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Rotor

BY AIRBUS HELICOPTERS

Saving lives in the clouds

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I am very proud to be addressing you here as Airbus Helicopters' new CEO. The helicopter is a unique and fascinating product that I know inside out. Airbus Helicopters is also a company I have collaborated with extensively, notably in my last post as the CEO of Safran Helicopter Engines. As a result, I have developed an appreciation of the values Airbus Helicopters holds, its expertise, and its dedication to supporting customers around the world.

I am taking over at Airbus Helicopters at a time when the company, despite the testing environment, has shown its resilience in maintaining its market share. This is thanks to its extensive product range. We will continue on this path of excellence to maintain our leading status, and our roadmap is clear. We must, first and foremost, ensure customer loyalty by fulfilling our commitments. We will continue our transformation by targeting three priorities: the quality and safety of our products; the competitiveness of our solutions; and the digitalisation of the company. Last but not least, we will continue innovating with a view to improving our existing range and developing new solutions to meet tomorrow's market requirements.

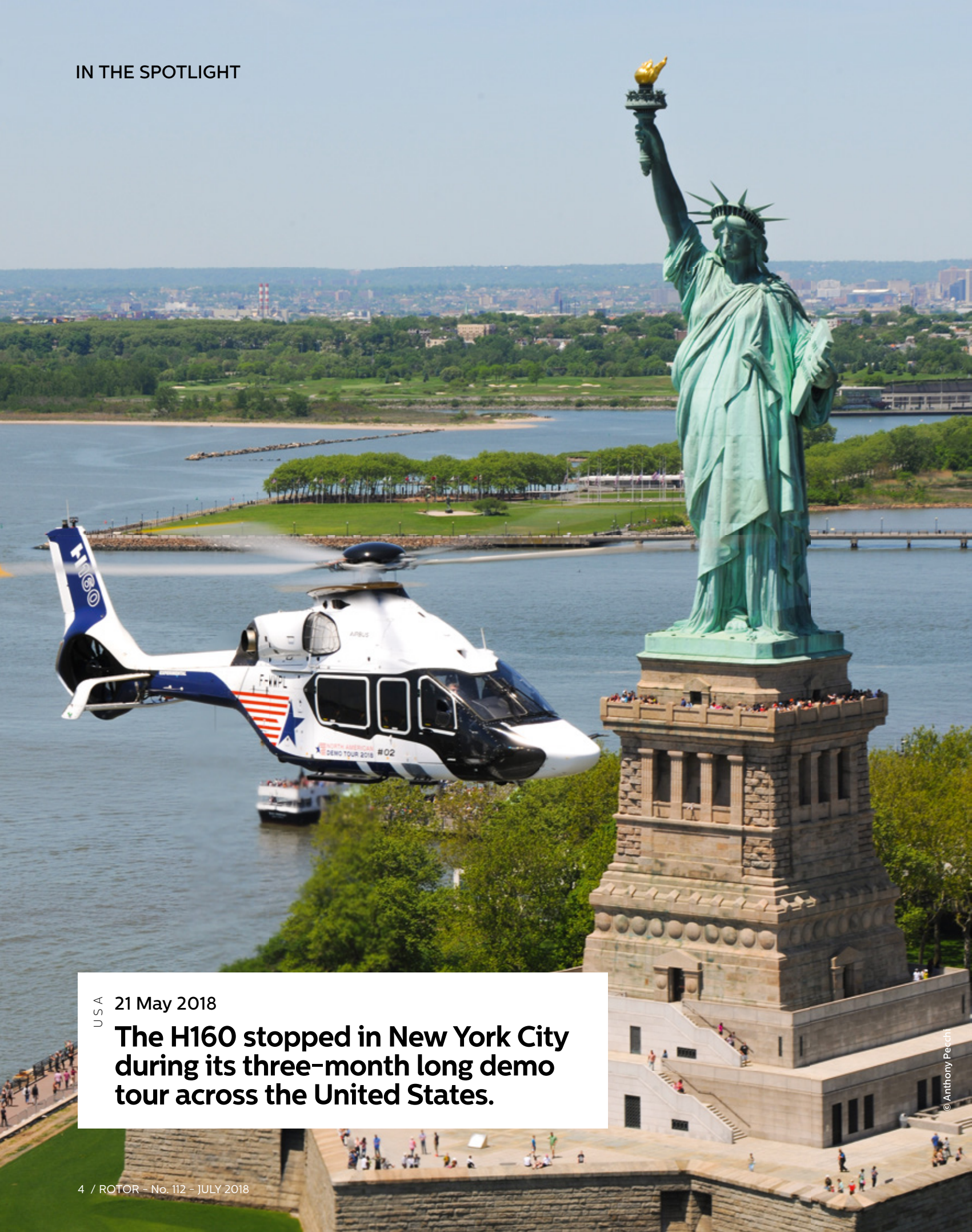
"We will continue on this path of excellence to maintain our leading status, and our roadmap is clear."

Bruno Even

We are also prioritising the continued optimisation of our processes to make our value chain even stronger – from design through to support. The roll-out of our new industrial model will allow us to shorten our assembly cycles significantly and ensure that our aircraft have a high level of industrial maturity, for the benefit of our customers. As we continue to pursue these priorities, the second phase of our transformation will focus on the increased use of digital technologies to enhance helicopter safety for the good of our customers. Our priority actions include better harnessing data to improve our range and services; facilitating the sharing of reliable information in our manufacturing cycles; and shaping the connected missions of tomorrow.

Finally, we are set to implement an ambitious innovation plan to enhance our helicopter range and make the most of the helicopter's VTOL capability, all with the aim of meeting future market needs in terms of urban mobility and speed. CityAirbus, the all-electric flying taxi, paves the way for a new solution for city-dwellers held captive by traffic congestion. Meanwhile, our Racer demonstrator, with its unrivalled speed capability, is already generating great interest among operators looking to reduce their response times.

Though our road map is an ambitious one, you can be sure of my determination, commitment and support in helping to take Airbus Helicopters forward for the benefit of its customers.



USA

21 May 2018

The H160 stopped in New York City during its three-month long demo tour across the United States.

© Anthony Pecchi

© Ned Dawson

WORLDWIDE

HOME TRAINING SOLUTION FOR NEW TECHNICIANS

To provide newly qualified technicians with the necessary skills to perform maintenance tasks autonomously, Airbus Helicopters is now offering a fully customised solution to demonstrate limited hands-on skills and experience.
During this Hands-on maturity and enhancement (HOME) training, a dedicated instructor stays on the customer's site to perform the instruction through real maintenance tasks on the customer aircraft.
The training content is defined through a Training Need Analysis (TNA) during which an expert evaluates the technician's working environment, missions and the necessary skills to develop.
The duration of this programme depends on the conclusions of the TNA, with a minimum training period of 2 months per trainee batch.

© Jay Miller

USA

AN H135 FOR US NAVY TRAINER REPLACEMENT

Airbus Helicopters Inc. will offer the Airbus H135 helicopter as the solution for the US Navy's planned helicopter trainer replacement programme. The H135 is the rotorcraft of choice for military pilot training due to its manoeuvrability, visibility, and low vibration levels. The aircraft is equipped with the most advanced technologies available, providing instructor pilots with an ideal platform for training missions for the US Navy.

© Charles Abarr

GERMANY

FINAL H135 FOR BUNDESWEHR TRAINING

Airbus Helicopters has delivered the fifth and final H135 that will be used by the German Armed Forces in Bückeburg to train their pilots.
These five H135s join 14 others from the H135 family, which have been in service for training at the Bundeswehr since 2000, where they have accumulated more than 100,000 flight hours.
The lightweight twin-engine H135 is used by military forces worldwide to train their personnel. Among others, armed forces from Great Britain, Switzerland, Portugal and Australia put their trust in the H135 family for this mission.

© Christian Keller

ARGENTINA

THE ARGENTINIAN FEDERAL POLICE FORCE BECOMES THE FIRST H145 OPERATOR IN THE COUNTRY

The Argentinian Security Ministry received the first H145 aircraft to be operated in the country. The aircraft will be used by the Argentinian Federal Police (PFA) for police missions and public security services.
The PFA thus becomes not only the first H145 operator in Argentina, but also the first police unit in Latin America to use this helicopter model for law enforcement missions.
Equipped with a searchlight and an airborne surveillance camera to support patrols, the H145 delivered to the Federal Police benefits from a multipurpose configuration allowing it to reconfigure its cabin and equipment in a few minutes to perform various types of missions such as search and rescue (SAR), transport of loads and food, insertion of assault units, medical evacuations (EMS), etc.


© Helical

SOUTH PACIFIC

HELICAL CHOOSES THE HCARE SMART CONTRACT

HELICAL, a member of the New Caledonian group HC, operates an H125 helicopter in nickel prospecting. The aircraft is also involved in drilling prospecting in the island's mountainous regions, as well as in various operations in the mining sector. To ensure the availability of its H125, HELICAL has opted for the HCare Smart contract. With this, scheduled and unscheduled works are carried out by a dedicated group of international equipment manufacturers and benefit from optimised and reduced maintenance costs.

