AWnewsletter

Autumn 2020

LONG LIVE THE SAR QUEEN!

On 1st September 2020 the first six AW101 helicopters delivered within the scope of the Norwegian All Weather Search and Rescue Helicopter (NAWSARH) programme entered into service in Norway, marking the start of a new era in SAR operations for the country.

The helicopter has been dubbed the "SAR Queen" in the country in homage to its longstanding history of SAR operations with the Sea King, a helicopter that can in some respects be regarded as the predecessor to today's advanced multirole AW101 platform.

Norway has now received eight out of 16 AW101s, with the remaining aircraft currently being assembled, integrated and tested at our site in Yeovil, UK. In the last three months 330 squadron have completed an incredible 200 flight hours, largely on SAR operations, which included several life-saving missions in the inhospitable Norwegian environment, such as a night mountain rescue, an offshore rescue, as well as a very challenging emergency transportation. Following the go-live of Sola, further bases in Ørland and Banak will become operational in 2021.

The NAWSARH programme also includes a "turnkey" support solution, comprising spares and technical support and training services, including a dedicated centre in Norway where pilots are trained on Level D full flight simulators, co-developed by Leonardo. These simulators provide such a true-to-life experience that one hour of flight time on the device is considered the equivalent of a one hour real helicopter flight, allowing flight and missions training in absolute safety, with considerable savings in terms of fuel and maintenance.

Our on-site management and technical support staff are co-located with their Royal Norwegian Air Force counterparts in the Sola Joint Aircraft Availability Maintenance Office (JAAMO). This set-up provides for fully integrated operations, the efficiency of which is highly valued by both sides.

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The new AW101s are equipped with greater digital autonomy and more power to cover longer distances and larger areas, essential to successful SAR missions. Its sophisticated avionics and mission systems are designed to minimise pilot workload and maximise mission effectiveness.

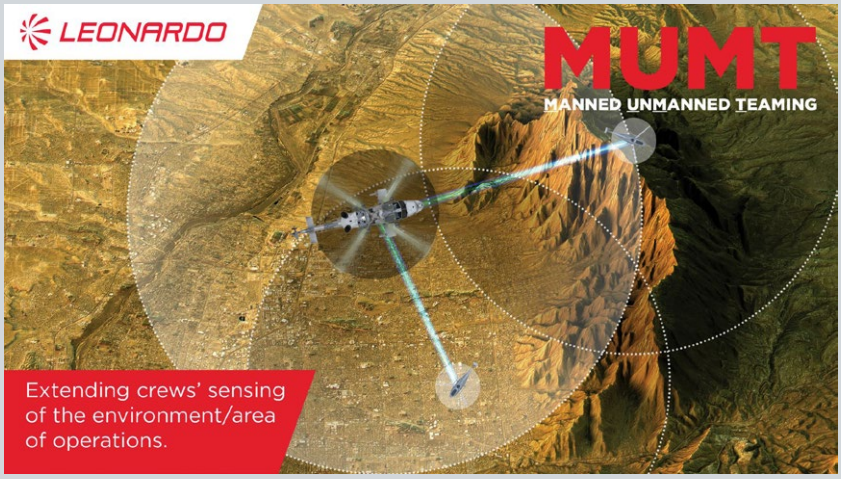
Key features supporting SAR missions include automatic stability correction, which helps the helicopter remain stable over rough seas and in strong winds with minimal input by the pilot to correct flight and attitude. This all-weather capacity is further supported by the helicopter's Full Ice Protection System (FIPS), vital for the climate in which the NAWSARH fleet operates.

Another item in the helicopter's SAR toolkit is its Mobile Phone Detection and Location System (MPDLS), which allows the helicopter to not only use the rescue target's mobile phone for communication, but also to help pinpoint their location.

Further testament to the flexibility and capacity of the AW101 is that it was the first helicopter in the world to safely transport patients in biocontainment stretchers during the COVID-19 pandemic, completely isolating the patient from the crew, cabin and cockpit.

The AW101 is the most advanced, versatile and capable multi-role helicopter available today. Flying in the sub-zero temperatures above the Arctic Circle, often in highly adverse weather conditions, and covering thousands of kilometres of coastline, we know the SAR Queen is equal to the task ahead, and wish her a long and successful reign in Norway and beyond.

AW159 WILDCAT DEMONSTRATES UK FIRST IN HELICOPTER-UAV TEAMING



September saw the achievement of a UK first: The seamless integration of an unmanned aerial vehicle (UAV) into a helicopter's mission system, allowing a helicopter crew to control the UAV from the cockpit as if it was one of the aircraft's on-board sensors.

This demonstration of unique integrated capabilities between a manned aircraft and a UAV took place in the UK during Manned-Unmanned Teaming (MUMT) trials between our AW159 Wildcat helicopter and a semi-autonomous UAV from Callen-Lenz Associates.

Integration of the control of the UAV into the Wildcat Mission System minimised the pilots' workload, improving situational awareness and mission effectiveness. A 'Gateway Processor' supplied by Callen-Lenz Associates was used to interface with its semi-autonomous UAV.

Our solution allowed the Wildcat crew to control both the flight path and payload of the UAV – capability termed Level of Interoperability (LOI) 4 – using a task-based Human Machine Interface (HMI), rather than the more operator-intensive approaches employed on other systems.

The demonstration, run with the support of the Defence Science and Technology Laboratory's (Dstl) on behalf of the British Army, confirms our leading role in developing, integrating, and providing cutting-edge solutions for manned, remotely-piloted and autonomous/semi-autonomous missions. It also underlines the AW159 Wildcat's growing potential as a force multiplier in modern battlespace scenarios.

MUMT combines the strengths of manned and unmanned platforms; it has the potential to deliver a step-change to the situational awareness, tempo, lethality, survivability and combat mass of aviation forces, significantly reducing crew workload, allowing pilots to focus on the mission at hand. It can enhance air support capability in both the land and maritime environments, allowing extended and complex operations to be conducted with a mix of platforms and systems.

The continued development and integration of cutting-edge solutions across all domains of remotely-piloted and autonomous/semi-autonomous systems and technologies, including MUMT, is a key element of Leonardo's BeTomorrow2030 Strategic Plan.

Our Yeovil site is the UK's only end-to-end helicopter manufacturer, designing and building rotorcraft for national and export markets. With over a century's experience in aviation at the facility, we continue to take great pride in supplying our high-tech aircraft and capabilities to the British Armed Forces.

SIX AW119KX HELICOPTERS FOR BRAZIL POLICE FORCE

Our rescue and law enforcement fleet in Brazil has been further strengthened by a new deal with the Brazilian Federal Highway Police (Polícia Rodoviária Federal) for six single-engine AW119Kx helicopters.

