

No. 118 - JANUARY 2020

ROTOR

BY

AIRBUS HELICOPTERS

LIFE OF THE RANGE
H125:
New developments
in aerial work

PROFILES
Mechanics,
doctors on duty

NO LIMITS
BladeSense

Bright skies for North America



FIRST NH90 SEA LION FOR GERMANY

Airbus Helicopters has delivered the first NH90 Sea Lion naval multi-role helicopter to the German Armed Forces, with a further two to be delivered by the end of the year. This was also the 400th NH90 helicopter delivered.

AIR GREENLAND SELECTS THE H225 FOR THEIR SAR MISSIONS

Air Greenland has ordered two H225s repurposed from the oil and gas industry to support its bid to win its home country's search and rescue (SAR) contract. These aircraft will replace the ageing S-61 helicopter currently used for the service. Airbus will provide a comprehensive maintenance and support package as well as pilot and crew training.



VSR700 PROTOTYPE PERFORMS FIRST FLIGHT

The prototype of the VSR700 unmanned aerial system has performed its first flight at a drone test center in the south of France. The VSR700 performed several takeoffs and landings on Friday, 8 November with the longest flight lasting around 10 minutes.

In accordance with the airworthiness authority, the VSR700 was tethered with 30-metre cables to fully secure the flight test zone. The subsequent phases of the flight test programme will now evolve towards free flight.

Reliability



H125s ENTER AUSTRIAN MINISTRY OF INTERIOR SERVICE

Austria's Ministry of the Interior (BMI) has formally introduced into service two Airbus H125 helicopters extensively equipped for law enforcement and rescue missions.

The aircraft join BMI's existing fleets of Airbus H135 and AS350 helicopters and will operate from Innsbruck and Salzburg on behalf of the Tyrolean Government in the Tyrol and other mountainous areas of Austria.

GLOBAL SUPPORT CONTRACT FOR TIGER HELICOPTERS

Airbus Helicopters and OCCAR⁽¹⁾ have signed a tri-lateral global support contract aimed at boosting the availability rate of the Tigers in service in the French, German, and Spanish armies. With this long-term support agreement, Tiger readiness and supportability will be secured for the next decade and beyond.

(1) Organisation for Joint Armament Cooperation.



NEW ACH130 ASTON MARTIN EDITION

This stylish special edition of the ACH130 helicopter comes equipped with a range of four interior and exterior designs generated by Aston Martin. Deliveries will take place from the beginning of 2020.

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Bruno Even, CEO of Airbus Helicopters

“We need to truly understand your priorities, operational requirements and daily difficulties in order to assume our role as the trusted partner we strive to be.”

Despite the current situation of the helicopter market, Airbus Helicopters is looking forward to another exciting year by your side. Our business model, based on a balance between products and services in both the civil and military markets, has allowed us to navigate these turbulent times with resilience.

However, we know there's more to it than just that. This business is much more than just products and services: it's about people helping other people, as Romain points out later on in these pages. And we need to truly understand your priorities, operational requirements and daily difficulties in order to assume our role as the trusted partner we strive to be.

That's why I won't deny how satisfied we are with our score of 7.8 in the latest customer satisfaction survey, an improvement of 0.88 points, which suggests that our efforts have truly been worthwhile and we're headed in the right direction. We want to keep up this same direction in 2020, bringing you innovations through a two-fold

strategy. Firstly, we want to improve our current range so that the more than 3,000 operators using our helicopters can perform their missions even more effectively than they already do. One of many examples is the new five-bladed H145 you are already familiar with, along with the improvements to the H125 for aerial work which we invite you to discover in these pages. Secondly, we aim to develop and mature what we call 'techno-bricks', research areas that can be highly disruptive and which help us to transform the world of vertical flight with three guiding principles: safety, autonomy and eco-responsibility. To this end, we're implementing a collaborative approach to innovation which allows us to work and learn from the best in the business. As you can see, we are starting the year with plenty of ideas and enthusiasm. I'm fortunate enough to have a team of people that believe in what they do and do what they say, and we're looking forward to achieving new milestones with you over the year to come. Thank you for trusting in us.

6

160

ARMED FORCES
WORLDWIDE
are using Airbus helicopters.

**MAINTENANCE
RECOMMENDATIONS**

Airbus Helicopters' Flyscan predictive maintenance service provides an average of six maintenance recommendations per year per aircraft, with some customers avoiding two AOGs per year thanks to the service.

40%

VETERAN-BUILT

Airbus builds helicopters in the US through two production facilities for the H125 and UH-72A Lakota in Columbus, Mississippi, with a workforce that is approximately 40% US veterans.

45 Km
of cable

equip each Super Puma. This aircraft contains between 15,000 and 20,000 basic parts, depending on the version.

Airbus Helicopters and its partner Heli-Union have signed a global support contract

for the **26 Cougar** and **18 Caracal** helicopters in service in the French Army and Air Force. To increase their availability, it makes Airbus Helicopters responsible for the entire scope of the aircraft's support.

More than
560 NH90s

have been sold in fourteen countries. The first Sea Lion of the German Armed Forces was the 400th NH90 helicopter delivered. Together, the NH90 fleet has reached more than 230,000 flight hours.

About 300

**AIRBUS HELICOPTERS
FLYING IN CHINA.**

150 Ecureuil family helicopters are operating in China, the biggest single type of helicopter fleet in the country.

A 5-hour

**HELICOPTER
CHARTER
SERVICE**

to conduct wind turbine maintenance offshore is the same cost as 24 hours downtime on a 6-megawatt wind farm turbine.

8 out
of the 10

largest Airbus Helicopters civil and parapublic operators are based in the US and Canada, the first being Air Methods, with more than 150,000 flight hours per year.

6,000

**AIRPLANE PASSENGER
AND CARGO DOORS**

produced by Airbus Helicopters per year in the Donauwörth, Germany site.

Bright skies for North America

2019 has been a significant year for Airbus Helicopters in North America. Airbus Helicopters, Inc., the customer center in the US, celebrated its 50th anniversary this year, while Airbus Helicopters Canada and the production facility in Mississippi reached 35 and 15 years respectively.



© Anthony Pecchi

The US and Canada today form part of a single region for Airbus Helicopters, which has managed to position itself as the undisputed market leader with a 70% civil and parapublic market share, without losing its challenger spirit of half a century ago. *Rotor* reveals the secrets behind its continued success.