FRANCE

THE FENESTRON CELEBRATES ITS 50TH BIRTHDAY

Fifty years ago, on 12 April 1968, the first Fenestron ducted tail rotor took its maiden flight aboard the second prototype of the Gazelle helicopter. Half a century later, the Fenestron has established itself as a form of technology that symbolises the know-how of Sud Aviation, Aérospatiale, Eurocopter and finally, Airbus Helicopters. Today, Airbus Helicopters' new-generation helicopter, the H160, is equipped with the Fenestron, setting new standards in terms of acoustic footprint and safety.


© Thierry Rostang


© Christian Keller

GERMANY

200TH H145 HELICOPTER DELIVERED

At the end of April 2018, Airbus Helicopters delivered the 200th H145, to Norsk Luftambulanse (NOLAS). The air rescue operator will use the aircraft for helicopter emergency medical services (HEMS) in Norway. The 200th H145 is the final H145 delivered to NOLAS under its current order, bringing the operator's Airbus fleet to a total of eight H145s and seven H135s, all dedicated to delivering HEMS from bases across Norway. This fleet renewal will equip NOLAS to be the only air ambulance operator worldwide to operate a 100% Helionix-equipped mixed fleet of H135s and H145s, which commenced operation on 1 June as Norway's national HEMS operator. The global H145 fleet has achieved more than 100,000 flight hours since its entry into service in 2015, with Babcock being the largest global H145 operator. This customer has a global fleet of 31 H145s in service, operating in HEMS and police missions.

© Christian Keller

GERMANY

25 YEARS OF PARTS-BY-THE-HOUR WITH DRF LUFTRETTUNG

This year, Airbus celebrates a quarter century in support of DRF Luftrettung activities. DRF Luftrettung operates over 50 Airbus helicopters for emergency operations, at 31 bases in Germany and Austria. Each year, the crews take off to perform more than 38,000 emergency medical services. The prerequisite for this high level of activity is a helicopter fleet at maximum readiness. Thanks to the Parts By the Hour contract included in the HCare Smart range of services, Airbus support and services made – and continue to make – a significant contribution to the operational readiness of DRF Luftrettung's rescue helicopters.

WORLDWIDE

GLOBAL TIGER FLEET SURPASSES 100,000 FLIGHT HOURS

The global fleet of Tiger helicopters – in service with the armed forces of France, Germany, Spain and Australia – passed the 100,000 flight-hour mark earlier this year.
The Tiger attack helicopter has proven itself during operational deployments in Afghanistan, the Central African Republic, Libya and Mali. Around 15,000 flight hours have been clocked during missions.
To date, 176 of 185 Tigers have been delivered from the final assembly lines in Albacete (Spain), Donauwörth (Germany) and Marignane (France).

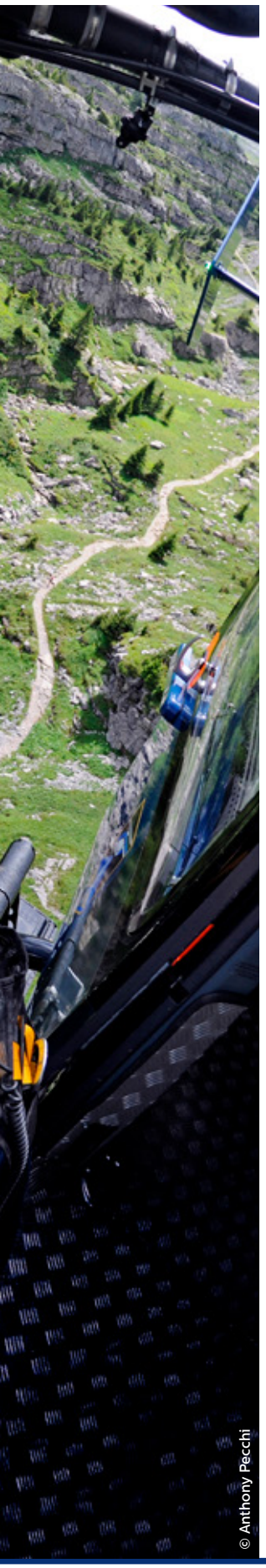

© Airbus Helicopters

© Japan Coast Guard

JAPAN

AN ADDITIONAL H225 FOR THE JAPAN COAST GUARD

Airbus Helicopters received an additional order of one H225 helicopter from the Japan Coast Guard (JCG), bringing JCG's H225 fleet to ten aircraft. JCG currently operates three AS332s and five H225s, both aircraft types from the Super Puma family. With this new order, JCG's Super Puma fleet will grow to 13 helicopters by March 2021, becoming the largest Super Puma operator in Japan.
In Japan alone, a total of 21 helicopters from the Super Puma family are currently flown by civil and parapublic operators and Japan's Ministry of Defense for search and rescue missions, offshore operations, VIP, firefighting, and passenger and cargo transport.


© Anthony Pecchi

SAVING LIVES IN THE CLOUDS

When a mountain rescue is impossible and an injured person requires urgent help, helicopters are the last hope. Whether it be the cold, wind, dark or altitude, there is little stopping a helicopter with the best search and rescue systems, manned by experts, from getting help to those in need. Airbus helicopters have shown they can go where others can't. The feat of Didier Delsalle on Mount Everest in 2005, or the culmination of the Orizaba peak in 2014, attest to the H125 family's unequaled performance among the world's highest peaks. The H135's powerful mission equipment and light, compact body show its advantages in obstacle-laden terrain; while the H145, in its turn, has become the reference helicopter for mountain, especially in the Alps, known both for its spacious cabin and its power at high altitudes.

But the best helicopters mean nothing if it were not for the trained and experienced pilots and rescue teams aboard, men and women who work tirelessly and against the odds to get injured patients into good hands. In this issue, *Rotor* gives them the floor so that we may hear their stories.

SWITZERLAND

“NOTHING CAN REPLACE A HELICOPTER IN THE MOUNTAINS”

Every minute, three lives are saved thanks to an Airbus helicopter. Many of these rescues take place in the mountains in very difficult conditions, both geographically and meteorologically. *Rotor* discussed the topic with Pascal Gaspoz, head of rescue guides at Maison FXB du Sauvetage de Sion in the Swiss Alps.

Article: Belén Morant

© Anthony Pecchi

You manage about 1,600 mountain accidents every year. What is the overall profile of your rescues?

Pascal Gaspoz: Two-thirds of our rescue operations take place during the winter sports season, on the ski slopes but also at high altitudes. However, the other interventions carried out in summer are generally of a more technical nature; when rescuing hikers and mountaineers, we are forced by the configuration of our country to operate in places that are often very difficult to access.

For a large number of missions, the injured person’s life is at stake, either because of the severity of the injuries, or because of dangers involving the victim’s location or weather conditions. During the high season, we perform more than 30 helicopter rescues daily, using seven to eight helicopters spread across our four bases. This year, for example, during the first three months of operation, we were alerted 28 times for snow avalanches – double the seasonal average. Today, our organisation has 15 experienced guides. The Maison FXB du Sauvetage also serves as a training centre, especially for training future rescue personnel. It should be noted that the Air Glaciers aviation company provides helicopter rescue services in the French-speaking part of Valais, while the German-speaking part is under the responsibility of Air Zermatt. If necessary, these two companies provide all the assistance required.

What happens in a helicopter rescue operation on any normal day?

P. G.: When a person is in difficulty, they alert Health Centre 144, which engages a helicopter or other means of transport to rescue them. In cases where a person is declared missing, a helicopter equipped with thermal cameras and searchlights is the most efficient way to find them. It is also sometimes possible to locate the missing person through their smartphone.

Each flight includes a pilot, a flight assistant and a doctor. If the mission is difficult or very technical (avalanches, rescues on cliff faces, etc.), a specialised mountain guide is also present. Before

Did you know?

- Mountain guide training is recognised by France, Italy, Austria and Switzerland according to the standards of the International Federation of Mountain Guide Associations (IFMGA).
- In the canton of Valais alone, more than 300 people disappeared during the last century, never to be found.
- Now in the era of smartphones, hikers spend less time preparing their routes, thinking that they can easily give the alert if necessary.
- A judicial deed is required to be allowed to locate the smartphone of a missing person.


© Pascal Gaspoz

"During the high season, we perform more than 30 helicopter rescues daily using seven to eight helicopters spread across our four bases."

Pascal Gaspoz, head of rescue guides at Maison FXB du Sauvetage de Sion.

leaving by helicopter, the pilot, flight assistant, doctor and guide conduct a briefing to prepare the mission. It is ultimately the pilot who chooses the most suitable aircraft, depending on the rescue profile, weather conditions, altitude and dangers.

Do you think drones will be able to replace mountain rescue helicopters in the future?
P. G.: With a growing number of tourists in the high mountains, accidents – and thus helicopter rescues – are constantly on the rise. The use of drones is currently the subject of a wide debate; since they can also be equipped with a thermal camera, their use in the search for missing people, especially at night or in poor conditions, can certainly help. Personally, I see their use as a complement during helicopter search and rescue missions. Nothing can replace a crew with a reliable, well-equipped helicopter. This is why, despite the drone boom, the need for helicopters for mountain rescue will continue to grow.