The first aircraft is expected to be introduced in Brazil in early 2021, with the remainder to be delivered to the operator by the middle of the year. The AW119Kx helicopters will be operated by the Air Operations Division (DOA) from its bases in the five regions of Brazil, performing a variety of missions, including transport, rescue, Emergency Medical Services (EMS), firefighting, surveillance and law enforcement.

In order to meet this demanding range of missions, the new helicopters will have an advanced customised configuration featuring a Garmin G1000NXi glass cockpit, infrared-capable electro-optical system, rescue hoist, cargo hook, Bambi bucket for fire suppression, rappelling kit on both sides for Special Forces operations and advanced communication systems.

These new helicopters add to the fleet of our helicopters used by law enforcement, rescue and public service operators across the country, which already includes the single-engine AW119, AW109 light twin and AW139 intermediate twin. Close to 190 of our helicopters fly in Brazil today, in a range of roles from private/corporate transport, law enforcement and public services to offshore transport and naval applications. In recognition of this growing fleet, we are committed to further strengthening our existing level of localised services. The establishment in early 2021 of a new regional support centre, run by Leonardo do Brasil, in Itapevi, near São Paulo was covered in a previous issue of the AWnewsletter. That support centre will expand the services already provided by the existing facility headquartered in São Paulo.

The class-leading AW119Kx features state-of-the-art avionics for enhanced situational awareness, mission effectiveness and safety. Its large and regular cabin is able to accommodate up to six passengers, while redundancy of all critical systems typically available on twin-engine aircraft, delivers outstanding reliability and safety.

Over 350 AW119 helicopters have been ordered by more than 130 customers in 40 countries, many of them for law enforcement, rescue, public service and military tasks. Partnering with governments, private organisations and industries for the best security and safety capabilities is a cornerstone of Leonardo's Be Tomorrow 2030 Strategic Plan.

MORE SUCCESSFUL TEST FLIGHTS FOR SH09

Dozens of test flights for our SH09 in Italy and Switzerland this year have seen great progress in the single-engine helicopter's development. Successful test flights in Pozzallo, Sicily, as reported in the previous issue of the AWnewsletter, and more recently in Mollis, Switzerland, for the third prototype (P3) have allowed the testing of multiple aerodynamic modifications and configurations, resulting in a significant improvement in smoothness and stability.

Recent upgrades include an engine cowling extension for improved aerodynamics, a variable asymmetric tail plane at the best available incidence, the removal of the end plates and a larger upper vertical fin improving stability.

Richard Grant, Kopter Chief Test Pilot, explained: "P3 returns to Mollis a very different aircraft. The changes that have been implemented this year have made a real improvement to the handling of the helicopter. Now we are able to further expand the envelope and start to realise the aircraft's true potential."

Flight test activities Mollis have concentrated on testing the new tail rotor and aerodynamic modifications for improved handling in the low-speed envelope. Flights at altitude, in the local area, also evaluated the handling characteristics at higher speeds and in autorotation.

During these flights we have been able to achieve several firsts for the SH09. Notably, flight at the maximum permissible take-off weight for P3 and sideways flight at 35 knots. The next step is to proceed with the upgrade to Garmin avionics and install the final main rotor flight control system.

Click here to see video footage of the P3 being put through its paces in Mollis in October 2020...

See more here >

COLLABORATION WITH ENAV ON DIGITALISATION, SUSTAINABILITY AND SAFETY

Leonardo and Italian air navigation service provider ENAV have opened the way to a new era in civil helicopter flight with a collaboration on the use of advanced navigation technologies to modernise the use of helicopters and air space in Italy and beyond.

The Letter of Intent signed in October will see us join forces with ENAV to offer helicopter operators products and services in the field of advanced instrument navigation; we will also work together to modernise related infrastructure.

Our innovative technology is a perfect match for the satellite navigation procedures developed by ENAV. The new agreement combines Leonardo's industrial capabilities for design, production, supply and support of modern, high performance helicopters with ENAV's expertise in the development and management of air space in Italy and overseas. Current air navigation infrastructure is designed mainly to support fixed-wing flight operations, limiting the potential and versatility of rotary-wing aircraft. This approach fails to capitalise on the inherent flexibility offered by helicopters' greater manoeuvrability, particularly their capacity for vertical take-off and landing (VTOL) and hover.

Together we will develop and supply advanced integrated solutions for both private and public service operators in Italy and internationally. This unique initiative in the global aviation sector also supports Italy's critical infrastructure, with both partners as major stakeholders.

Alessandro Profumo, Chief Executive Officer of Leonardo, said: "With this initiative we confirm our commitment to contribute to Italy's growth and competitiveness by strengthening a critical infrastructure like our sky as well as the systems and rules regulating its use. We do this by introducing innovation, digitalization and procedures which will come closer and closer to the future 'urban air mobility' scenarios, thanks to the continuous modernisation in the field of integration with our expertise in helicopters and the relevant flight safety enabling technologies, air traffic control systems and space technologies."

Learn more about these new advanced instrument navigation capabilities here...

See more here >

NEXT GENERATION CIVIL TILTROTOR REMAINS ON TRACK FOR 2023 FIRST FLIGHT

The innovative project to develop a Next Generation Civil Tiltrotor, undertaken within the framework of the Clean Sky 2 (CS2) initiative and driven by our Division and its partners, is making progress on the route to a first flight in 2023.

CS2 is a European programme established with the goals of reducing the environmental impact of aeronautical technologies, improving mobility and supporting a strong and globally competitive aeronautical industry in Europe. Part of the European Commission's Horizon 2020 Framework Programme for Research and Innovation, it aims to help speed up technological developments and, in particular, to demonstrate reduction potentials for CO2, NOx and noise emissions.

Leonardo responded to this challenge by proposing the Next Generation Civil Tilt Rotor, with the purpose of developing innovative technologies and acquiring the know-how needed to lay the foundations for the next generation family of tiltrotors, starting in 2030. It envisions a substantial increase in productivity and operational capability for various civil missions and public service scenarios, thanks to a cruise speed in the order of 280 kts – about double typical helicopter speeds and closer to that of turboprop aircraft – and a range of about 1,000 nautical miles (1,850 km).

This aircraft will have dimensions comparable to those of a helicopter and will operate in all weathers, providing comfort levels similar to those of an airplane. This will expand opportunities for mobility and freight transportation, reaching remote geographical areas that today's helicopters and airplanes cannot. All achieved while minimising environmental impact through reduced emissions and without the need for large and expensive new infrastructure.