Over the last 50 years, Airbus Helicopters has established itself as a key player in the North American market, with its rotorcraft amassing more flight hours here than anywhere else in the world. Today, eight of the company's top ten civil customers (in terms of flight hours) are based in North America, where there are more than 3,000 aircraft flying for nearly 800 customers for a wide variety of missions, including air medical, law enforcement, utility, tourism, oil and gas, and private and business aviation (PBA).

A LEADER IN FOUR OF THE FIVE MAIN MARKET SEGMENTS

"When you see a helicopter flying here, there is a fair chance it is an Airbus. Over the last 15 years, one out of two civil and parapublic helicopters delivered in North America have come from Grand Prairie,

Texas, Columbus, Mississippi, or Fort Erie, Ontario – our three main sites," explains Will Fulton, Head of Marketing of Airbus Helicopters North America. "If we carry out a detailed analysis of each market, in the EMS segment where we have a 71% share, the H125 and the H130 have been dominant since the mid-2000s. Now we're seeing a trend towards helicopters such as the H135 and the H145 for their twin engines and improved capabilities, especially for critical missions. We're therefore confident that the launch of the H160 in North America will be a great success.

"As for law enforcement, one of every two single-engine helicopters flying the American skies for law enforcement is an Airbus. The H125 is the historic helicopter of choice for law enforcement professionals thanks to its performance and reliability. We are also seeing great interest in the H145 for



AIRBUS HELICOPTERS NORTH AMERICA AT A GLANCE

- 1,000+ employees in the US and Canada
- Nearly 800 operators
- 3,100+ helicopters in service
- 2,000+ pilots and mechanics trained per year
- 2 production facilities for the UH-72A Lakota and H125



© Dianne BC



2

© Dianne Bond

- 1:** There are more than 250 employees in Columbus, Mississippi. Today is home to production facilities for the UH-72A Lakota and the H125.
- 2:** Air Methods ranks highest in the number of flight hours in the world, with some 153,800 flight hours reached last year for their EMS missions.
- 3:** More than 450 UH-72A Lakota helicopters have been delivered to the US Army on time, on cost and on quality.

special missions, especially SWAT operations, thanks to its greater payload and capabilities.

“Looking at the utility market, where we have a 65% market share, the equation is simple: customers are looking for the best cost per lift capability and the H125 is the absolute benchmark in this sense. However, in terms of heavy helicopters, the H225 is expanding its presence beyond the oil and gas segment as a highly effective solution for both civil and military missions.

“Finally, North America has been a veritable success story in terms of private and business helicopter solutions. Nearly 40% of bookings over the past four years are for new customers thanks to the interest in helicopters we’ve managed to garner among private jet owners. Airbus Helicopters secured more than 80% of all North American PBA bookings last year. Moreover, the first H160 in private configuration will be delivered to an undisclosed US customer in 2020.”

AND THE MILITARY SEGMENT?

With more than 450 UH-72A Lakotas performing training and rescue missions for the US Army, along with close to 100 H125 helicopters working for Customs and Border Protection and 100 MH-65 Dauphin helicopters in service for the US Coast Guard, Airbus also supports homeland security operations. Meanwhile, in Canada, ten Airbus helicopters provide their services to the Royal Canadian Mounted Police.

The Lakota is a key player in the military market in the US. Airbus’ partnership with the Army has allowed for



© Ted Carlston

3

the training of nearly 1,500 military student pilots while also providing the US National Guard with a versatile rotary-wing capability suitable for counter-narcotic, border security and disaster response missions.

How has Airbus changed the landscape for helicopters in North America?

Romain Trapp, President of Airbus Helicopters, Inc. and Head of the North America Region, explains the idiosyncrasies of this market and how Airbus has made its mark over the last 50 years.

A VERY SPECIAL MARKET

“There are various key reasons why the US and Canada may be considered a single commercial market. Firstly, North America is the most mature market in the world and the busiest in terms of annual flight hours among Airbus helicopters. In both countries, customers fly in remote areas and need highly reliable helicopters, a crucial aspect of our sales. Our customers are very demanding in terms of services, something typical in this region of the world. You can feel it when you go to the supermarket or when you buy a car: here, the customer is king and waiting is unacceptable. Finally, our customers also demand a high degree of personalization; it is very unusual for us to deliver two identical helicopters straight off the final assembly line. Knowing how to offer each customer the exact helicopter they want is one of the secrets to our success. There are 700 civil helicopters flying in Canada, 90% of which carry out utility work. On the other hand, the 1,900 helicopters used for civil missions in the US are distributed across the air medical, utility, law enforcement, private and business aviation, tourism and oil and gas segments. This constitutes the main difference between these two markets.”

A NORTH AMERICAN SUCCESS STORY

“When we started out in 1969, we had 43 employees and 17 helicopters. Back then, nobody took us seriously. Today we have three main North American facilities and more than 1,000 employees, we provide services for a fleet of more than 3,000 aircraft, and we are market leaders. We apply the same site specialization strategy as Airbus Helicopters to improve our efficiency and capabilities. Some 500 people work at our headquarters in Grand Prairie, Texas, the site of our Support and

Services Center of Excellence. We offer all kinds of services here, including simulator training in the new Helisim Simulation Center that is currently being expanded and will soon house a Level D H145 full flight simulator (FFS) and, in time, an H160 FFS. Our facility in Columbus, Mississippi, employs 250 workers and is our Center of Excellence for Aircraft Assembly and Customization. It is responsible for building the Lakota and H125 helicopters for the North American market. Meanwhile, our facility in Fort Erie, Ontario, has 280 employees and is a recognized Center of Excellence for Composite Manufacturing. It is the sole manufacturer of certain composite parts for eight different Airbus helicopter platforms flying all over the world, thanks to the expertise of its team and its competitiveness – what we do in North America today supports the worldwide market of Airbus Helicopters. In addition, we have developed the Supplemental Type Certificate for the H125’s new avionics suite, the Garmin TXi, which will be implemented in all new H125s this year. The same applies to the cable cutter of the H125, H135, H145, H175 – and soon, the H160 – which has been developed and manufactured in Fort Erie. We have worldwide expertise made in America, and made in Canada.”

THE PEOPLE BEHIND THE SCENES

“The incredible features of our helicopters have paved the way for our success in this region. However, the key to our leading role today is our people. At the end of the day, this business is all about people dealing with people. We’re constantly working to improve our service and we rely on continuous feedback from our customers to ensure that we meet their evolving needs. Only the commitment, expertise and devotion of our employees can explain these 50 years of continued success.”

