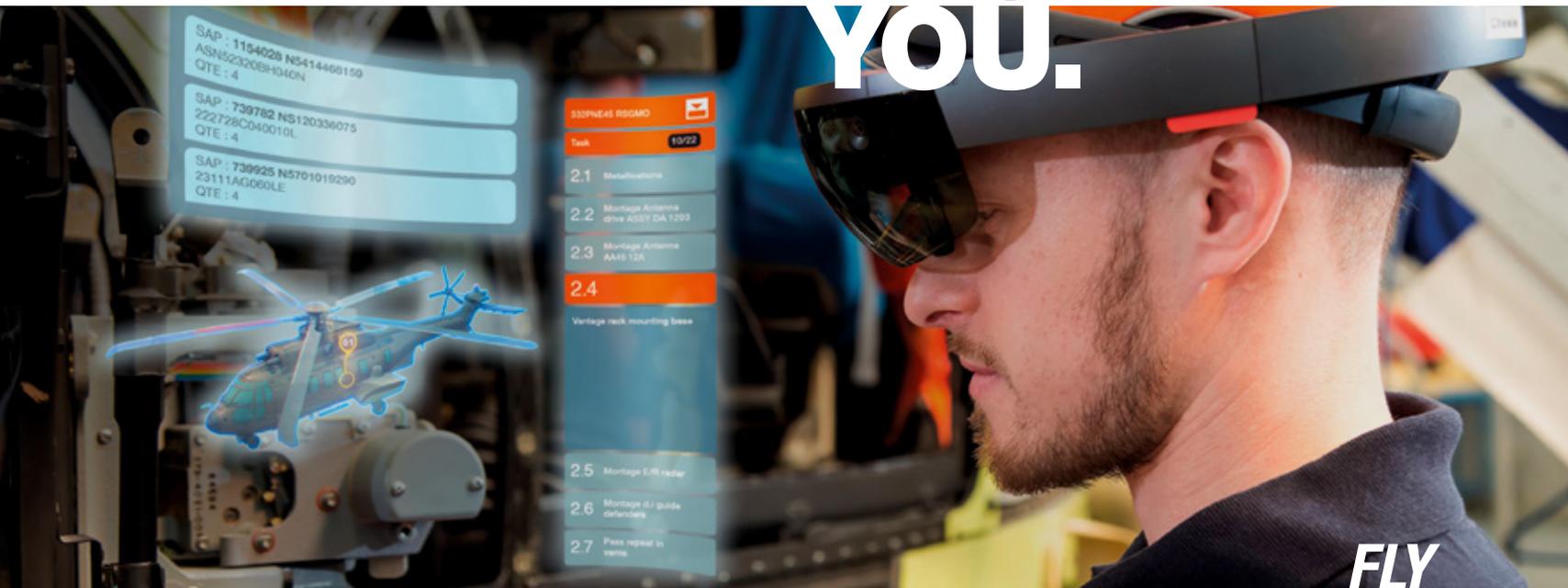
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H*Care* SERVICES. DESIGNED BY A UNIQUE TEAM OF EXPERTS. YOU.



FLY
WE MAKE IT

Continuous customer feedback means we're able to constantly re-engineer and improve our service. It's just one of the reasons we're the helicopter industry's biggest service network, providing 24/7 assistance to 150 countries around the world.

Collaboration. We make it fly.