The Next Generation Civil Tiltrotor project involves several technological demonstrators for the main systems, as well as a full-scale technological demonstrator to perform experimental flights and the validation of architectures and new technologies. First flight for this aircraft is on schedule for 2023.

The various demonstrators will incorporate and test the following five key enabling technologies, which can potentially be transferred to future aircraft:

- Split gearbox drivetrain concept and non-tilting engine installation (referred to as static engine)
- Advanced modular, distributed and scalable flight control system
- Advanced wing architecture
- Efficient nacelle architecture
- Optimised tail configuration

Within the scope of CS2 the Next Generation Civil Tiltrotor looks set to meet the ambitious reduction targets of 50% CO2 and 14% NOx in all scenarios (ranging from 51.3% to 70.8% for CO2).

This project is part of Leonardo's product and technology development roadmap, aimed at reinforcing the strategic positioning and expanding our product range in the key sector of rotary-wing aircraft and all associated technologies, an area in which we are already a world leader.

The Next Generation Civil Tiltrotor is an outstanding example of an extended European collaboration on innovative aeronautical projects. CS2 includes over 70 organisations such as major aerospace companies, SMEs, research institutes and universities with over 25 different partnerships from 14 countries comprising Italy, Germany, The Netherlands, France, Austria, Switzerland, Latvia, Poland, Czech Republic, Greece, Spain, Portugal, Belgium and the UK.

EXPLORING THE FUTURE OF ROTORCRAFT

As a company focussed on an exciting and dynamic tomorrow, we are constantly evaluating our industry's potential: This autumn we shared some of our insights at a Leonardo-sponsored public webinar on the rotorcraft of tomorrow.

"Hovering ambition - A beginner's guide to the future of the Helicopter" was organised by the Royal Aeronautical Society (RAeS) and the University of Bristol in October, with a panel of expert speakers including several of our Yeovil colleagues.

Simon Stacey and Callum Gathercole (both Leonardo Helicopters) are two current members of the RAeS rotorcraft specialist group within the Society. In 2019, spurred on by a noticeable decline in the popularity of rotorcraft in new engineering graduates, Simon and Callum set out to boost the profile of the industry among undergraduates. After all, with air taxis and vertical lift drones becoming a likely reality, getting the future leaders of the industry excited about rotary wing aircraft has never been more important.

Based on his own undergraduate experience at the University of Bristol, Callum suggested the rotorcraft group offer a panel event on the future of the helicopter. Although initially created in partnership with the University of Bristol and set to be offered on site to final-year students, the need to move the event online proved serendipitous, allowing it to massively expand its target base.

On the day, almost 400 people attended the webinar, with people joining from close to 40 different countries, including France, Greece, Germany, Austria, Malaysia, Hungary, India, the US and Canada, to name but a few. People joined with varied and diverse backgrounds from across the aerospace industry, with many business and engineering professionals from within the sector also joining the webinar. There was also strong attendance from both Bristol and Bath University students, as well as other engineering students from across the world.

The panellists included Dr Djamel Rezgui from the University of Bristol, Brett Peterson from Vertical Aerospace and David Rolfe from the London Air Ambulance. Our own speakers were Simon Stacey (Research and Innovation Department) and Bianca Erwee (Graduate Engineer).

Bianca demonstrated her knowledge of battery technology and aerodynamics and gave a brilliant insight into life on our graduate scheme at our Yeovil site. Simon spoke about projects he is currently involved in, such as hybrid power and active rotors, and provided an exciting look at future projects at Leonardo Helicopters.

Panellists also discussed where the sector is heading, answering difficult questions on topics including the environment, urban air mobility, and future vehicle concept design. Afterwards, Bianca said: "Helicopter design is on the brink of entering an exciting new era, and this event was a fantastic first step in sharing the challenges facing the rotorcraft industry and inspiring a new generation of engineers in the process. Hopefully the first of many!"

Callum added: "The event was arranged to inspire a new generation to be excited about the future of rotorcraft. With close to 400 participants and some very engaging questions, I think we have gone some way to achieve this. More events to follow!"

A full recording of the event is available to watch online here...

See more here >

TRAINING ARTIFICIAL INTELLIGENCE TO 'SEE': COMPUTER VISION

As a leading global technology player Leonardo is actively involved in the game-changing field of artificial intelligence, and our Division is no exception. We are already utilising this emerging discipline in the design, manufacturing and operational support of the fleet, e.g. through predictive maintenance services, as well as exploring it in other developmental areas, such as computer vision.

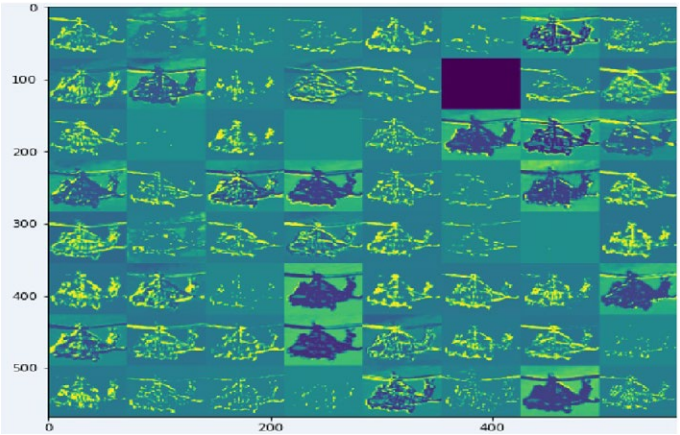
Heatmaps highlight the part of the image which is more closely associated with a given prediction class and its probability

Artificial vision will have major implications for both unmanned and manned rotary-wing platforms, not only for fully autonomous systems but also for piloted flight, applying the sort of automation that has already been implemented in the automotive industry for driving assistance.

In this emerging landscape there is one class of deep learning algorithms that stands out as the cornerstone of the revolution: convolutional neural networks, or convnets as they are commonly known. These are a type of artificial neural network that is ideally suited to image processing.