In your opinion, what should the mountain rescue helicopter of the future be like?
P. G.: Well, it would be a helicopter offering a large, panoramic field of vision, as well as sizable cabin volume. It must be both light and resistant to wind attack and have a big power reserve, while having little impact on rocks which might fall, and a limited "white-out" effect. We're not short on ideas! ■

First rescue at over 4,000 m: the Alouette II paves the way

On 3 July 1956, during testing in the Alps for a performance measurement campaign, Jean Boulet and Henri Petit were at the controls of an Alouette II when they received a message from the team of explorer Paul-Emile Victor, who had established his base camp at the Vallot refuge (4,362 m): a mountaineer having a heart attack needed to be urgently brought down to the Chamonix valley. Despite the risks of landing and taking off near the refuge, they made a rescue attempt. The first try was unsuccessful due to downdraft gusts reaching 150 km/h. A second attempt allowed the Alouette II to land, load the patient and leave without delay, reaching the hospital five minutes later. It was the world's first helicopter rescue above 4,000 m.


© DR

NEPAL

THE H125 AT THE TOP OF THE WORLD

The challenges of climbing in the Himalayas are legendary. So are the challenges of flying there, yet many a climber owes thanks to the H125 and its pilots.

Article: Heather Couthaud

1 – Fishtail Air carried a stranded climber from 6,900 metres to the Mount Annapurna base camp, one of the highest rescues in the history of the Himalayas.

2 – Air Dynasty was the first private operator in Nepal to use helicopters from the Écureuil family.

"Our pilots have to take precautions," says Suman Pandey, CEO of Fishtail Air. "There are many things they need to be careful of."

Flying in the Himalayan mountains is no picnic, yet the pilots and helicopters that carry out thousands of mountain rescues annually play an essential role there. Every year, people come to Nepal to experience one of Earth's most extreme environments. Mount Everest, at 29,029 feet (8,848 m), draws high-altitude climbers and trekkers. With no road transportation to Lukla's Tenzing-Hillary Airport – the staging point for Everest expeditions – air transport is the only way travelers can make the trip from Kathmandu—or be evacuated back. Flights are a technical feat, as the majority of rescues are at altitudes from 12,000 to 17,000 feet. Many more take place from Everest's Base Camp 2, at 21,000 feet (6,400 m).

CHALLENGES TO MAN AND MACHINE

"Our pilots have to be careful about altitude, so they go oxygen-equipped before taking off," says Pandey. "They have to be careful of the wind. When there is snow on the ground, there are problems with light reflections. They have to be careful at the landing area, and the hardness of the ground."

The pilots' physical burdens are matched by those placed on the aircraft. To perform at such a high density altitude, the helicopters can't be too heavy, so they take off from Kathmandu with marginal fuel and refuel on their return journey. Engines are kept running during rescues. Takeoffs are done into a head wind to help with lift, since many landing spots are in a bowl in the mountainside, surrounded by peaks.

NOT FOR THE FAINT OF HEART

The majority of rescues happen during the fall and spring, yet operators undertake missions year-round. Climbers succumb to frost bite, heat exhaustion (spots on the mountain can reach 90 °F or 20 to 30 °C), snow blindness, and altitude sickness. "We have people who get sick in the high altitude and our main mission is to bring them down," says Pandey. "Some fall and have accidents. Some get lost and we do search and rescue evacuation. Some are stuck at high altitudes, including Annapurna rescues [another Himalayan peak], and we evacuate them at different elevations, and by using a long line."

The H125 is the acknowledged pro, comprising 85% of the light single-engine fleet in Nepal. "The H125 is the best machine that I've flown in my 14 years as a pilot," says Shashwot Dulal, a captain with operator Air Dynasty. "It has good performance. At Camp 2, it's difficult to carry anything but we always have engine power, so we can rescue from those altitudes."

For Dulal, one rescue stands out. "I conducted a flight at Lobuche, at around 16,000 feet," says Dulal. "The climber had broken her leg and was suffering from altitude sickness. The weather was really bad. I took off from under the clouds and went to the glacier. It took time to bring up the passenger and I saw the clouds starting to come in, and almost impossible conditions. We always do a takeoff into the wind but that time, I had to take off tailwind, and I had to use a lot of power to climb. It was a big challenge for me, bad weather at 16,000 feet and a critical patient on board. I could have waited, but the patient would not have been in a good condition, so I came down to Lukla and back to Kathmandu. That was really a top mission for me." ■

> "The H125 is the best machine that I've flown in my 14 years as a pilot."
>
> **Shashwot Dulal,**
> captain with Air Dynasty.

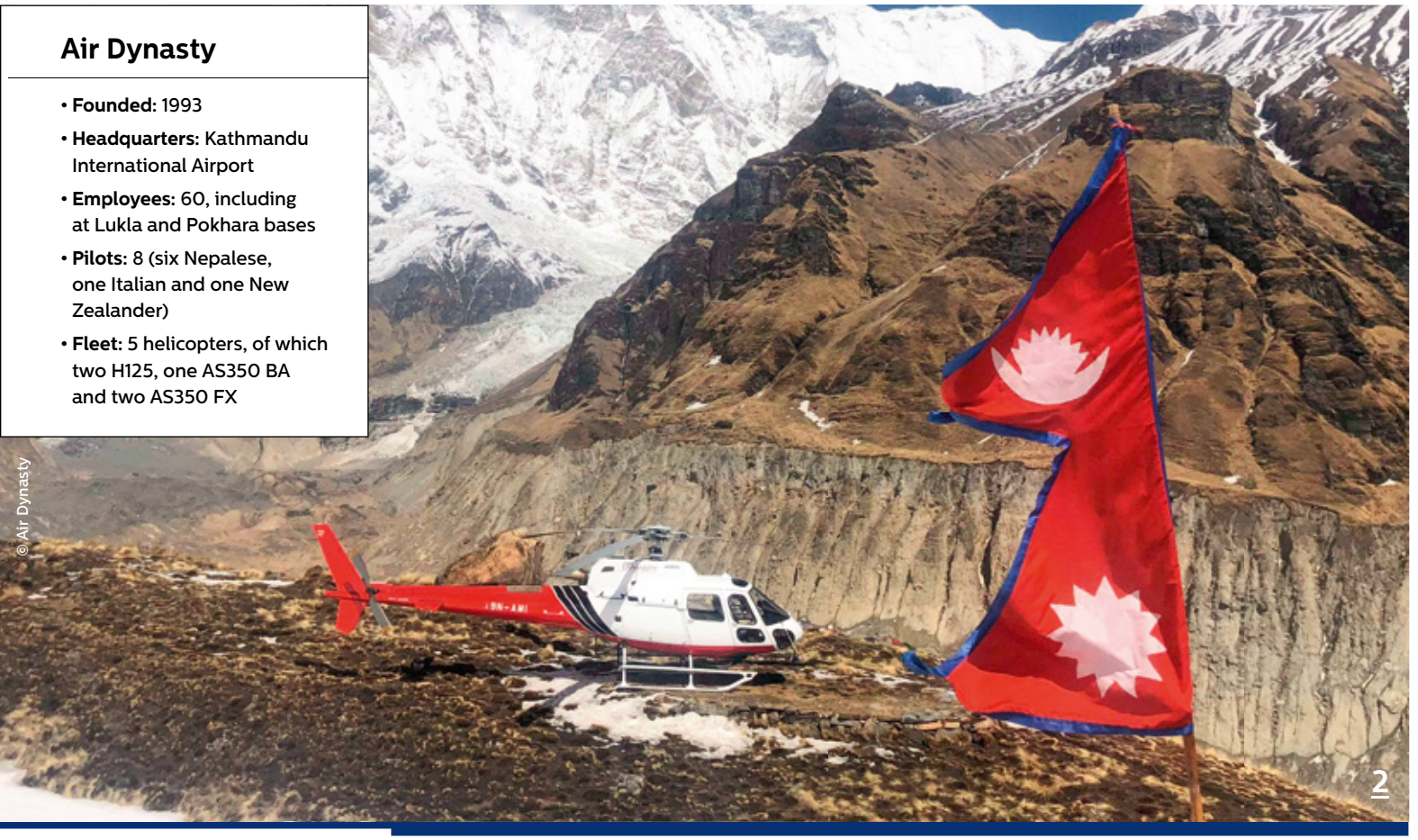
1

Fishtail Air

- **Founded:** 1997
- **Headquarters:** Kathmandu International Airport
- **Employees:** 50
- **Pilots:** 7 (four Nepalese and three international)
- **Fleet:** 3 helicopters, of which two H125s

Air Dynasty

- **Founded:** 1993
- **Headquarters:** Kathmandu International Airport
- **Employees:** 60, including at Lukla and Pokhara bases
- **Pilots:** 8 (six Nepalese, one Italian and one New Zealander)
- **Fleet:** 5 helicopters, of which two H125, one AS350 BA and two AS350 FX



2

ITALY

24-HOUR HELP, ALWAYS AT THE READY

A.R.E.U. Lombardia extends helicopter emergency services to night missions.

Article: Eva Schaar - Photos: Francesco Sartori

The H145 can carry out rescues, many of them by hoisting, in a region where the mountains can reach more than 3,500 metres.

"The possibility of flying at night brings a huge improvement and extends the mission capabilities of helicopters in our region," says Aida Andreassi, Director and Regional Coordinator of A.R.E.U. Lombardia. "In Alpine areas with long distances between hospitals, and a lot of athletic activities with a risk of accidents, the helicopter is a key asset. It brings professional help to injured people rapidly and transports patients to specialised centres."

The H24 [24-hour service] programme started at Brescia and Como, bases close to Alpine refuges where skiers and mountaineers stop in spring and summer.