A man with short brown hair, wearing a blue suit jacket over a light blue button-down shirt, stands in an office setting. He is smiling slightly and looking towards the camera. His right hand is in his pocket, and a gold ring is visible on his left hand. To his right is a large green potted plant. The background consists of light-colored walls and a window with a view of a city skyline.

“What I love about this business is what our helicopters are doing every day: they save lives, protect people and transport passengers safely. This is what motivates all Airbus employees in North America. I know that everything I do here serves a bigger purpose.”

AN EYE IN THE SKY

Rotor Magazine spends the day with the Texas Department of Public Safety (DPS)

Article: Belén Morant – Photos: Jonny Carroll



It's 8 o'clock in the morning in Austin, Texas, and grey clouds threaten to unleash a storm at any moment. Chief Pilot of Texas DPS Tim Ochsner and his team are preparing to carry out routine rescue training using a hoist-equipped helicopter over a lake. The Texas DPS has 14 H125s and four of them are equipped with hoists that grant the state of Texas unmatched quick-response search and rescue (SAR) capabilities, with Ochsner's team being capable of taking off only five minutes after receiving an emergency call.

The aerial lift rescue exercise proceeds as planned, with the H125s picking up the false castaway from the lake and placing it gently on the shore. This is a drill they know to perfection: the Texas DPS was right at the heart of the action during the flooding in the wake of Hurricane Harvey in 2017. Precisely due to their rigorous training and impeccable coordination, they were able to complete 244 rescue missions during 490.5 flight hours over the week of the floods, which involved coordination with 100 different agencies.



VERSATILITY FOR GREATER EFFICIENCY

"Part of our mission is to support not only the state police in Texas, but all police agencies: local, county and federal," explains Ochsner. "We provide aviation resources for anything ground support might need: pursuit, missing persons, SAR, photography of crime scenes, criminal surveillance... anything that requires an eye in the sky."

In addition to the helicopters, the Aircraft Operations Division also has nine fixed-wing aircraft. In both cases, the typical crew consists of a pilot and a tactical flight officer, who acts as the mission manager. For large operations like Hurricane Harvey, the fixed-wing aircraft are used to coordinate

helicopter operations at lower altitudes.

In fact, the *Rotor* team was surprised to see Assistant Chief Pilot Stacy Holland take the controls of an H125 and a fixed-wing aircraft on the same day. “All of the pilots in our division are dual rated, meaning they are licensed to fly both helicopters (single and twin-turbine) and fixed-wing aircraft,” explains Holland. “This makes our operations much more efficient, and we get much more utility out of our pilots. We choose our resources depending on what the mission dictates.”

The H125’s sophisticated on-board radio equipment allows the tactical flight officer to communicate at all times with local, state and federal agencies, while its infrared camera can send real-time images to ground teams both day and night. As a result, the Texas DPS has a veritable eye in the sky providing visibility for ground patrols.

THE IMPORTANCE OF MAINTENANCE

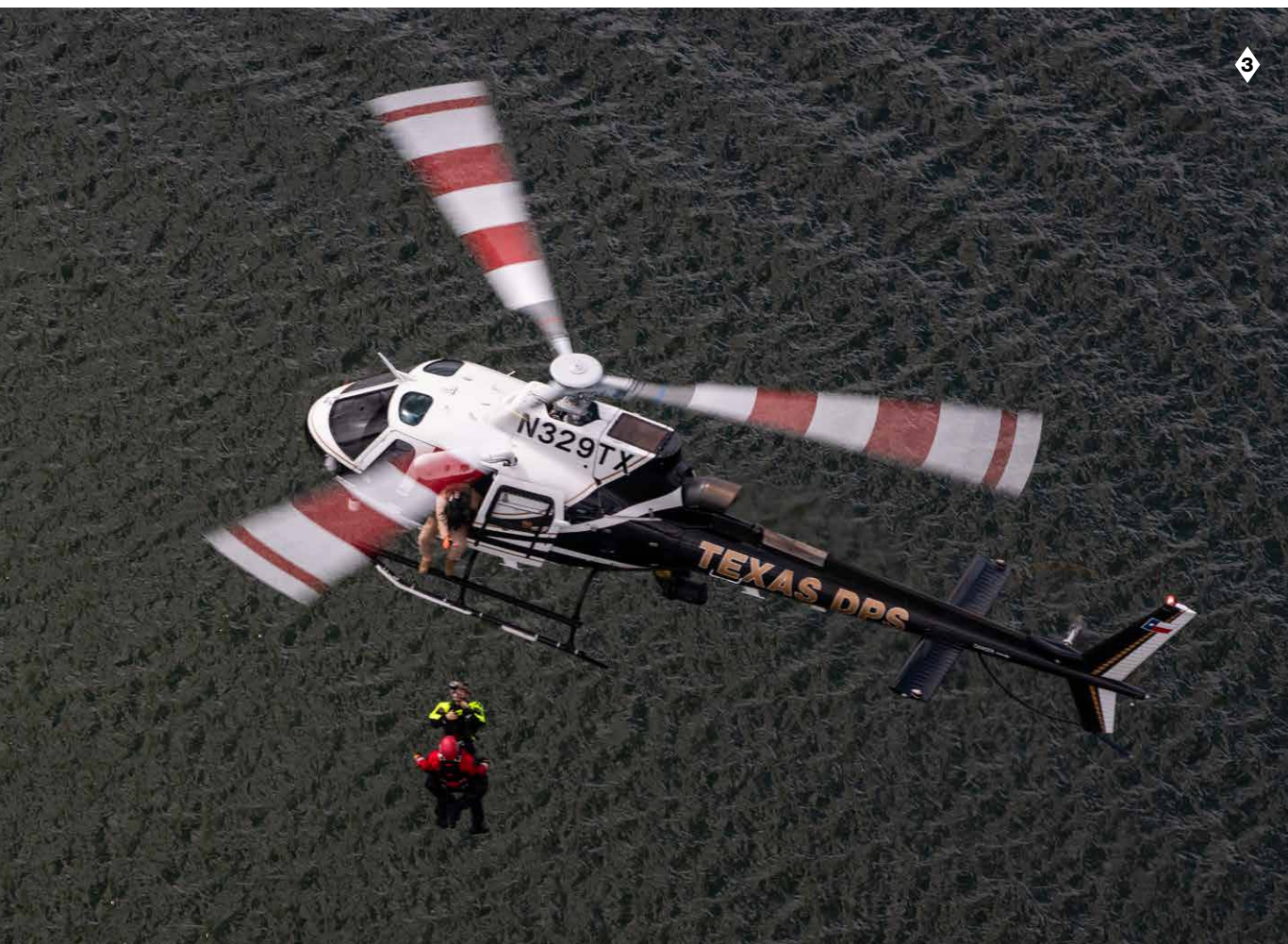
The first drops of rain begin to fall as the H125s re-enter the hangar. There waiting for them are the

mechanics of Texas Department of Transportation – Flight Services who have been looking after these helicopters for 38 years now.