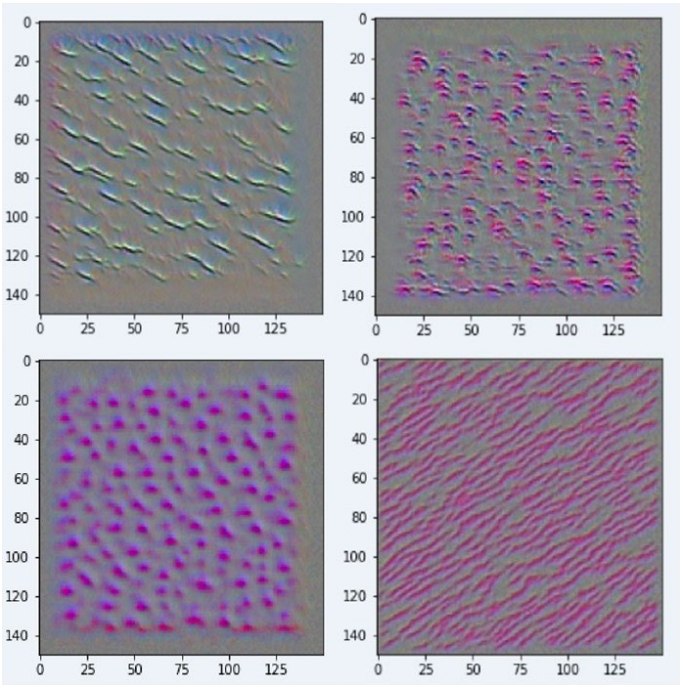
If properly trained, convnets are able to "look" at an image and "decide" if it contains one or more objects of a given class, count the instances and identify their position within the image. This capability is a key prerequisite for a system aiming at autonomous navigation in the airspace.

As an illustrative example, we present a convnet developed by our researchers for helicopter brand recognition. This convnet was trained on a dataset of over 11,000 helicopter images classified by manufacturing company (Airbus, Bell, Boeing, Leonardo, Piasecki, Russian and Sikorsky). The convnet uses a hierarchy of filters to perceive an object (a helicopter in this case) and then "decide" to which brand it belongs.



A map showing how each filter in a layer perceives the input image

Development of artificial intelligence based tools such as convnets is just one of the ways in which Leonardo is putting technology front and centre of its future strategy, reinforcing and transforming the business to grow and accelerate the process of innovation and to improve long-term competitiveness.



Four examples of patterns to which filters are maximally sensitive

CHC'S AUSTRALIAN AW139 FLEET TOPS 40K FH

We congratulate the CHC Group for passing 40,000 flight hours on their fleet of AW139 helicopters in Australia.

CHC Helicopter has long been a commercial operator of our world-leading intermediate AW139. Its AW139 fleet in Australia has now grown to ten helicopters and these support a multitude of missions, including aeromedical, offshore passenger transport and Search and Rescue (SAR).

The fleet includes advanced SAR variants, which are based across the country and which feature mission equipment including high-definition thermal cameras, night vision, marine vessel identification, enhanced autopilot SAR models and long-range fuel tanks.

A number of former Emergency Medical Services (EMS) AW139s were upgraded to carry out SAR missions in 2018 and recently provided valuable support during the Victoria bushfires, testament to the group's expertise and the helicopter's flexibility.

For more than 70 years, CHC Helicopter has provided a safe, reliable, cost-effective helicopter service in some of the world's most remote and challenging environments. It has operated in Australia for more than 40 years, providing services in oil and gas passenger transfer, SAR and EMS.

The milestone achievement again underlines the success of the world-beating AW139, which surpasses all other intermediate helicopters in terms of cabin flexibility, safety, speed and comfort. The AW139 accommodates up to 15 passengers at the highest speed, in the most spacious cabin, with the best power reserve of any helicopter in its class.

QUEENSLAND GOVERNMENT AIR AW139 FLEET REACHES 20K FH

As 2020 draws to a close Australia's Queensland Government Air (QG Air) has reached the important milestone of 20,000 flight hours on their AW139 fleet.

QG Air performs Emergency Medical Services (EMS) and Search and Rescue (SAR) operations, and provides support to Queensland police and other emergency service agencies in the region. Taking delivery of its first AW139 in 2007, its AW139 fleet now numbers five, with the fleet leader having clocked up more than 7,700 flight hours to date and still going strong.

The operator has played an essential role in providing helicopter service for emergency response in Queensland since it began helicopter operations over 30 years ago. It has responded to numerous disaster missions, including cyclones and floods. QG Air helicopters respond around the clock to a range of incidents including road crashes, farming accidents, marine and land SAR, and time-critical hospital transfers.

MARYLAND POLICE AW139 FLEET HITS 20K FH

We congratulate the Maryland State Police Aviation Command (MSPAC) on reaching 20,000 flight hours on its ten-strong fleet of our world-leading AW139 twin-engine helicopter.

Our partnership with the MSPAC began in 2012, during the purchase of ten AW139 helicopters, which marked the beginning of a highly successful cooperation. These helicopters went into service in 2013, with seven aircraft sections state-wide.

This year, the MSPAC celebrated the 50th anniversary of its medevac programme. The primary mission of the MSPAC since 1970 has been the provision of Helicopter Emergency Medical Services (HEMS) to the citizens of Maryland free of charge, completing more than 180,000 public safety missions and transporting more than 150,000 patients to date.

Officially created in 1960 with a primary mission of law enforcement and aerial Search and Rescue (SAR), on 19th March 1970 the MSPAC performed its first civilian medevac transport of an injured patient from a crash on the Baltimore Beltway to the University of Maryland Shock Trauma Center. Since then, it has expanded operations and acquired innovative equipment and technologies that have vastly improved mission capability.

The superior performance, proven technologies and safety features of the AW139 and our close partnership with the MSPAC, including excellent customer service and support, is rightly a source of pride for both sides. We look forward to a continued partnership into the future.

ASESA MARKS 10K FLIGHT HOURS ON AW139 FLEET

We have been working with Mexico's ASESA since it acquired four of our market-leading AW139s in 2016, and congratulate the oil and gas operator on reaching 10,000 flight hours on these helicopters.

The AW139s form part of a 34-strong fleet of aircraft, with which ASESA has now transported over 400,000 passengers, traveling more than 2 million kilometres, serving the hydrocarbon industry in Mexico and South America.

An ASESA representative said: "Leonardo has been a great partner and friend to us, thanks to the experience, safety and cutting-edge technology used not only in the product but also within the entire business processes. Thanks to that we have one of the largest operations in America.

"In the same way, we are extremely excited to start a new service centre in a promising ASESA-Leonardo alliance and collaboration. Here's to more years of friendship and work together, soaring through the skies!"

Proudly Mexican, ASESA has been deeply committed to a passion for helicopters for over 40 years, offering complete solutions in rotary wing aircraft services, from flight performance to maintenance, administration and operational logistics, since 1977.

1,000 FH MILESTONE FOR IWATE PREFECTURE'S AW139

We congratulate Iwate Prefecture for reaching the important milestone of 1,000 flight hours with its disaster relief AW139 helicopter "Himekami", so named for a mountain in the prefecture.