Since spring 2017, crews in Brescia – based at the ASST Spedali Civili hospital – have flown an average of 1.5 missions per night with their H145.

THE H145: AN ALPINE RESCUE SPECIALIST

During the day, the main job of the Brescian "Horus" helicopter is to bring help to patients in remote areas. "We operate in conditions that can be very hostile," says Dr. Giovanna Perone, director of EMS services at Brescia. The territory is varied, with plains, mountains up to 3,539 metres, as well as rocks and canyons. The base flies around 1,300 missions per year, from rescuing injured climbers with a winch to transporting an ill patient from an Alpine lake to the hospital. "Since the arrival of the H145 in 2015, missions are completed both in winter and summer – thanks to the two powerful engines offering outstanding performance," says Dr. Perone. Currently, the aviation team includes 10 pilots and four winch operators/technical crew members. Depending on the mission, the medical team sends alpine rescue specialists, nurses, anaesthesiologists and reanimation specialists. There's even space for the avalanche dog unit in the helicopter.

The medical crew appreciates the flexible and spacious cabin. "On board, there are all the devices we need for critical care," says Dr. Perone. "The access to the patient is possible both laterally, where the nurse is usually seated, and from the head." Another advantage is the ability to board the patient on a stretcher through the clamshell door. "This allows us to assist the injured person without interruption." ■

The medical crew particularly appreciate the cabin width, which allows them easy access to the patient in a critical phase.

One of the advantages of the H135 in mountain rescue is its compact size, which allows it to land in the most inaccessible places.

USA

SAFE AND FAST

CALSTAR uses the H135 to support rescue missions in California.

Article: Eva Schaar – Photo: Calstar

"Recently, we were called to the Sierra Nevada Mountains for a snowmobile accident. We landed at 8,200 ft and worked with the local sheriff's department and fire protection district," says Bryan*, a flight nurse at CALSTAR 6's base in South Lake Tahoe. "We transported the patient to the regional trauma centre in Reno, 30 minutes away by air. He was diagnosed with multiple fractures and a traumatic head injury."

For flights in such hard-to-reach areas, the pilots and medical crew of CALSTAR 6 rely heavily on the H135.

"The relatively small footprint of the aircraft allows us to access areas that larger aircraft may not be able to," says Heiko*, lead pilot at CALSTAR 6. He also highlights the H135's efficiency. "The good fuel economy and high cruise speed enable us to serve a larger service area and get our patients to their destination quickly."

OPERATING DAY AND NIGHT

The experience is confirmed by the crew of REACH 27, based in Murrieta, California. Their primary service area encompasses communities with small hospitals in mountainous areas, as well as extremely congested air traffic zones such as San Diego and Los Angeles. "The H135's payload capability allows us to safely operate at all of the company's designated landing zones in the region and gives us the ability to carry two patients, or in some cases, family members," explains REACH 27 lead pilot, Richard*. During operations by day and night, in rapidly changing weather conditions and high-density air traffic, the autopilot's reliability is indispensable. "It allows me to manage medical crew needs and communicate with air traffic control while navigating through an intricate air traffic structure."

In mountainous terrain, the challenge is to find a place to land the helicopter safely. "During one of our recent missions, we landed on a small peak that had a flat surface," says Richard. "The mid- and high-skid design allows us to land almost anywhere, which we've utilised heavily during scene calls in the more mountainous areas of Riverside County." ■

*The people interviewed for this story requested to be identified by their first names only.

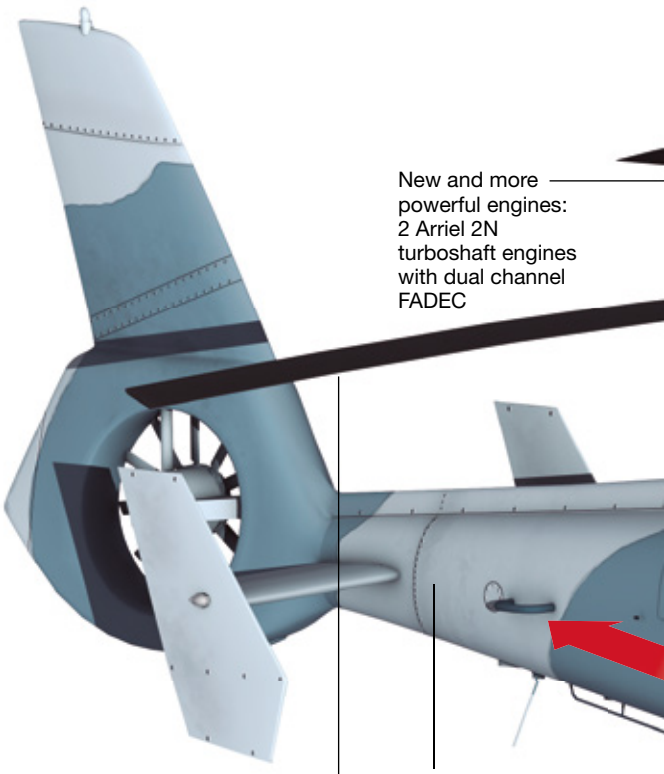
The H160 embarked on a three-month long demo tour across the United States to introduce future customers to what it has to offer. Here, the H160 flying over New York City / © Anthony Pecchi


AIRBUS
NORTH AMERICAN
DEMO TOUR 2018
#02

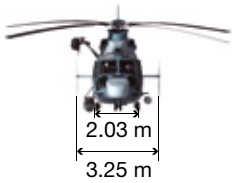
AS565 MBe Panther

The naval utility helicopter

The AS565 MBe is a multi-role light-medium rotorcraft in the Panther family. It is designed for day and night missions thanks to night vision goggles (NVG), including operations from ship decks, offshore locations and land-based sites. It is suitable for a multitude of naval and coast guard missions such as maritime surveillance and security, search and rescue, casualty evacuation, offshore patrolling and ASW – ASuW missions.



Dimensions



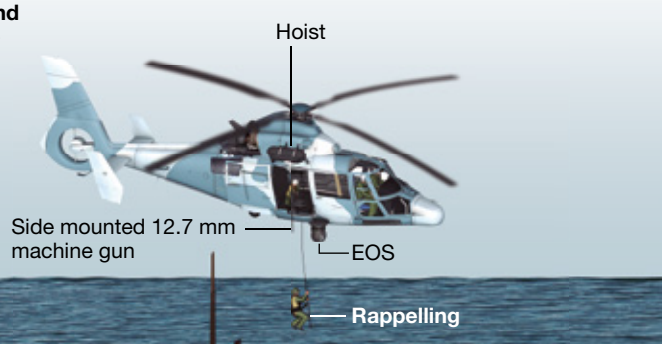
Weapons

Cabin mounted 7.62 mm machine gun

12.7 mm sniper rifle

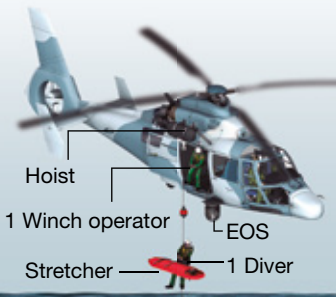
Anti-piracy

A combat-proven and complete airborne asset.



Search and rescue (SAR)

Proven system capable of flying day and night even in bad weather.



Radius of action (RoA) up to

140 NM

110 NM + 30 mins on zone with

Dedicated SAR autopilot modes

Infographic: **beatrizsantacruz.com** ©

Source: **Airbus**

Technical Data

Max take-off weight (MTOW)	Max range at MTOW	Useful load	Max cruise speed at MTOW	Capacity
4,500 kg	426 NM	2,100 kg	143 kts	2 + 10 / up to 4 stretchers

Cockpit

New avionics with state-of-the-art 4-axis autopilot including automatic transition and SAR patterns.

External side mounted 12.7 mm machine gun

Cabin mounted 20 mm gun

1 or 2 AS244 torpedoes

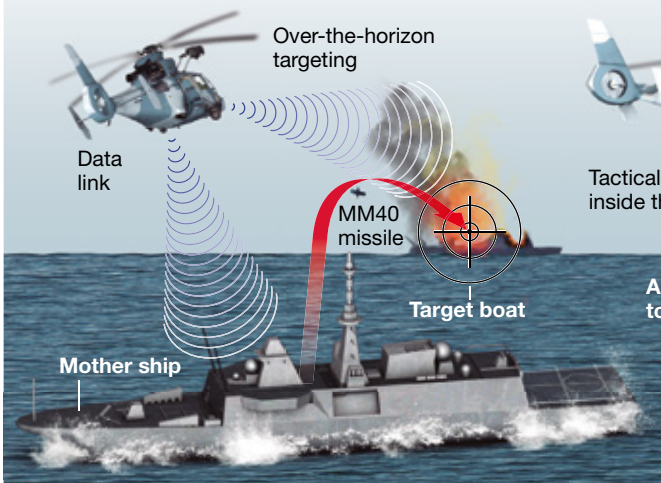
1 MU90 torpedo as growth potential

1 or 2 ANL missiles as growth potential

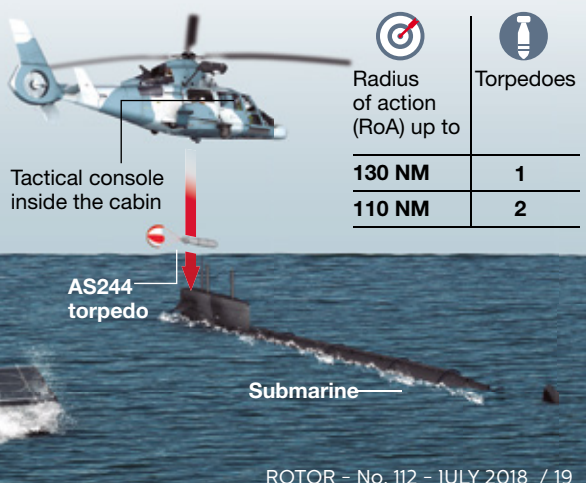
	Pilots	Aircrew	Casualties
	2	2	
	2	2	2

Anti-surface warfare (ASuW)

Self-protection system.