“We have one of the best maintenance teams in the industry, and they’re one of the main reasons behind our success. At the end of the day, we are putting our lives in the hands of these aircraft, and in turn the aircraft are in the hands of our mechanics, so we couldn’t do without them. It’s their work that allows us to save lives,” Holland sums up.

TEXAS DPS

- 12 stations with at least one helicopter each
- 24 aircraft (14 H125s, 1 EC145 and 9 fixed-wing aircraft)
- 11,300 flight hours per year
- 7,500 actual flights per year
- 7,000 agencies assisted
- 45 pilots and 40 tactical flight officers



1: The Texas Department of Public Safety has 14 H125s for search and rescue and law enforcement missions.

2: The H125s are equipped for both day and night missions.

3: The Texas DPS train over a lake for an aerial lift rescue. They completed 244 rescues during the Hurricane Harvey flooding.



Airbus' H145 is the official helicopter of the Dallas Cowboys football team





Article: Heather Couthaud – Photos: STARS air ambulance

STARS air ambulance was founded by two physicians* whose personal experience showed them the advantage aerial transport brought to saving patients' lives. With a fleet of 11 helicopters, the non-profit, charitable organisation now serves communities in four provinces in Western Canada.



VIPs. The term STARS uses for its patients says it all: to the HEMS critical care provider, those it cares for are not just patients, but Very Important Patients. "We take the job seriously. The accountability, we think, is massive," says Andrea Robertson, STARS president and CEO. "We want to make sure we're providing the very best care to our patients – essentially we are a flying intensive care unit to them." "Canada is characterised by vast geographic areas and small populations which might not have access

to a hospital, particularly those providing higher-level care," Robertson continues. "The people of Canada see helicopter EMS as a means of having rapid access to critical care wherever they are." With 11 helicopters in its fleet, STARS is able to cover such distances effectively. Six years ago, the organisation began looking for an aircraft capable of serving their six bases; it subsequently chose the H145, for a total of nine to be delivered by 2022. "The decision was made to go to a single platform because it is considered best practice in an organisation of our size – from an operations, safety and efficiency perspective it was the best decision," says Robertson.

ALL-TERRAIN CHALLENGES

The organisation's missions take it from the varied topography of the Canadian Prairies in the east to the rugged Rocky Mountains in the west. "It's not uncommon for some of our flight profiles to be up to 100 NM one way, a radius of action in which the H145, because of its increased speed, shines," says STARS pilot, John Carson. Based in Calgary, Carson's work, as part of a four-person crew which includes two pilots, a critical care nurse and critical care paramedic, takes him into the Rockies and beyond.

“Operating on the eastern slopes of the Canadian Rockies, which are prone to warm Chinook winds, can be quite challenging. And flying into them at night is an added challenge,” says Carson. “The H145 cockpit is fabulous on night vision goggles, with fantastic visibility. The 4-axis autopilot serves to decrease pilot workload in certain situations. Increasing situational awareness and safety are the HTAWS (helicopter terrain awareness system) as well as the synthetic vision system. These fantastic pieces of kit shine when we go into our mountain environment.”

THE TOP OF THE TOP

“One of the H145’s attributes that we hope not to see is the aircraft’s ability to hold a single-engine service ceiling,” says Carson. “From Calgary, operating at night in the mountains, it’s not uncommon for our en route legs to be as high as 10,000 feet. If we lose an engine and the conditions are of an appropriate nature, we can go right over the top in the H145.”

To carry out its work saving lives, STARS has contracts with three provincial governments. The organisation provides medical oversight and is accountable for getting patients to the appropriate level of care. It operates its own 24-hour emergency coordination and dispatch center. And training is done in-house, too, with experienced pilots like John Carson handling the flight crew’s transition to the new H145s.

“It’s awe-inspiring when you see the professionalism of our team and how seriously they take safety,” says Robertson. “Bringing on a new aircraft is a lot of work. We feel so fortunate to have this great aircraft, and it takes a strong group of professionals to do it well and to do it safely.”

* STARS founders: Dr. Greg Powell, Dr. Rob Abernathy.



STARS (Shock Trauma Air Rescue Service)

Headquarters: Calgary, Alberta (Canada)

Founded: 1985

Bases: Calgary, Edmonton, Grande Prairie, Regina, Saskatoon, Winnipeg

Fleet: 11 helicopters

Staff: 100+ critical care physicians, paramedics and nurses; 80+ pilots; communication specialists staffing STARS’ 24-hour Emergency Link Center

Missions since founding: More than 42,000

Missions in 2018-2019: 2,878

Average daily missions: 8

Mission distribution: 60% interfacility, 40% scene calls (i.e. roadside, recreational accidents, traumas, industry, avalanche, etc.)

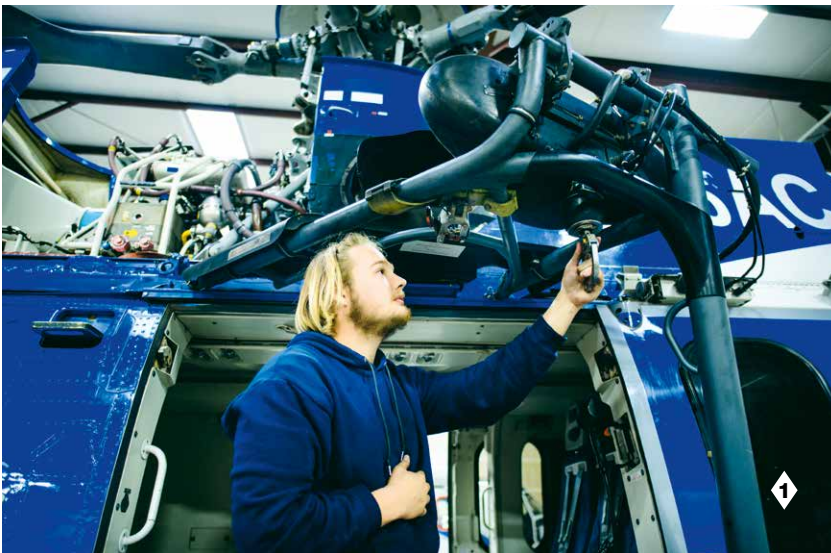


- 1:** STARS operates in four provinces in Western Canada.
- 2:** Andrea Robertson, STARS president and CEO.
- 3:** Training, experience and dedication are the hallmark of STARS’ pilots and medical crew.
- 4:** STARS chose the H145 for its single platform fleet, with nine to be delivered by 2022.