Beginning operations in October 2016, the aircraft operates out of a base in Hanamaki, from which it has performed over 160 Search and Rescue (SAR) missions, covering the vast Iwate prefecture, which lies to the north of Honshu, Japan's largest island.

The superior performance of the AW139 has made it the helicopter of choice in Japan's firefighting, disaster relief and SAR segment. There are currently 35 AW139 helicopters performing SAR duties across the country with multiple operators, including the Japan Coast Guard, with an additional three aircraft expected to commence operations in Japan during the coming year.

Our steady growth in the Japanese market over recent years has been supported by a solid customer support footprint in the country, including a network of service centres providing aircraft maintenance and repair services as well as a team of technical representatives providing dedicated on-site support to operators and end users.

3,000TH PATIENT LIFTED BY IRISH AIR CORPS

This autumn saw a major milestone for the Irish Air Corps, which operates our world-leading AW139 helicopter, with the airlifting of its 3,000th patient.

The Emergency Aeromedical Service (EAS) operated by the Irish Air Corps is a joint project between the Irish Department of Health, Health and Safety Executive (HSE) and Defence Forces. It provides the advanced paramedics of Ireland's National Ambulance Service (NAS) with the assistance of a dedicated military helicopter for the rapid transfer of critical patients to the most appropriate hospital.

NAS originally launched the EAS, based in Custume Barracks, County Westmeath, in 2012. It was initially set up for a 12-month trial period with the aim of assessing the level and type of dedicated Helicopter Emergency Medical Service (HEMS) required following the closures of regional facilities

An EAS helicopter crew consists of both Defence Forces personnel and a NAS advanced paramedic, remaining on immediate call to the National Aeromedical Co-Ordination Centre (NACC) seven days a week, 365 days a year.

Known by its callsign "Aircorps112", reflecting its military and medical nature, the aircraft is an AW139 twin- engine, multi-role helicopter, flown with a crew of two pilots and a crewman. When configured for Emergency AES, it can accommodate an array of medical equipment, including oxygen, suction and defibrillator, several attending medics and a patient. The AW139 is the fastest helicopter in its class, allowing AirCorps112 to reach anywhere in the country and deliver patients to an appropriate hospital in minutes.

You can see the AES AW139 in action here...

See more here >

In addition to the EAS, the Defence Forces have provided an inter-hospital air ambulance service since the 1960s, which has carried out thousands of missions, utilising both its fixed-wing and rotary-wing aircraft assets, operating from Casement Aerodrome, Baldonnel. Irish Air Corps 301 Squadron in No. 3 Operations Wing operates AW139s and undertakes a variety of roles, including Special Forces operations, army support, Helicopter Emergency Medical Services (HEMS) and firefighting.

An unusual mission for these helicopters was Operation Baseline, in the summer of 2015. 301 Squadron supported Ordnance Survey Ireland as it mapped and defined the territorial waters around the west coast. The only access to some of these remote Atlantic Ocean locations was via winching operations using a squadron AW139.

You can see videos of this operation and detailed interviews with the personnel involved here...

See more here >

A PEEK INSIDE THE US NAVY'S TH-73A TRAINING PROGRAMME

In the previous edition of the AWnewsletter we shared the news that US Navy instructor pilots had commenced training on the TH-119 aircraft (designated TH-73A by the Navy) at our facilities in Philadelphia; this issue we are able to share some more detailed information on what that training programme entails.

Delivered to a 25-strong cohort of US Navy instructor pilots, the TH-73A initial pilot training programme is fast-paced, including six flights for 11 hours of training. In this initial 11 hours, everything from Visual Flight Rules (VFR) basic and emergency procedures, Instrument Flight Rules (IFR) flight, formation, night, NVGs, and external loads is covered.

Spanning this broad amount of material in such a compressed time has made the programme a challenge, but also a success. The Navy pilots get the full scope of the helicopter's capabilities and gain confidence in the aircraft and its abilities. For many pilots it is their first encounter with a single aircraft that, with no real modifications, can perform such a range of missions.

To augment the training, the Navy pilots return for a monthly recurrent training programme that allows them the necessary time to build skills in the basics. The immediate feedback following this recurrent training is that the Navy instructor pilots are starting to feel comfortable with this aircraft and how they are going to implement their own training programme with Navy flight school students.

All this training is being performed with two aircraft, with 17 of the pilots initially being trained at our facility in Philadelphia. Currently training is being conducted remotely in Crestview, FA. This has not been without its own challenges. Logistics and maintenance have all been moved to Crestview and our Part 145 maintenance shop has worked tirelessly hard to keep these helicopters airborne.

The Navy pilots' goals are extensive. They need to know how the aircraft flies for obvious professional reasons. In addition, they have a list of questions that they need to answer during this training. How will they need to adjust the current curriculum for this aircraft? How will the aircraft work with their current facilities? What airspeeds and altitudes will they need to perform the multitude of manoeuvres? What new manoeuvres can they introduce that they currently do not do? Are there any current manoeuvres that they need to phase out? How will they let the students use the extensive technology the TH-73A offers? These and many more questions are being answered as they learn this aircraft and begin to develop their own programme going forward.

Our goal is to work as closely with them as possible, helping them to answer these questions with all the detail required for the launch of their own training programme, with which we wish them every success.

US DOD EXERCISES OPTIONS FOR 36 ADDITIONAL AIRCRAFT

November saw the announcement by the US Department of Defense of a modification to the previously awarded firm-fixed-price contract for the US Navy's Advanced Helicopter Training System (AHTS).

This modification exercises options for the production and delivery of an additional 36 TH-73A aircraft (based on our successful AW119Kx), with work expected to be completed in December 2022 in Philadelphia, PA. The TH-73A will be used to train the next generation of student aviators from the US Navy, Marine Corps and Coast Guard.

In January the TH-119 was selected by the US Navy as its next training helicopter for its AHTS programme. The initial contract was for 32 helicopters, together with initial spares, support and dedicated equipment and specific pilot and maintenance training services.