Anti-submarine warfare (ASW)



Radius of action (RoA) up to	Torpedoes
130 NM	1
110 NM	2

USA

The H145 goes high and hot in Las Vegas

The Las Vegas Metropolitan Police Department Air Unit became the US's first law enforcement agency to take delivery of an H145, which will be used for mountain rescues.

Article: Heather Couthaud - Photos: Jérôme Deulin

1 - The H145 is equipped with a Wescam as well as a cartographic system and searchlight.

2 - Steve Morris, Jr., chief pilot of Las Vegas Metro.

3 - Las Vegas Metro takes part in nearly 170 rescue missions per year, especially in aid of hikers and adventurers.

4 - With its H145, Las Vegas Metro monitors nearly 21,000 km².

5 - The Helionix avionics help reduce the crew's workload, a real advantage in increasing flight safety.

Red-rock canyons, prickly pear cactus, and a sky lit by a blazing sun… Las Vegas, in the western US state of Nevada, is not a land for the faint of heart. With average summer temperatures reaching 106° F (41°C) and rainfall rarely topping half-an-inch per month, the desert city attracts extreme sports enthusiasts, all-terrain vehicle (ATV) aficionados, and casino-bound tourists.

The police department's air unit, or Metro, is responsible for an 8,000-mile² area (21,000 km²). Headquartered at the North Las Vegas Airport, the unit's six helicopters clock up around 4,500 hours each year in mountainous terrain, extreme heat and cold, and a sprawling urban environment. The unit's primary mission is flying patrols in support of officers on the ground, but helicopter hoist rescues in the mountains make up another big part of their work—the agency is called out on some 170 search and rescue missions per year, coming to the aid of stranded or injured hikers, rock climbers and adventurers.

In August 2017, Las Vegas Metro became the US's first law enforcement agency to take delivery of an H145. "What we looked for was the capacity of a large helicopter with the footprint of a smaller one that would enable us to get into tight mountain canyons for hoist operations during rescues," says Steve Morris, Jr., chief pilot of Las Vegas Metro.

"When I get in the H145, I'm confident that the systems are working to help me as a pilot."

Steve Morris Jr., chief pilot Las Vegas Metropolitan Police Department Air Unit.

The H145 in law enforcement configuration is equipped with a Wescam MX-10 camera system, Churchill ARS mapping system, SX-16 night sun and MacroBlue monitor for targeted law enforcement and rescue missions. A large cabin can accommodate up to six officers or medics in addition to the two pilots. As well as patrols and rescues, Las Vegas Metro trains for and is equipped to rapidly deploy special forces, respond to mass-casualty events, and undertake assessments of critical infrastructure.

AN ADVANTAGE FOR PILOTS

"The H145's main advantages are safety, power, and systems redundancy," says Morris. "As pilots, what we like about the Helionix avionics is it reduces pilot workload and fatigue, and it's user-friendly. It was obvious to all of us that it was well-designed and had received input from pilots who actually flew helicopters."

After being used in training for crews, and staged for quick reaction force deployment during the 2017 Las Vegas Rock 'n Roll Marathon and New Year's Eve celebrations, in March 2018 the H145 performed its first rescue, hoisting an injured ATV driver near Gold Butte. "A 49-year old male had crashed on his ATV," says Morris. "He had a very serious back injury and was immobile and was back in a canyon. Our rescue people hoisted him up in a bag and we transported him to the medevac helicopter that was standing by."

At the time of writing, the H145 had been called out on three more hoist rescues, all involving injured hikers. "The hoist at Mount Charleston was at 9,047 feet mean sea level (MSL)," says Morris. "We'll get some higher ones in the summer; in June, July and August, it's regularly over 112° F (44 °C) . We'll be looking forward to testing it during the summer when it's hot." ■

Las Vegas Metropolitan Police Department ("Metro")

Date LVMPD founded: 1973

Air unit headquarters: North Las Vegas Airport

Air crew: 15 pilots

Operations: helicopter patrol in support of ground officers, search and rescue, quick reaction force deployment, mass-casualty response and assessment, critical infrastructure checks

Watch the video on Rotor On Line.

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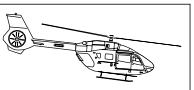
H145



- **Capacity: 1 pilot + up to 11 passengers or 2 pilots + up to 10 passengers**
- **Engine: 2 Safran Helicopter Engines with FADEC**
- **Fast cruise speed: 240 km/h – 130 kts**
- **Range: 816 km/441 NM**
- **Endurance: 4h 33min**

4

5

The H175: the family is growing

The H175's public services version joins its versions in oil & gas and VIP to form a truly exceptional family. It's the result of development work conducted in close cooperation with Hong Kong GFS, its first customer, who celebrated the delivery of their first three helicopters on 18 June in Marignane, France.

Article: Alexandre Marchand and Belén Morant

25 years of excellence

The Government Flying Service was established on 1 April 1993, replacing the Royal Hong Kong Auxiliary Air Force in public service missions. Today, the GFS operates out of the Chek Lap Kok airport and utilises four H155s and three Super Puma AS332 L2s. All of these aircraft will eventually be replaced by seven H175s.

© Eric Raz

A DEMANDING CUSTOMER AND A BENCHMARK FOR THE INDUSTRY

The crews of Hong Kong's Government Flying Services (GFS) are superbly trained and know how to operate aircraft and equipment to their maximum in a large range of missions, including transport, police, EMS, sea and mountain rescue, etc. This knowledge translates into high requirements in terms of performance. But it is also an opportunity for the H175's development teams, who were able to count on a fruitful collaboration with the operator for the helicopter's latest version. The ergonomics of this version were designed with GFS in mind, who were also involved in developing and validating the airborne equipment. ■

RAPID DEVELOPMENT

The development of the public services version began even before the signing of the first contract with GFS, and mobilised a large team of employees from Airbus Helicopters' Programme, Design Office, Industry and Support divisions. The goal was to certify this new version within the deadline requested by its first customer. The mission was accomplished despite a broad scope of study and the integration of a large amount of equipment, sometimes requiring extensive flight tests. In addition, teams had the added challenge of proceeding with development on the first series aircraft. ■

© Eric Raz


© Lorette Fabre

Proud launch customer of the H175 public services

"My team at GFS are very excited about being the first operator to use the public services configuration. This is a state-of-the-art machine and so far, the most pleasant helicopter I have flown in my career.
We will use the H175 in our collaboration with the police department for law enforcement purposes, for firefighting along with our firefighting colleagues, for maritime patrol, as well as SAR and air ambulance. Among other attributes, the H175 is fitted with special equipment to monitor the weather as well as to measure radiation activity in the atmosphere. We are the only civil operator in the world to perform such a wide range of missions with one model of helicopter.
The H175 has superb performance and is also the right size for our jobs. We have been working for more than 20 years now with Airbus Helicopters and we have developed a professional partnership that guarantees mutual understanding and therefore mutual support on all technical and professional matters - this is essential for our operations.
When you fly a new helicopter, you prepare yourself to face teething issues the first year, but I am sure we will solve them together through close cooperation.
All our pilots, engineers and crew who have completed their conversion courses gave me excellent feedback about the aircraft and told me that we made the right choice. I don't have any doubt about it."