UNITED STATES LAND OF OPPORTUNITIES FOR THE H225

Air Center Helicopters, Inc. (ACHI) is putting the H225 to work in the utility sector following its purchase of 17 helicopters repurposed from the offshore oil and gas market. A successful gamble by a visionary company that knows how to seize opportunities when they arise.

Article: Belén Morant – Photos: Dianne Bond



“Many of the contract opportunities we’ve been looking at had very old aircraft – around 30 or 40 years old. This was affecting their reliability and their ability to satisfy customer needs,” explains John Bean, Chief Operations Officer of ACHI. “We therefore decided to look for a modern aircraft that was easily supportable and that could carry even more payload with greater range, because in the utility market, payload and range are the key to customer satisfaction. The H225 was rather unique in this sense.”

REPURPOSING THE OIL AND GAS H225s

While no obvious task, ACHI saw the option of repurposing oil and gas H225s for the utility market as a genuine business opportunity. The company purchased 17 of these H225s, which were available at more affordable prices due to the decline in the oil and gas sector. In order to adapt them for use by the US Government for personnel and cargo transport, personnel recovery and casualty evacuations, all the equipment typical of the offshore configuration (such as the emergency flotation systems) had to be removed to reduce weight and allow all the new equipment to be fitted.

“We had a list of 12 modifications to tailor our helicopters to our specific missions. Adapting them was a bit of an engineering challenge,” says Bean. “Airbus had a lot of experience with our specific needs because they were used to working with the military variant of the H225, which was similar to what we needed. Our partnership with Airbus has paid off, with them providing the engineering and technical support combined with the MRO facilities.”





3

“We now want to diversify our activities so we are in at least five or six different markets, and the H225 is a key player in this diversification. We see it covering around 75% of the expansion into these new markets.”

John Bean, Chief Operations Officer of ACHI.



5

“THE H225 PROTECTS US”

“I flew the H225 in Malaysia for the oil and gas industry for eight years before joining ACHI two years ago. It is my favourite helicopter to fly,” explains Stan Kartes, Chief Pilot and Director of Training of ACHI. When asked about the reasons for his loyalty to the H225, Kartes was emphatic: “The safety factor behind the H225 and its capability in all different weather conditions. The helicopter almost flies itself: it’s a great platform for IFR and NVG operations. The automation is very advanced. 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!”

ACHI can offer flight autonomy of five hours with the H225. This, together with a guaranteed availability rate of nearly 99% thanks to an HCare Smart contract signed in October 2019, allowed the company to complete an extraordinary mission in the Bahamas following Hurricane Dorian last autumn, with practically 100% availability.

“We were in the Bahamas with the H225 assisting with everything we could: cargo operations, transport of rescue teams... we even carried the Prime Minister of the Bahamas to evaluate the damages,” recalls Kartes. “It was difficult to be there because of the nature of the mission, the long hours and the hard work. But it was such a rewarding task helping all those people!”



4

- 1:** ACHI signed an HCare Smart contract in October 2019.
- 2:** ACHI can offer flight autonomy of five hours with the H225.
- 3:** Stan Kartes, Chief Pilot and Director of Training of ACHI.
- 4:** The H225 of ACHI was in the Bahamas after Dorian Hurricane.
- 5:** John Bean, Chief Operations Officer of ACHI.

MISSION



ARGENTINA

LANDING ON THE THRONE OF THE ANDES

Article: Heather Couthaud – Photos: Anthony Pecchi

1

On 24 September, Airbus' 5-bladed H145 landed on the Andes's tallest peak, Aconcagua. It was the highest landing of a twin-engine aircraft, and an unprecedented achievement for the new H145.

The Cordillera range stretches from Chile north up the west coast of South America. The jewel in this range is Aconcagua, which at 6,962 metres is so high that even local rescue pilots haven't seen its peak up close. In September, an H145 set its skids down on its snowy top.

A SEASON FRAUGHT WITH CHALLENGES

The journey started when the prototype was to be flown home from South America, where it had done a high-altitude testing campaign.

After several weeks of testing in Bolivia in which Alexander Neuhaus, the H145's experimental test pilot, gauged the helicopter's performance at high density altitude, he knew the aircraft could handle the heights. What was less certain was whether he could touch down in Aconcagua's swirling wind vortices.

"We had discussions whether it made sense and a

local pilot said it was simply not the best season to do this. The winds were too strong," says Antoine Van-Gent, experimental flight test engineer.

PLANNING STARTS

Ten days before the attempt, a party of mountaineers from Argentina's Patrulla de Rescate de Alta Montana Policia de Mendoza set out for a point 5,500 metres up to acclimate themselves in case a rescue attempt were needed. With winds of 100 Km/h and minus-22° C cold, all haste would have been needed to save Neuhaus and Van-Gent if they'd ditched.

The event's logistics drew on resources from various organisations, among them the Aconcagua provincial park and the Fuerza Aerea Argentina, a part of the Argentine Air Force, who provided two Lama helicopters for a rescue, and precious hangar space for the H145.

"I must admit I was happy to be on board with Alex because to land there in these circumstances was certainly not an average pilot mission."

Antoine Van-Gent,
experimental
flight test engineer.

Ever since they'd arrived in Mendoza, the team had been getting a daily email update predicting strong winds. "Up there, wind crossing the rocks makes strong vortices. When you fly through them, it's difficult to control the helicopter," says Van-Gent. "During a reconnaissance flight with Horacio Freschi 'El Duro,' a local H125 pilot, Alex did hovers above the mountain. The aircraft handled perfectly and the power margins were more than enough. However, the last 50 metres were a problem. If the wind direction doesn't favour the landing spot, it can be detrimental."