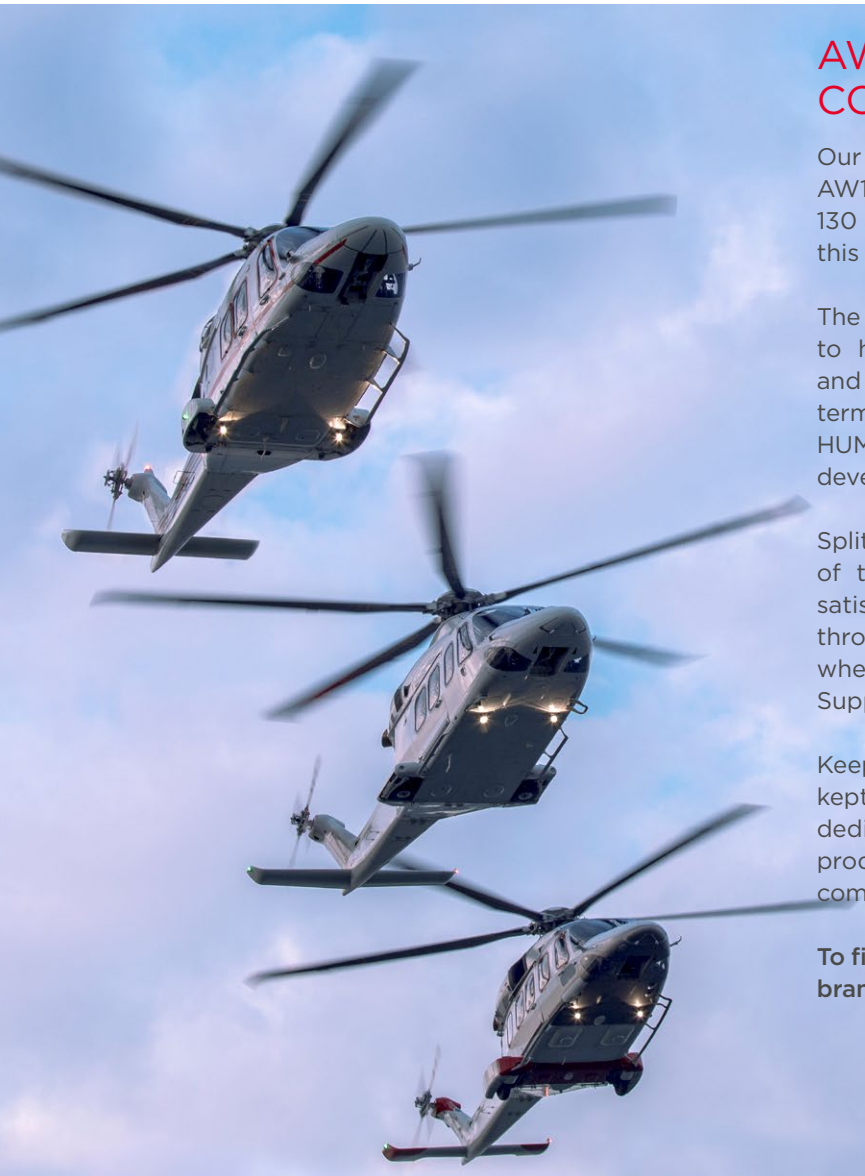
HELISERVICE OPENS NEW SERVICE CENTRE IN MUNICH

Accredited Authorised Leonardo Service Centre Heliservice, provider of offshore helicopter logistics solutions and a market leader within the German North and Baltic Seas, has opened a new service centre near Munich.

Heliservice international GmbH, with over 100 employees, has its main base in Emden, offering customers a high standard of maintenance across our AW109, AW139 and AW169 helicopters, providing tailor-made maintenance support packages with all the advantages of a close relationship with and responsive support of our Division.

Following the success of the Emden base, Heliservice has now opened a brand new large maintenance centre, largely dedicated to corporate aircraft. Located at Oberpfaffenhofen Airport, about 20 km from the centre of Munich. The facility is fully secured, with a large hangar, workshops, parts storage, offices, as well as a meeting room and customer lounge. The airport is privately owned and operated, accommodating medium to large jets and is accessible by customers day and night.

The new maintenance centre is certified as Leonardo Helicopter Authorised Service Centre for our AW109 and offers tailored support to all corporate aircraft customers: short and long-term hangarage, full maintenance and camo capabilities, full tools set and large stock of spare parts for AW109 helicopters.



AWFAMILY WEBINARS: COME JOIN US!

Our latest AWFamily Webinar, focusing on our AW139, AW169 and AW189 family of helicopters, attracted almost 130 participants from around the world when it was held this summer.

The July event saw the introduction of new platform to host the gathering and interactive Q&A sections, and included updates on our family of helicopters in terms of in-service events, product improvements, our HUMS service as well as publications and other digital developments.

Split over two separate sessions so as to cover a range of time zones, the event's attendees expressed their satisfaction in both the feedback survey as well as through their active participation in the Q&A section, where they got real-time feedback from our Product Support Engineering team.

Keeping us close to our customers, even in a year that has kept us apart physically, the AWFamily webinar provided dedicated sessions on our commercial and dual-use products as well as a valuable forum for feedback and communication.

To find out more about our AWFamily Webinars, visit our brand new Leonardo Customer Portal...

See more here >

LEONARDO HELICOPTERS AT LEADING CRITICAL CARE TRANSPORT CONFERENCE

In early November we participated in the 2020 Air Medical Transport Conference (AMTC), hosted annually by the Association of Air Medical Services (AAMS) – this year taking place virtually.

The online event may have been a sharp contrast to the more typical busy exhibition booth, static display and side events one would normally expect, but it still afforded plenty of ways to showcase our products and our diverse and global customer base to key US players in the sector.

AMTC is the premier gathering for critical care transport professionals from both hospital and independent providers in the US, with attendees including CEOs, programme directors, medical directors, physicians, nurses, respiratory therapists, paramedics, pilots, communication specialists, and mechanics, as well as OEMs like ourselves, together with other industry representatives.

Our virtual booth featured the usual variety of digital literature on aircraft like the AW119Kx, AW169 and AW109, spotlighting customers in various parts of the US such as Maine, Texas and Minnesota. We also shared videos of aircraft performing Emergency Medical Services (EMS) missions in both European and US markets, further demonstrating the range and capability of our technology.

The week of the exhibition also saw the announcement that Life Link III, which already operates 10 AW119Kx helicopters, has also signed an agreement for an AW109 Trekker and an AW169. You can read more about this exciting development elsewhere in this issue of the AWnewsletter.

On the side-lines of AMTC, our marketing team also led two virtual seminars for registered attendees, one on the AW169 in EMS configuration and the other on the AW109 product family, including some details on the Kopter SH09.

We were also the proud sponsors of the annual Charles Taylor Master Mechanic's Award, which recognises the accomplishments of a senior mechanic with at least 50 years' civil and military maintenance experience. This year's award was given to Terry Peed of Metro Aviation.

The MedEvac Foundation, the main charitable organisation of AMTC, held its annual "Run to Help the Helpers" event virtually to raise money for wellness and suicide prevention programmes for first responders. We were the only OEM to sponsor the event and on the final day of AMTC, AgustaWestland Philadelphia Corporation CEO Bill Hunt joined some of our participating team members in presenting a virtual cheque from our fundraisers to the foundation.