Michael Chan, Head of GFS


© Eric Raz

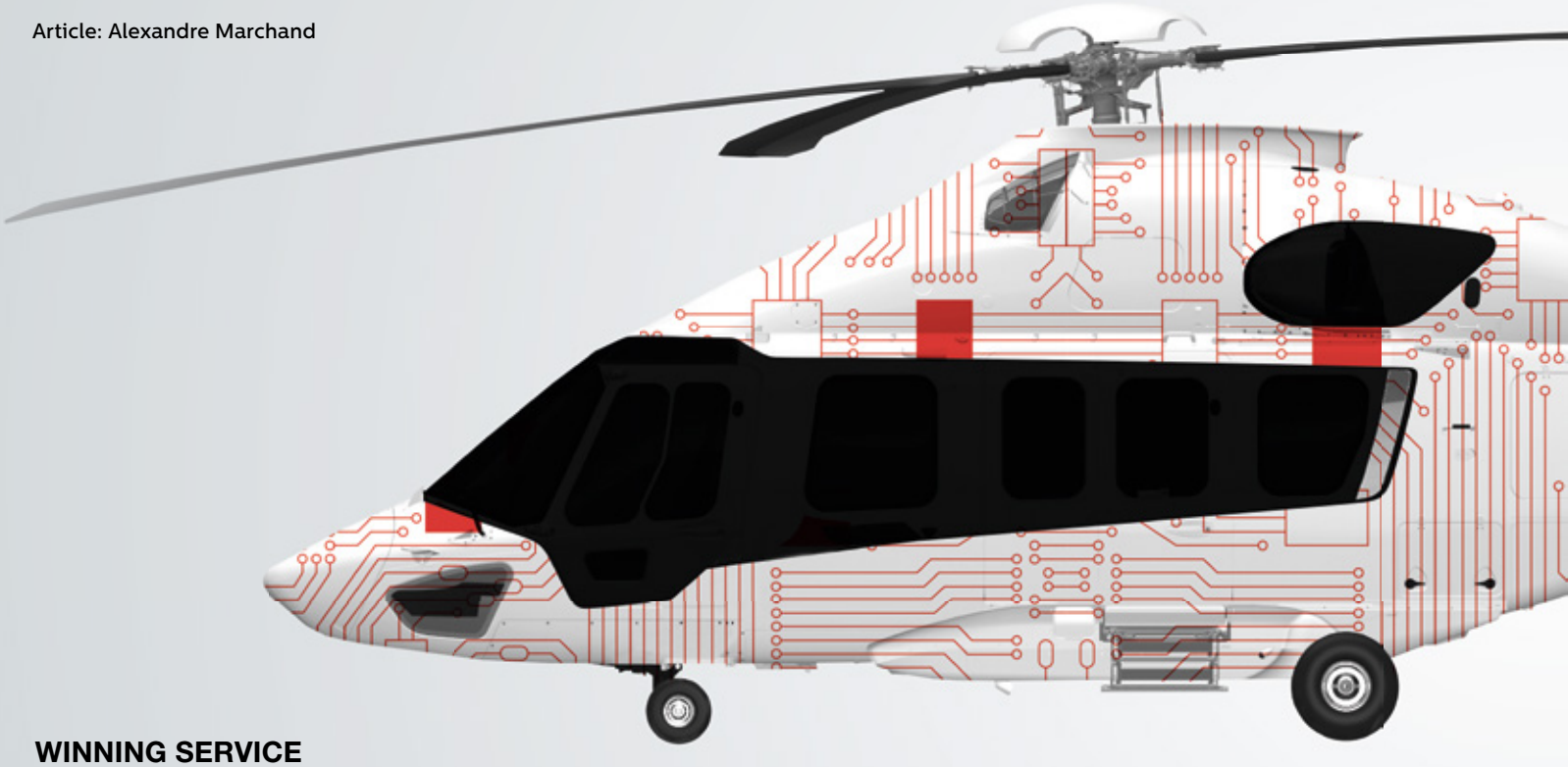
VERSATILITY TAKEN TO THE EXTREME

The public services H175 is equipped with the new-generation Helionix avionics integrated with Euronav digital mapping. The flight crew's workload is reduced while they benefit from numerous advantages in carrying out their mission. The control of various embedded sensors is complemented by a merger of information by the mission computer in order to offer a comprehensive view of the environment. With its speed and autonomy, the aircraft can cope with the most complex situations in a large number of scenarios – the H175 is certified in 26 different configurations, supported by 70 optional equipment items, from a double hoist, searchlight and IR camera to a medical wall or even radioactivity sensors, which GFS uses regularly. ■

The new frontier of analytics

It is no longer merely a possibility, but a certainty: the use of digital data is taking centre stage in today's economy. For the helicopter world, connected aircraft will soon be at the heart of a new operating standard. Nor will they be the privilege of a few large operators– the lightest aircraft, too, will be creators of digital data. Airbus Helicopters has organised itself to meet the challenges posed by digitalisation, and to enable operators to take advantage of its benefits for flight safety, optimum maintenance and well-managed operations. The Airbus Helicopters Connected Services department works in a start-up mode, with flexibility and responsiveness, to develop connected services for everyone's benefit.

Article: Alexandre Marchand



WINNING SERVICE FOR THE CUSTOMER

Via the Keycopter portal, operators have all the analytics tools needed to allow them to take advantage of the aircraft's data, to ultimately optimise the availability of their aircraft, their operation and maintenance costs, their positioning in the market or the size of their teams. Operators choose which services they need, and how to use them. But they can also call on a consulting service through which Airbus Helicopters commits to a certain level of performance and supports the operator in reaching their goals. ■

DIGITALISATION

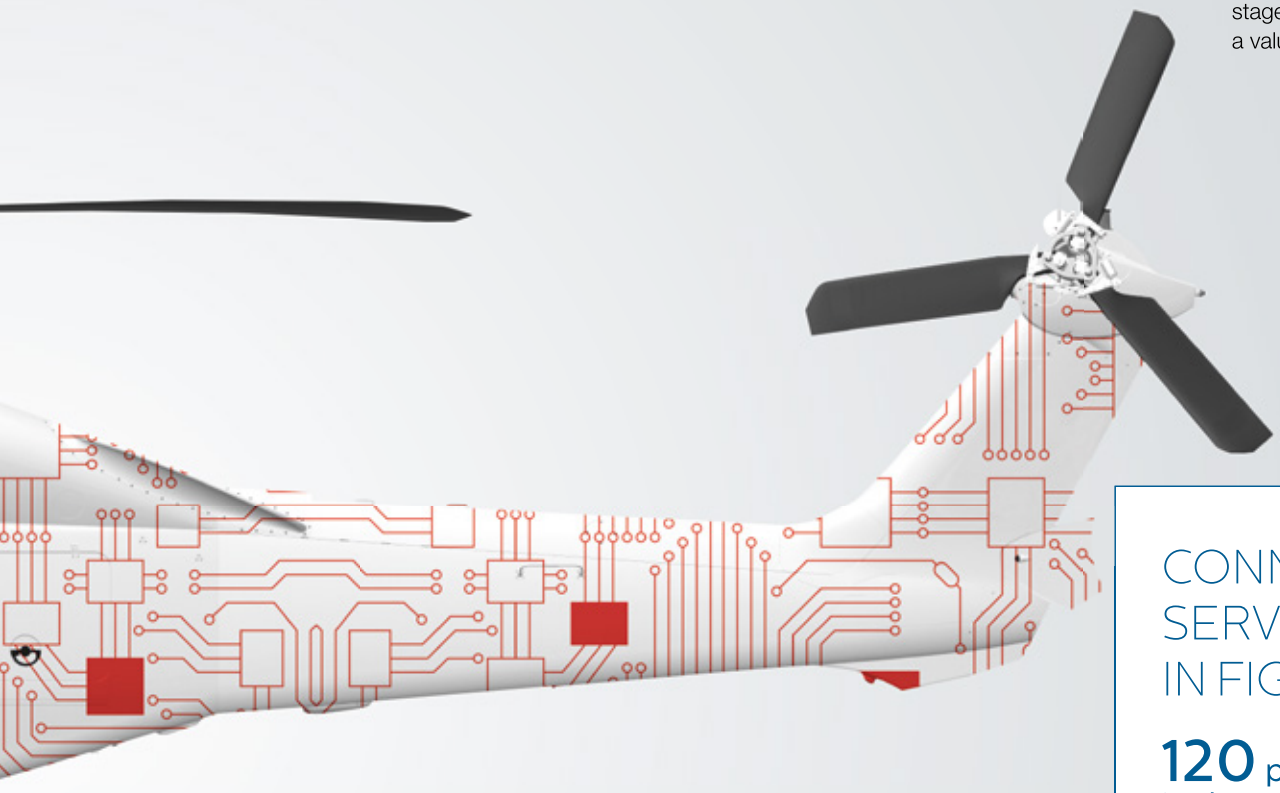
A first step is to make data and the operator's environment digital. The transition from hardcopy-based maintenance to an electronic environment is being made by a set of applications offered by Airbus Helicopters, with the digital logbook, "Fleet Keeper," in first place. In February 2018, the company's service offering expanded with the worldwide launch of HCare Connected Services, a set of services that not only optimises operations, but also collects data on a large scale. The implementation of Helionix, Airbus' next-generation avionics system, also allows for more comprehensive services through the simultaneous transfer in real time of several hundred data on the aircraft's health and usage. ■

PROXIMITY TO THE CUSTOMER

Since digitalisation also depends on the culture of the country in which it is used, hubs in Dallas (USA), Marignane (France) and Singapore ensure proximity with operators. A fourth hub is being prepared in South Africa. An effort is also being made to have operators participate in developments that are in progress within the department. Thirty operators visited Marignane at the beginning of 2018 to learn about applications in development; the opportunity allowed them to share their suggestions so that these applications can better meet their needs. Digitalisation in progress is therefore the business of Airbus Helicopters and its customers. ■

DATA ANALYSIS

The data collected from the aircraft itself, or from the maintenance information system, is consolidated, prioritised and structured before it can be used. This is the stage of value creation, the use of computer tools and specific algorithms to correlate and finally, to analyse data from different angles. It is at this stage that information presents a value. ■



CONNECTED SERVICES IN FIGURES

120 people in the Connected Services department

3 TB of flight data processed each year.

About **a hundred** different algorithms are used to process data

About **a hundred** operators use digital services

1,600 communicating aircraft

FRANCE

A Caiman in the storm

A rescue at sea in the middle of a storm: a classic mission that only the Caiman Marine can accomplish.