TIME TO ENJOY AND LOOK AROUND

Only a short window in the weather on D-Day gave them a realistic hope for success. With vortices too tricky in the morning, they made a second attempt after lunch, finally putting the skids down for about eight seconds. "We still had 130 kilograms of flight test instrumentation onboard—afterwards, we reflected that on a summer day with less wind, we could perhaps have landed and taken off many times, and easily taken two additional people on board," says Neuhaus.

"I was so focused on trying to find a strategy to get the aircraft on top of that mountain," Neuhaus continues, "that only every now and then did I have a look around. It was like being on a throne of the Andes. A few seconds later, we were focused on the next attempt. I will say that returning to base after the landing was a big relief, and gave us time to enjoy it." "We were sitting in the front row, kissing this mountain, but it was a team effort," says Van-Gent. "We would like to express our appreciation for all parties who enabled us to do this landing successfully."

1: The H145 set its skids down on the Aconcagua on 24 September, 2019. It was the first time a twin-engine helicopter had landed at this altitude.

2: Antoine Van-Gent, experimental flight test engineer, on the left, with Alexander Neuhaus, the H145's experimental test pilot.

3: The aircraft took off from Mendoza, Argentina, and flew 30 minutes to the foot of the Aconcagua where it began its ascent.

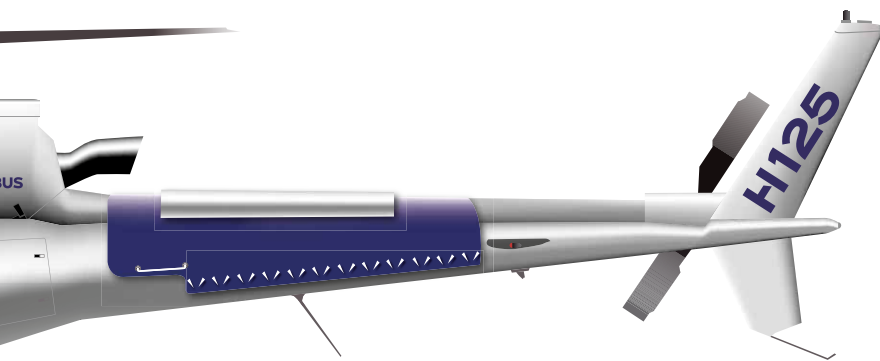
4: After 15 minutes of climbing, the helicopter landed at 1:45 pm on the summit, at a temperature of -22°C: a real team success!



H125: NEW DEVELOPMENTS IN AERIAL WORK

Already customers' first choice for aerial work, the H125 can now be delivered from the factory with four Supplemental Type Certificates (STC), which particularly enhance its capabilities to further answer the specific requirements of this demanding mission.

Article: Belén Morant – Illustrations: Beatriz Santacruz



For more information, please visit [Rotor On line](#)

FASTFIN

INCREASED USEFUL LOAD AND A SMOOTHER RIDE

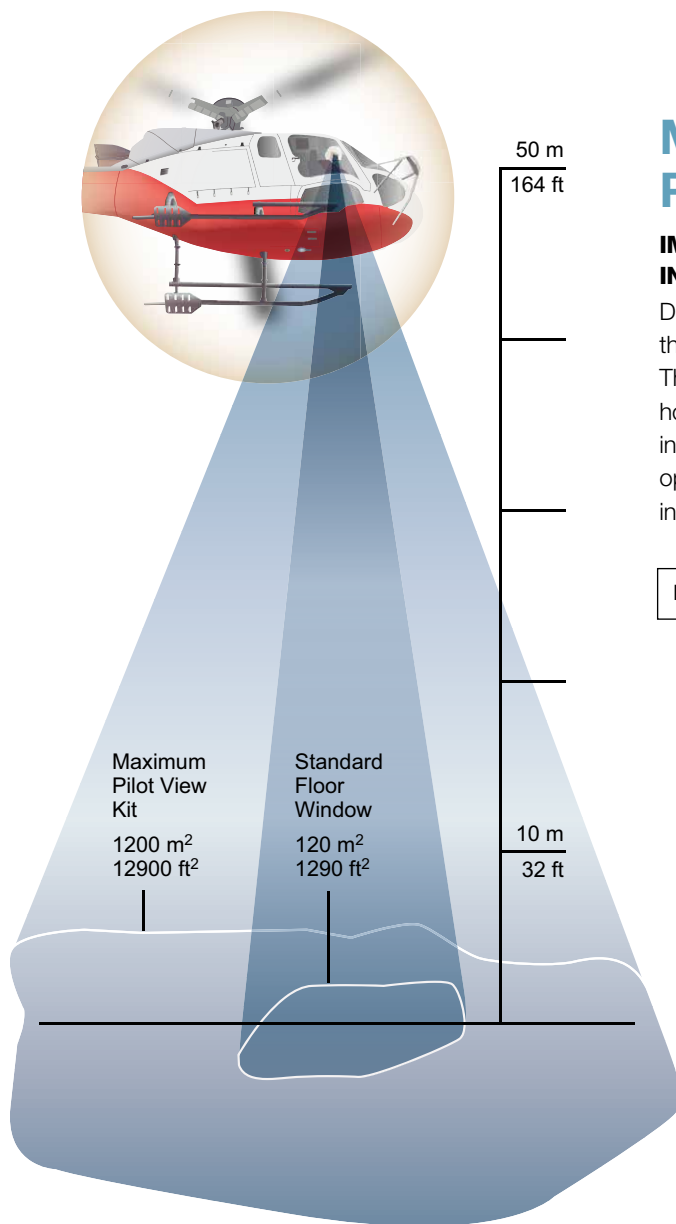
BLR Aerospace has developed a modification to the aerodynamics of the H125 tail boom that eases the burden placed on the engine by the main rotor by altering the airflow. The immediate benefits of this STC include a useful load increase of up to 55 kg /120 lb in HOGE, a smoother ride – especially when hovering – and a reduction in pilot workload. The FastFin kit comprises several components: an Advanced Tailboom Aerodynamic Cowling (ATAC), a Tailboom Strake and Vortex Generators. It has already been approved by EASA, the FAA and the authorities of another four countries. There are currently more than 40 helicopters fitted with this kit, which is available both for new helicopters and as a retrofit.

LEAN INSTRUMENT PANEL

ALL THE INFORMATION YOU NEED IN A REDUCED SPACE

The Lean Instrument Panel enhances forward visibility without reducing the information offered to pilots. Among other improvements, this panel incorporates a Garmin PFD G500H TXi touch screen (GDU 700P), a VEMD and two USB ports (Type-A and Type-C) on both sides of the cockpit. Developed by Airbus Helicopters UK, the Lean Instrument Panel will be available for new helicopters from early 2020.