While the overall event was scaled down significantly due to the pandemic, it was an opportunity to continue to reaffirm our strong position, diverse product range and lasting commitment to the US marketplace in support of EMS and critical care missions.

OPERATORS MEET VIRTUALLY AT UK HEMS CONFERENCE

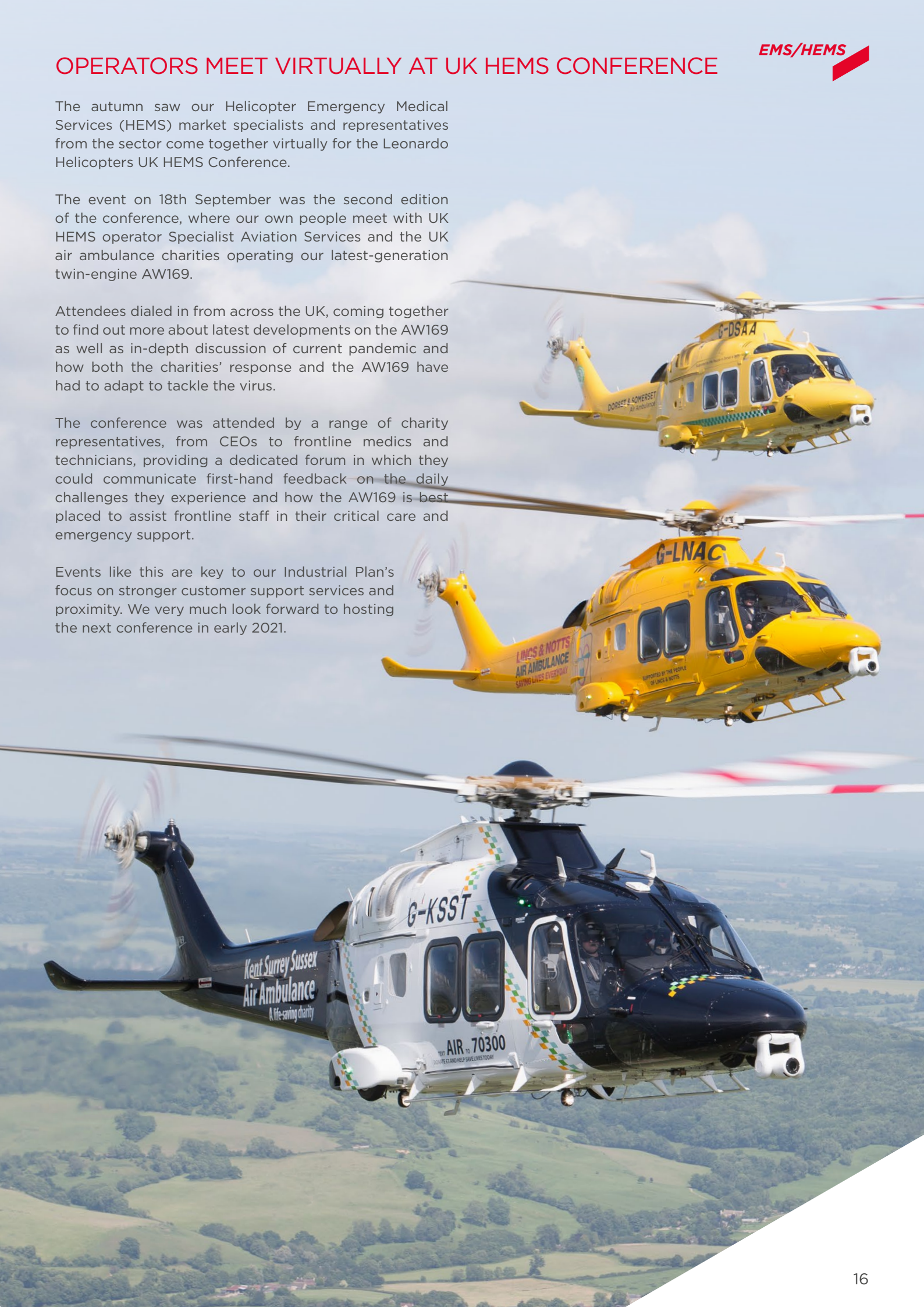
The autumn saw our Helicopter Emergency Medical Services (HEMS) market specialists and representatives from the sector come together virtually for the Leonardo Helicopters UK HEMS Conference.

The event on 18th September was the second edition of the conference, where our own people meet with UK HEMS operator Specialist Aviation Services and the UK air ambulance charities operating our latest-generation twin-engine AW169.

Attendees dialed in from across the UK, coming together to find out more about latest developments on the AW169 as well as in-depth discussion of current pandemic and how both the charities' response and the AW169 have had to adapt to tackle the virus.

The conference was attended by a range of charity representatives, from CEOs to frontline medics and technicians, providing a dedicated forum in which they could communicate first-hand feedback on the daily challenges they experience and how the AW169 is best placed to assist frontline staff in their critical care and emergency support.

Events like this are key to our Industrial Plan's focus on stronger customer support services and proximity. We very much look forward to hosting the next conference in early 2021.



FURTHER EXPANSION IN US EMS MARKET

We continue to consolidate our strong position in the US Emergency Medical Services (EMS) market with the announcement of a contract with Midwest EMS operator Life Link III for an AW169 and an AW109 Trekker.

The helicopters will ensure in-flight critical care and transport patients across Minnesota and Wisconsin, with delivery anticipated in the fourth quarter of 2021. The new aircraft boost the Leonardo fleet at Life Link III to 14 helicopters. Not only that, the contract also marks the entry into market for the AW109 Trekker in the US.

Life Link III is already the first US operator to have signed for the Instrument Flight Rules (IFR) certified AW119 in the civil market, and this contract continues their commitment to maintaining a safe, modern and effective EMS helicopter fleet.

William Hunt, Managing Director of Leonardo Helicopters in Philadelphia, said: "We are pleased to once again be supporting the vital life-saving missions of our long-standing partner, Life Link III. The AW109 Trekker and AW169 will be great additions to the EMS operator's fleet and both aircraft with their high-tech capabilities will enable Life Link III to conduct its operations safely and quickly."

The EMS operator's existing fleet comprises ten AW119Kx helicopters which have accrued more than 21,000 flight hours. Lee McCammon, Vice President of Operations at Life Link III, commented: "Our strong relationship with Leonardo supports our commitment to utilising advanced technology to complete life-saving missions."