Article: Alexandre Marchand - Photos: Frédéric Lert & DR

Tuesday, 2 January 2018. While a storm nicknamed Eleanor sweeps the Atlantic coast of France, the Caiman Marine from the 33F detachment is returning to its Cherbourg-Maupertus base after a training flight. On board are four sailors: the pilot (who is also the captain), the tactical coordinator (TACCO), the "senso" (winch-radar operator) and the rescue diver. The aircraft is in short final when a message arrives over the radio; the regional centre for rescues at sea (CROSS, or Centre Régional des Opérations de Secours et de Sauvetage en mer) has just triggered the SAR alert for a sailboat, the Xoro, which is in distress in the Channel. It is 7:47 pm.
Commander Stéphane X*, the aircraft's pilot and also head of the Cherbourg detachment, tells the rest of the story:
"As soon as we received the message, we switched to intervention mode. After setting down to refuel, we left immediately for the estimated position of the Xoro, off Jersey. It was 60 nautical miles from Cherbourg, at heading 2-8-0. With two tonnes of fuel on board, or three hours of autonomy, we had a play time on zone of about two hours to find the boat and recover its passengers."

THE NH90, POWER ABOVE AND BEYOND

The Caiman faces an established wind of 92 km/h, punctuated by even more powerful squalls. At 8:36 pm it is on zone and the sailboat is found quickly. The Pictor J., a commercial vessel which had come to assist, is at the smaller boat's side. "The weather was too bad to use the FLIR [forward looking infrared]. It was the radar that saved us," says Commander Stéphane soberly. "The Pictor J. protected the Xoro from the wind, but it was so close that we were depowered during our first approach. We then asked the Pictor J. to move away."
The rescue zone is now free of obstacles, and the Caiman winches its diver down a few metres from the Xoro. He hoists himself onto the sailboat and discovers the skipper, alone on board, taking refuge in the cabin. It is impossible to winch the two men directly from the boat given the huge obstacle presented by the mast, which is over 20 metres high. To be rescued, the diver and the skipper have no choice but to jump into the water and swim away from the boat.
"It was very difficult to hover," says Commander Stéphane. "The aircraft was well-stabilised with the lower modes of the autopilot, but the state of the sea was such that the radiosonde was not able to follow: the aircraft had to be manually controlled relative to the surface of the water." While the pilot fights at the controls, the TACCO manages maritime traffic** and monitors the engine parameters. In the water, the diver struggles to hold his shipwrecked companion with one hand while trying to hook onto the winch with the other. The fight drags on; insufficiently ballasted, the hook is swept by the wind. "Down below, it was a real washtub and all of us in the helicopter had a moment of doubt. Deliverance came by ballasting the winch to 15 kg and lowering it to only about ten metres above the two men. The diver was finally able to grab the hook and we raised him up with the skipper, while the waves got really close."
There's no doubt in Commander Stéphane's mind; no other aircraft could have managed such a mission. "In the middle of the storm, I always had enough power to position myself, get down close to the water and climb very quickly to avoid the waves. The aircraft responded instantly with all the power I needed. I have 18 years of sea rescue behind me. I have never experienced conditions such as that." ■

*The people interviewed for this story requested to be identified by their first names only.

**The rescue took place on the Channel's shipping lane and a container ship could pass so close that the helicopter would feel its turbulence.

"In the middle of the storm, I always had enough power to position myself, get down close to the water and climb very quickly to avoid the waves. The aircraft responded instantly with all the power I needed."

Stéphane X, Caiman pilot and head of the 33F Cherbourg detachment.

1 - For the head of the Cherbourg detachment, the die was cast: no other aircraft could have intervened with a similar level of safety in the middle of a storm.

2 - The intervention to rescue the Xoro's skipper was the work of a team. The four men on board the NH90 performed their roles perfectly so that the mission could succeed.

3 - Winching at night in the middle of a tempest—one of the most difficult missions there is.

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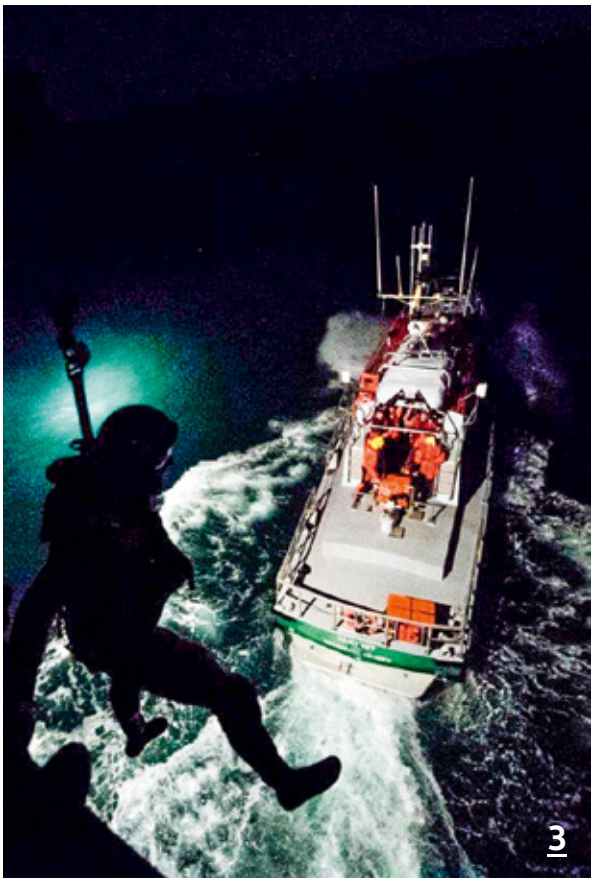

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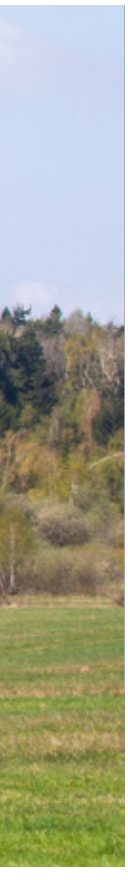


1 – Airbus Helicopters and Schiebel tested the new technology on an H145. The drone was controlled and piloted by an operator in the helicopter.

2 – By controlling drones from the air, military and parapublic crews can explore tough-to-access areas.

Teamwork of the future

Manned Unmanned Teaming (MUM-T) multiplies the capabilities of helicopters and unmanned aerial systems. By controlling drones from the air, military and parapublic crews can explore tough-to-access areas and significantly expand observational capacities.

Article: Jörg Michel – Photos: Schiebel

A sailor is missing at sea. Search and rescue has been scrambled, but details on the sailor's location are thin. The clock is ticking and every second could count.

Fortunately, the helicopter team has assistance: accompanying them is a fleet of five unmanned aerial systems (UAS), controlled from within the helicopter. As the crew observes the water below, they can enlarge the search area considerably, using the drones as extra eyes to locate the sailor. Once he's found, the helicopter will know immediately where to be.

This is just one of the potential uses for Manned Unmanned Teaming. "It multiplies the capabilities of both systems," says Mark Henning, H145 Programme Manager at Airbus Helicopters. "UAS can not only enlarge search areas but also access areas a helicopter might find difficult. They are able to explore unknown territory and deliver information to the helicopter crew, which can then step in with the helicopter's superior effects."

POTENTIAL FOR A RANGE OF SECTORS

In April 2018, Airbus Helicopters and Austrian UAS manufacturer Schiebel successfully tested this new technology onboard an H145. The drone was controlled and piloted by an operator in the helicopter, while control was also temporarily handed over to a ground station to simulate the return of the helicopter for refuelling. Airbus is the first European helicopter manufacturer to demonstrate this technology with the highest level of interoperability.

Testing and certification is currently focused on military uses, but as Henning explains, MUM-T has the potential to benefit a wide range of sectors and enable faster and more cost-effective mission completion.

"In addition to search and rescue over land and water, it could be used for firefighting. Helicopters are often used to observe wildfires across remote terrain. With MUM-T, it could cover a much wider area and transmit information to the firefighting team. You could even park the helicopter and fly the UAS further. Police forces could also use MUM-T for observing large crowds or for pursuit missions through built up areas."

REFINEMENT AND OPTIMISATION

Operating a UAS from a helicopter presents several additional obstacles compared to operation from the ground. A robust data link in the helicopter is paramount. This aspect was successfully managed during the recent tests in Austria, as was the integration of a complete UAS mission planning and control system in the helicopter's architecture.

According to Henning, one of the biggest challenges lies in the human machine interface used to operate the UAS. "It has to be as straightforward as possible. The UAS can carry out certain tasks autonomously, but there is still a lot for the operator to handle – in addition to the other duties onboard they might have." For parapublic missions, the drones would be operated by a third crew member, but for military missions there would still only be two crew onboard. "We are currently in the process of optimising this after analysing the results of the flight tests in April," he says.