MAXIMUM PILOT VIEW KIT

IMPROVED LOAD VISIBILITY IN EVERY SITUATION

Developed by Swiss Rotor Solutions, this kit increases the pilot's field of view, particularly below the aircraft. This allows pilots to follow external loads and cargo hook work more closely, with an undeniable increase in the precision, effectiveness and safety of these operations. This kit will be available from the factory in 2020 for new helicopters.

For more information, please visit [Rotor On line](#)



FLI⁽¹⁾ REMOTE DISPLAY

THE RIGHT DATA IN THE RIGHT PLACE

The aerial work H125 can now also be equipped with a FLI remote display on the customer's smart phone or tablet, connected by Bluetooth, that provides easy viewing of the FLI power limit whilst maintaining the external load sight line. The FLI remote display can be installed anywhere in any place according to the pilot's needs, so that he or she can have all flight information in sight even when concentrating on the mission.

(1) First Limit Indicator

UNDISPUTED MARKET LEADER FOR AERIAL WORK

Over the last five years (2014-2019), 270 H125s have been delivered to perform aerial work around the world. This represents 43% of market share whatever the helicopter class and 56% for light single engine. One of the reasons for its undisputed success is the fact it can be quickly and easily reconfigured with a wide range of optional equipment. The aircraft is up to the most rigorous high and hot missions, with an impressive cargo-swing load capacity of 1,400 kg (3,086 lb). Aerial work missions include air crane operations, firefighting, power line inspection, crop spraying, news gathering, parachuting, geological surveys, wildlife surveys, farming and fishing activities, etc.

BLADESENSE: GIVING BLADES A THOROUGH ONCE-OVER

Making use of an innovative measuring device, the BladeSense project aims to assess rotor blade deformation in real time. The ultimate goal is in-flight monitoring of blades to better understand the blades as they age and thereby improve flight safety and reduce maintenance costs.

Article: Alexandre Marchand
Photo: Steve Hampson/Airbus

1

A GAME-CHANGING TOOL

The BladeSense project makes innovative use of fibre optic instrumentation, which offers a series of advantages: lightness, reliability, durability and robustness to weather conditions. Weighing only a few grammes, the fibre can be used to access the entire length of the blade and detect any unusual deformation pointing to a deterioration in its condition. What makes BladeSense so useful is the fact that it can accurately identify deformations in different sections of the blade. During field trials on a helicopter, the data was stored to a measuring device installed at the top of the test aircraft's rotor mast and sent wirelessly to a ground station where the data could be viewed in real time. Four H135 rotor blades have been fitted with the system since the start of the project and six measurement campaigns conducted, equating to a total of around four hours of ground-based operation. One possible step following analysis of the data is to conduct flight tests.



One project, four high-profile partners

As the project leader, Airbus Helicopters UK provided the H135 and the blades to be instrumented and also coordinated the static and dynamic test phases. Cranfield University (UK) was responsible for designing and developing the instruments with the aid of fibre optics and for the mathematical models used to position the sensors. For its part, Helitune provided the HUMS and data recorders and integrated them on the H135, while fluid engineering specialists BHR Group supplied the mathematical model predicting the mechanical loads and the blade deformation resulting from aerodynamic flow.



REAL-TIME MONITORING OF BLADE CONDITION: A COMPLEX TASK

A damaged blade aerofoil generates vibrations that have an impact on helicopter performance and can be felt in the controls. When the damage occurs inside the blade, however, it can go completely unnoticed. The deformation this causes is extremely difficult to detect and can be spotted only in controlled environments and with the use of complex tools. Run by Airbus Helicopters, the UK's Cranfield University and two other partners (see inset), the BladeSense project seeks to develop instrumentation capable of assessing blade condition in real time by accurately measuring its deformation in flight. The project has two major constraints to deal with: the inherent complexity of the data to be gathered and processed; and the difficulty of operating in an environment in which the blades are rotating.

3

SEVERAL POSSIBLE APPLICATIONS

Used in conjunction with a Health & Usage Monitoring System (HUMS), this type of equipment can provide a better evaluation of the condition of the blades on the main rotor and result in maintenance that is better able to meet real needs. Not only can maintenance costs be reduced by as much as 40%, but the potential of the blades can be enhanced and, ultimately, aircraft availability increased. This measurement technology could also be used to assist with the design of flight controls and blades, through the optimising of mathematical models.



“Our duty is to keep the helicopters 100% safe and ready.”



“Avoiding any possible in-flight failure puts a lot of pressure on us. . . but after all these years, dealing with pressure is part of my day-to-day life.”



“It is essential to have updated material, tools and manuals to be able to perform maintenance tasks safely.”

© Jonny Carroll

© Eric Raz

© Andes

1 Randy Zumbahlen,
mechanic for the H125 and EC145 for the Texas Department of Transportation - Flight Services

My name is Randy Zumbahlen, and I'm the director of maintenance for the Texas Department of Transportation – Flight Services. I've been taking care of the helicopter maintenance for Texas DPS with about 16 other mechanics for about 24 years. We started with the AStar B2, the B3, and now we have the H125 and the EC145.

Every three or four weeks, we do a 100-hour inspection: this shows how intensely DPS is flying. Typically, in between the 100-hour inspection, we don't have much issue with them. Our duty is to keep the helicopters 100% safe and ready. DPS needs to have their helicopters ready 24/7, and they can be called at any time for many different missions. We need to make sure that these helicopters are always flying. Over the years, we have seen a real difference regarding the maintenance from the first AStars compared to the new ones.

2 Rachel Monville,
avionics expert on the Super Puma AS332 for Heli Union

An avionics expert specialises in maintaining equipment, both electrical (cables, distribution, lighting, etc.) and electronic (radio-communication

and radio-navigation systems, instrumentation, dashboard, etc.). I started working on the Puma SA330 and Super Puma AS332 while in the military in 2005. I was attracted to aeronautics and helicopters in particular. Since then, I have qualified as an avionics expert and then as a flight engineer. I have now retired from the military and am working at Heli Union, side by side with the mechanic who will be looking after the airframe and mechanical aspects.