Our twin-engine AW109 Trekker is well suited to EMS missions from its spacious interior and impressive performance to its advanced avionics and high safety standards. Benefiting from night vision goggles compatibility and single-pilot IFR capability, the new Trekker will also boast a customised interior built to meet Life Link III's requirements.

The AW169 features a large and regular 222 cubic ft. cabin, which will be delivered to Life Link III with a Federal Aviation Administration (FAA) certified EMS interior, providing the whole-body patient access that is key to critical care. The EMS operator will also benefit from the class-leading performance of the twin-engine helicopter, with its top speed of 160 knots, range of up to 440 nm and the ability to climb to 14,500 ft.

This latest sale represents our growing share of the North American EMS market, which now totals more than 110 across a fleet of AW119s, AW109s, AW169s and AW139s. We are committed to serving and protecting communities around the world, contributing to their sustainable growth by leading in next generation technologies. Partnering with governments, private organisations and industries for the best security and safety capabilities is a cornerstone of Leonardo's BeTomorrow2030 Strategic Plan.

Life Link III operates nine helicopter bases that include Alexandria, Blaine, Brainerd, Duluth, Hibbing, Rush City and Willmar, Minnesota, and Marshfield and Rice Lake, Wisconsin. The Company's helicopter and airplane services provide on-scene emergency response and inter-facility transport for patients requiring critical care.

AW609 UNDER EVALUATION BY TOKYO MUNICIPALITY

The Tokyo Metropolitan Government has announced its intention to evaluate our AW609 tiltrotor for the delivery of transport services to Ogasawara island, which lies approximately 1,000 km from the Japanese capital.

The tiltrotor's ability to fly above the weather and helicopter-like footprint plus vertical take-off capabilities mean the AW609 could perform this role in all weather conditions and with limited infrastructural impact. It would see the introduction of innovative technological solutions to connection and public service requirements across the nation, under both normal conditions and during emergency or extreme natural events.

We have a long-standing presence in Japan, with a fleet of over 130 helicopters of various models in the country performing a wide variety of civil, public service and military missions. These aircraft are supported by a comprehensive network from which the AW609 will benefit.

The AW609 will be the first civil certified tiltrotor aircraft and is poised to transform private and business travel, Emergency Medical Services (EMS), Search and Rescue (SAR), offshore operations and patrol, among other uses. It excels at providing fast point to point transportation at long ranges, whether it is connecting city centres or providing timely access to remote locations. The AW609 carries up to nine passengers and can fly in known icing conditions, with a maximum speed of 275 knots, altitude of 25,000 ft and range of 1,000 nm. The tiltrotor also benefits from modern 'green' technology for reduced emissions and noise.

The first two production AW609s are currently being assembled in Philadelphia, PA, where customers will also benefit from comprehensive support and training packages primarily headquartered at our new Training Academy. An advanced Flight Training Device and the world's first AW609 Full Flight Simulator will be available for training.

FIRST AW139 FOR MIAMI-DADE FIRE RESCUE DEPARTMENT

The first of four multi-role AW139 helicopters was received by Florida's Miami-Dade Fire Rescue (MDFR) at a ceremony held on 13th October.

The handover took place at Miami Executive Airport in the presence of Miami-Dade County Mayor Carlos A. Gimenez, MDFR officials and representatives of Leonardo Helicopters' site in Philadelphia.

The initial AW139 forms part of a four-helicopter contract signed in early December 2019; the deal also includes a comprehensive five-year support, maintenance and training package, with the possibility of a further extension to a total of 15 years.

The fleet of four AW139s will support MDFR in a multitude of missions, including Emergency Medical Services (EMS), firefighting, Search and Rescue (SAR), law enforcement and disaster relief.

"As a former firefighter, I've been very impressed with this world-class search-and-rescue helicopter," Mayor Giménez said. "Replacing antiquated helicopters, the AW139 is a vital addition to Miami-Dade Fire Rescue's fleet. They will provide a heightened level of safety and security for our Fire Rescue workers and those whose lives they work to save."

Within the framework of the contract we are also supporting MDFR with a comprehensive four-month plan for a straightforward and efficient transition from their current Bell 412s, allowing them to be fully operational with their four AW139s as soon as they enter service.

The AW139s built for MDFR are readily reconfigurable for their multiple roles and are equipped with a comprehensive set of mission equipment, including a Goodrich hoist, fast roping, cargo hook and Bambi bucket for firefighting missions, a Trakka searchlight, FLIR, a mission console in the cabin linked to the fifth display in the NVG-compatible cockpit, broadband radios to include USCG Comms, a weather radar and avionics systems including traffic collision avoidance system (TCAS), obstacle and terrain avoidance, and obstacle avoidance detection.

Customers and their operations remain at the heart of all we do. We listen to their requirements for their operational needs, supplying them not only with the helicopter that will best deliver their mission but also all the necessary equipment to do so, along with a complete package of support and training.

In the United States, AW139 customers include the Los Angeles Fire Department (LAFD), and New Jersey and Maryland State Police Departments, among many others. The US Air Force (USAF) will soon introduce the AW139-based Boeing MH-139 to replace the UH-1N fleet.

The AW139 is the most successful helicopter program of the last 15 years, amassing over 1,100 orders in more than 70 countries on all continents, with over 2.6 million flight hours logged since the first delivery in 2004. As well as its dominance of in the global commercial market, its dual-use design has also made it popular with military operators worldwide.

Miami-Dade is Florida's most populous county, located along the southeast tip of the state's peninsula, with a surface exceeding 2,000 square miles and one-third of the county located in Everglades National Park. The AW139s will be deployed also to provide mutual aid support to neighbouring counties including Monroe, Collier, Broward and Lee.

Photo: Miami-Dade Fire Rescue

NEW AW139S ALLOW THC TO EXPAND SERVICES

Saudi Arabian operator The Helicopter Company (THC) is adding more AW139s to its existing Leonardo fleet, allowing it to expand its helicopter services to cover a wider area of the country as well as provide additional capabilities, including utility transport and Emergency Medical Services (EMS) operations.

THC is active in some of the world's most unique areas. To meet the increasing demand and sophistication of its operations THC is expanding its fleet with the new-generation AW139. THC already owns two new and two pre-owned AW139 helicopters and will take delivery of an additional three AW139s by the end of this year.

THC is Saudi Arabia's first commercial helicopter operator, providing VVIP, utility and EMS transportation services across the country. With its growing fleet THC will continue to expand its operations, including additional EMS capabilities and sightseeing tours in AlUla and Neom. THC is fully owned by the Public Investment Fund (PIF) of Saudi Arabia and is part of the PIF strategy to establish and develop new sectors in the country, including its nascent tourism sector, within the scope of Saudi Vision 2030.

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