In addition to these technical refinements, Airbus is also involved in wider efforts to help overcome the hurdles of approval and certification for parapublic use of UAS. "There's still a lot of work to be done in this area," says Henning. "But it would ultimately open up a range of applications for MUM-T. The technology can be implemented in any kind of helicopter and interact with all types of unmanned systems – the potential is considerable." ■

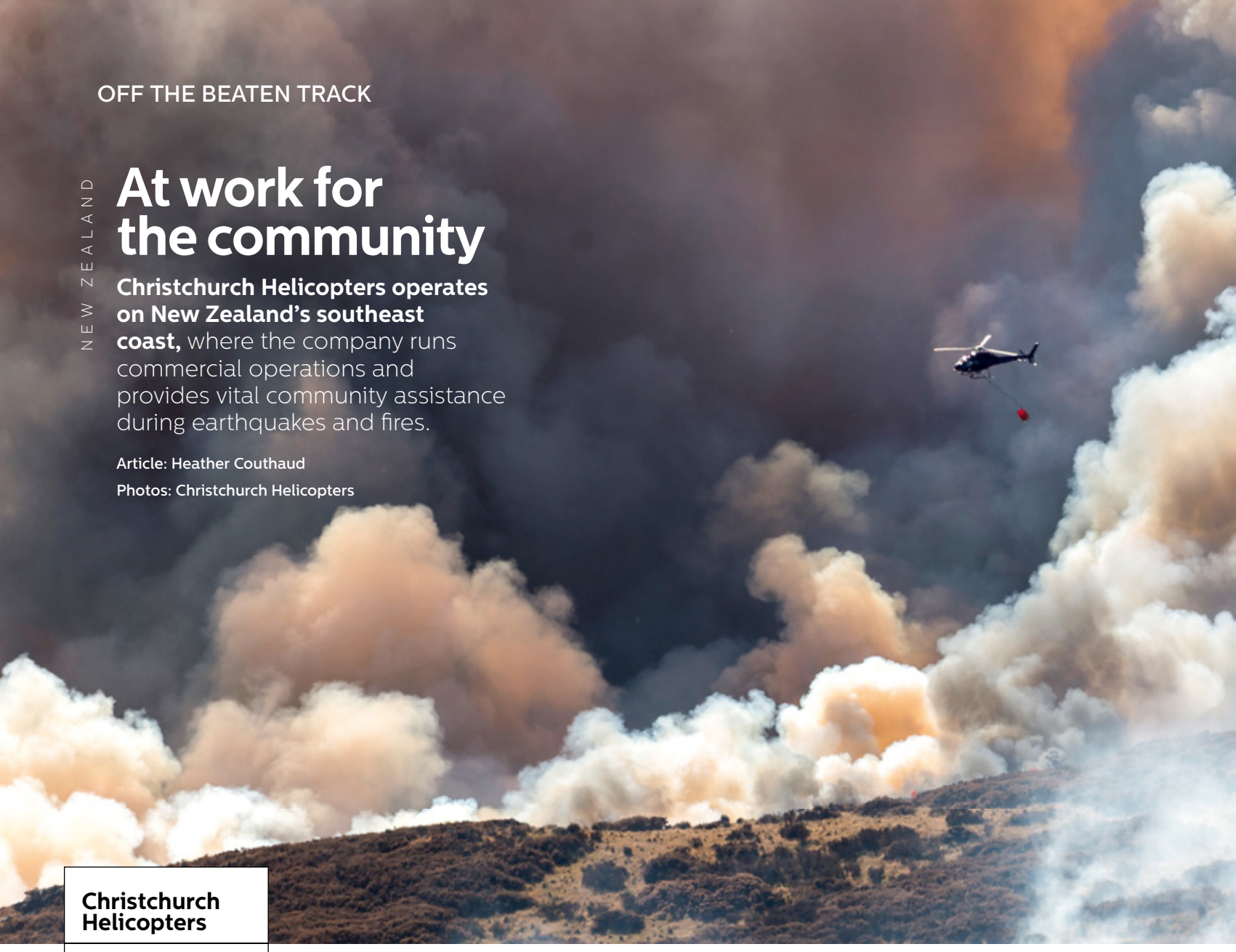
NEW ZEALAND

At work for the community

Christchurch Helicopters operates on New Zealand's southeast coast, where the company runs commercial operations and provides vital community assistance during earthquakes and fires.

Article: Heather Couthaud

Photos: Christchurch Helicopters



Christchurch Helicopters

- **Date founded:** 2001
- **Fleet:** 1 H120, 4 H125s, 1 AS355
- **Activities:** Utility flights, agricultural services, firefighting, aerial surveys, pilot training, sightseeing and tourism

Based at Christchurch International Airport on New Zealand's south island, Christchurch Helicopters operates a fleet of Airbus helicopters for utility flights, agricultural services, firefighting, aerial surveys, pilot training, and sightseeing flights. Their fleet includes the H120, H125, and the AS355. Christchurch's sightseeing tours over the Canterbury region alone could command attention – flights above New Zealand movie sets (think lions, witches and wardrobes and a Dark Lord's golden ring), volcanic mountains as well as breathtaking views of the coastline and the island's interior.

A COMPREHENSIVE RESCUE OPERATION

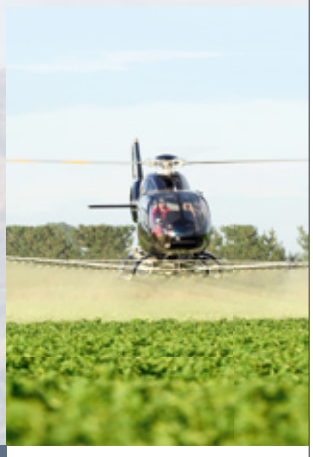
The company's services were called upon in an altogether different way during the Kaikoura earthquake. Christchurch Helicopters were one of the first organisations to be called on for help, since the quake knocked out communication and rendered ground transportation largely ineffective in reaching the coastal town of Kaikoura. When the extent of the damage became known, New Zealand Civil Defense appointed the helicopter operator as their air wing to support the rescue and recovery effort.

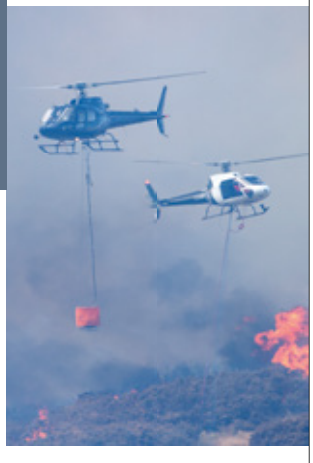
Managing a fleet of multiple rotorcraft from their own and other operations, Christchurch Helicopters transported medical personnel, distributed supplies, emergency equipment, food, and water. "It was a comprehensive operation, using the H125 primarily," says Terry Murdoch, CEO of Christchurch Helicopters. "We had between 10 and 12 H125s at any one time going to and from Kaikoura." Over a period of two weeks, while roads remained impassable, Murdoch and local pilots flew 1,200 emergency personnel, effecting quick turnarounds of about 40 minutes to an hour. In addition, the H125s carried sling loads with generators and other emergency equipment to get the region back up and running. "We're very happy with Airbus," says Murdoch. "Anything that we wanted was pretty much sorted straightaway, so AOG situations

Pilot training

For New Zealand's future aviators, Christchurch Helicopters runs a comprehensive training programme, offering courses for basic private or commercial pilot ratings, to advanced training in mountain flying, sling rating, night rating and instructor rating. The island provides the perfect education ground, as well. Mountain training takes place at 6,000 feet on the country's Alpine slopes; winter mountain training in the snow provides lucky students with stunning views. They also offer a Diploma in Aviation, which is NZQA Accredited.

[aircraft on the ground] weren't a problem. All our supplies turned up quickly and on time with all the support we needed." For its work during the earthquake and Port Hills fires (see right), Christchurch Helicopters was awarded a humanitarian award at Heli-Expo 2018 in recognition of putting its helicopters to work for the community and those in need. ■





In the field

CONSERVATION TOURISM

- **Where:** Canterbury high country and select islands
- **When:** year-round

The orange-fronted parakeet (kākāriki) was thought to be extinct.

Its rediscovery in 1993 in the hills above Canterbury, NZ brought its plight to wider attention – its population is estimated at just a couple of hundred – including to the staff at Christchurch Helicopters. In partnership with the Department of Conservation, the operator has engaged in bringing greater visibility to the bird's recovery, including giving one of its helicopters a green livery in a nod to the orange-fronted parakeet's plumage. The operator also contributes by flying staff, equipment, eggs and birds to the hills and islands where the birds live.

FROST FLYING

- **Where:** Whare Ra vineyard and others
- **When:** Sept - Dec

When temperatures plunge in the grape-growing regions of New Zealand's south island, Christchurch's H125s and H120 are called upon to make low passes over vineyards.

"The purpose of frost flying is to essentially make sure the buds on the vine don't freeze," says Murdoch. "To do this we fly between 50 and 80 feet off the ground, finding the inversion layer, which is air that is a few degrees warmer than the temperature on the ground. This allows the helicopter to push the warmer air down onto the buds, preventing the buds from freezing over. The turbine and larger helicopters pump out 600 degrees of heat and can push that hot air towards the ground, creating a more efficient result."

FIREFIGHTING

- **Where:** Port Hills
- **When:** February 2017

During the Port Hills fires that burned around 600 acres in Christchurch in early 2017, pilots from Christchurch Helicopters supported firefighting and search and rescue efforts. Assisting fixed-wing aircraft and ground crews, the H125s performed water bucketing in operations to contain the scrub fires that fed on dry vegetation. Stranded residents were also rescued and airlifted to safety.

THE H145. MAKES LANDING IN A STORM A BREEZE.

WE MAKE IT FLY

It's no surprise the H145 is the helicopter of choice for rescue missions. Whether at sea, on a mountain or in a blizzard, it can bring help to where it's needed. Compact and versatile, it provides outstanding flight performance under the most extreme conditions.

Resilience. We make it fly.

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