What I like best about my job is troubleshooting, in other words, finding out the cause of an avionics malfunction. I know that what I do has a direct bearing on flight safety, meaning that it is extremely important that I comply with all rules and procedures. I know that the slightest error or fault on my part could result in an in-flight failure. It's true that this puts pressure on us... but after all these years, dealing with pressure is part of my day-to-day life.

3 Bruno Máximo González Silva,
maintenance technician for the H145 at Servicios Aéreos los Andes

My name is Bruno Máximo González Silva, I am 37 years old and I am a helicopter maintenance technician.

I worked with airplanes between 2004 and 2007, and since then I take care of helicopters.

When I was a teenager, my uncle worked in the Air Force in the maintenance of helicopters, and that experience marked my adolescence.

I looked for institutes where I could be trained as an aeronautical mechanic, and three years later I achieved my goal. Here in the Andes we work like a big family: the atmosphere is great and the human quality is fantastic.

We have very qualified professionals, the right material and tools, updated manuals, and adequate infrastructure that allow me to perform my maintenance tasks safely.

In Servicios Aéreos los Andes the commitment to safety is total, and every day we are concerned with improving our maintenance processes so that our customers benefit from the highest safety and quality.

Mechanics, doctors on duty

The health of helicopters is in the hands of mechanics. Below, three mechanics talk about having such a great responsibility.

Article: Belén Morant

THE BAHAMAS IN THE RIGHT PLACE AT THE RIGHT TIME

In August 2019, two Cougars operated by the Royal Netherlands Air Force (RNLAF) set off for the Caribbean for what seemed like routine training. Circumstances caught up with the aircraft and their crews, however, as they were drawn into a real life mission.

Article: Alexandre Marchand – Photos: RNLAF



"We train regularly, in response to NATO's Response Force Amphibious Task Group (NRF ATG) certification requirements," explains Lieutenant-Colonel Jorik ter Veer, who commands the RNLAF's 300 Squadron. "This year we went to the Caribbean, a part of the world that is often hit by natural disasters. Events very quickly showed we were right to go there prepared for any contingency."

PERFECTLY PREPARED

In late August, two AS532 U2 Cougar helicopters were boarded onto the Johan de Witt, a Royal Dutch Navy Landing Platform Dock (LPD) amphibious warfare ship. The two aircraft are fitted out for transport missions and are among five RNLAF Cougars (out of the 12 in service) equipped for operations at sea. The detachment was made up of 27 people, out of a total of 550 people on the ship.

As August gave way to September and the Johan de Witt made its way to its area of operations, the Bahamas were struck hard by Hurricane Dorian. A Category 5 monster, Dorian was among the most powerful hurricanes ever recorded in the Atlantic, packing winds of close to 300 Km/h. The worst natural disaster ever to hit the Bahamas, it left a terrible trail of destruction behind it, causing 60 deaths, with hundreds more missing, and leaving more than 70,000 people homeless.

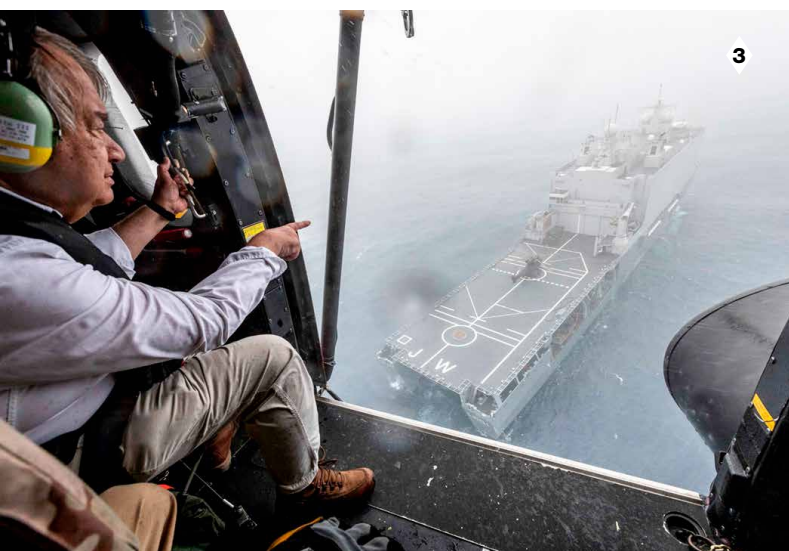


1: During the two-week mission, the RNLAf transported 5,000 litres of fuel to the islands.

2: The two Cougars are equipped for operations at sea.

3: The Secretary-General of the United Nations flew on board to see the scale of the devastation for himself.

2



3

BAHAMAS MISSION IN FIGURES

- 2 weeks
- Military personnel: 550 from the Netherlands, 50 from France and 50 from Germany
- 6 ships and 4 smaller craft
- Helicopters: 2 AS532 U2 Cougars
- 53 flight hours
- 2 medevac operations

The local authorities' cry for help was heard by the Dutch government, which decided to turn the Johan de Witt's training manoeuvres into a relief mission. The ship promptly changed course to Curaçao to pick up more soldiers, including French and German, before making straight for the Bahamas.

IMPOSSIBLE TO FORGET

On its arrival, the Johan de Witt was prevented from docking by heavy seas, which meant helicopters were needed to ferry the aid it was carrying to the shore. "We encountered an island that had been devastated by the hurricane and was in great need of water, food, medical supplies, fuel and electricity," adds LTC ter Veer. The Cougars flew round trip after round trip, carrying the much-needed aid in their cabins and in slings. The aircraft were also set up to perform medical evacuations and hoist missions. The Secretary-General of the United Nations even came on board to see the scale of the devastation for himself. "The flying was intense and there were some days where we were in the air for ten hours," recalls LTC ter Veer. "The mechanics worked really hard to ensure excellent availability, and in the two weeks we were there we racked up 53 flight hours, transported 5,000 litres of fuel and 5,500 kg of basic necessities, and carried several hundred people. Those figures aside and thanks to our two Cougars, we had the immense privilege of providing people in distress with effective aid. It's a mission we will never forget."

**SOMETIMES
DIFFICULT JOBS
REQUIRE A
LITTLE HELP
FROM ABOVE.**



**FLY
WE MAKE IT**

Known the world over for its ability to perform in the toughest and most challenging environments on the planet, the H125 is a proven helicopter designed to support the most diverse aerial work duties imaginable. From the expected to the extreme, whether it's inspecting powerlines, firefighting or air crane operations in mountainous or extremely hot conditions, the H125 has you covered.

Dependability. We make it fly.