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ELECTRIC VERTICAL Take Off and Landing (eVTOL) multi-rotor aircraft are on the way, whether we like it or not – the only question is, how soon?

Advocates of this new technology point to the multi-engine safety of the devices and their suitability for urban operations, whisking between two and five passengers quietly and seamlessly between destinations, either autonomously or with a single pilot in control. No more noisy helicopters with complex mechanical parts and tail rotors needing constant attention. Progress in eVTOL will much depend on the approach taken by the certification authorities and the methodology used to control the low level airways across the city-orientated routes, avoiding collisions being an obvious risk. Can it really all be controlled by an Ipad or whatever device is available for the common man by the time eVTOL transport becomes a reality? Thanks but for now we’ll watch from the sidelines.

★

The shortage of helicopter pilots worldwide, with those who are ex-military continuing to be tempted away by the airlines, and new pilots facing an often expensive mountain to climb to gain the qualifications and experience needed for commercial helicopter flying, continues to be an unresolved problem in our industry.

In the past, companies earning good money in the oil and gas sector trained their own and there was a good supply of pilots who had cut their teeth flying for the military in various conflicts, in particular during the Vietnam War. Downsizing, age and other factors has seen those sources vanishing and as yet we see no sign of the industry taking serious steps to right the situation. Maybe meetings at the upcoming HAI HeliExpo will produce some answers?

★

As we write this, the battle for the US Army Future Vertical Lift (FVL) is reaching an interesting stage, with the Bell V-280 tiltrotor having exceeded its target level flight speed of 280 knots (518km/h) and the competing Sikorsky-Boeing SB-1 having begun final pre-flight ground runs. Whilst the V-280 has yet to prove its low speed/low level manoeuvrability can match up to that of a theoretically highly manoeuvrable compound helicopter, in all other respects, FVL should be a game changer for military investment if it is to truly fly. Otherwise the opportunity could be lost.
ANSAT AND MI-171A2 COMPLETE SE ASIA TOUR

Russian Helicopters completed its South east Asia demonstration tour with the Mil Mi-171A2 and Kazan Ansat helicopters in early December, with a presentation of both types in Kuala Lumpur, Malaysia. The two helicopters had previously been demonstrated to potential customers in Vietnam, Cambodia and Thailand, following their appearance at Airshow China in Zhuhai in early November.

Both helicopters were air-freighted into Kuala Lumpur from their last stop in Thailand and re-assembled for demonstration flights at the Sepang F1 International racing circuit, before presentations were made regarding the technical details and other after-sales service programme. Russian Helicopters claimed that during the 5,000km (3107 mile) tour, more than 1,000 guests from government and commercial helicopter operators visited the flight shows, with interest suggesting near term orders for at least 50 helicopters from the countries visited.

The company says the hot/high performance of both types was especially noted by operators in the region during demonstration flights, where the aircraft were flying in high temperatures and close to 100 percent humidity conditions.

FORTH AW609 INTRODUCES SAR CABIN DOOR

Leonardo Helicopters in Philadelphia is currently modifying the fourth prototype AW609 tilt-rotor for the search and rescue role, installing a large starboard-side clamshell cabin access door and hoist attachment provision along with other modifications following previous flight trials. The new door will be standard on all production aircraft, with the option for the embedded hoist on aircraft intended for SAR missions. Construction of the fourth prototype should be completed in December.

In parallel with this build programme, Leonardo has completed drop tests of the production landing gear whilst certification trials of the production-standard Pratt & Whitney Canada PT6C-67A engines on the third prototype should also be completed by the end of this year. Work is continuing too on fatigue testing of the fuselage and tail unit. The company says the AW609 programme has now logged more than 1400 flight hours and is on target for FAA certification in 2019, followed by first customer deliveries in 2020. To boost sales the company recently released illustrations of a six-seat VIP cabin layout, with individual executive seating and a forward cabin refreshment bar. Point-to-point business travel is seen as an important target for civil sales of the aircraft.

Enstrum Helicopters has signed up a new sale in France for a 280FX piston-engined helicopter, for delivery in Spring 2019. The sale has been negotiated by the company’s French dealer, Rotor and Aircraft Sarl with their customer Golf Tango, based at Toussus-Le-Noble airfield west of Paris.

Golf Tango operates several fixed and rotary wing rotorcraft for training and charter work, including the Robinson R22 and R44 and plans to use the 280FX to expand its training offer.

In addition Enstrom will utilise the aircraft as a demonstrator, visiting about 40 other authorised training schools across France to demonstrate the training virtues of the 280FX. This is seen as necessary because there are so few Enstroms in the country, although a flying school in Toulouse has just begun operating a second hand F280FX.

Enstrom believes that the power available from the 225shp Lycoming piston engine, coupled with low maintenance and overhaul requirements, give the 280FX a real advantage against competitors in the same class in the French environment. The aircraft also features modern digital instrumentation - and is configured for IFR training.

WAYPOINT ENTERS CHAPTER 11...

Waypoint Leasing officially filed for Chapter 11 bankruptcy protection on 25 November in the US Court system, following several months of ongoing financial problems and efforts to de-risk the business. Established in 2013, Waypoint has more than 160 helicopters flying with 36 customers in 34 countries with mission segments including oil and gas, emergency medical services, fire fighting, search and rescue and wind farm support.

The company has already been actively working with its lenders and other stakeholders to transform the business and sees Chapter 11 as the next step in restructuring, with eventual acquisition by a new owner with a continued focus on customers. In the meantime it expects to continue supporting its clients as usual and to work with all vendors and suppliers in the ordinary course for all goods and services. Leading the Waypoint team dealing with the Chapter 11 filing is chief financial officer Hooman Yazhari, who joined the company earlier this year from CHC, where he previously prepared that company for its own Chapter filing.

The Chapter 11 filing covers more than 100 companies and trusts including Waypoint Leasing Holdings Ltd, Waypoint Leasing (Luxembourg) and Waypoint Leasing (Ireland) Ltd with more than 200 creditors in total. Amongst these Airbus Helicopters is owed $4.6 million, AgustaWestland Malaysia is owed $543,000, and CHC Helicopters Netherlands is owed $266,000. In addition to the 166 aircraft already on lease and valued at $1.6 billion, Waypoint also has 70 helicopters, valued at more than $700 million, on order or optioned for delivery over the next five years. These contracts must now be in doubt under the circumstances.

In June 2013 Waypoint announced that it had sourced $375 million of equity from MSD Capital, Soro Fund Management and the Cartesian Capital Group, but it is just the latest helicopter services company to fall foul of the slide in oil prices, over the past year. PHI Inc has seen its stock share price fall from $13.95 to $4.62, with pressure to sell off its air medical division to reduce debt, whilst the Bristow Group has also seen its share price fall from $11.45 to $3.85 despite buying into Columbia Helicopters. Even the Milestone Group which is the largest helicopter leasing company, recently let go its Chief Executive Officer and co-founder as it seeks to reorganise under the new GE Capital Aviation Services ownership.

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AAR sells S-61 fleet

Industry sources say that US aviation provider AAR Corporation, which supports government customers through the provision of expeditionary services, is in the process of selling off its entire fleet of Sikorsky S-61N helicopters following the loss of all the company’s US government contracts to support operations in Afghanistan.

Sources allege this was caused by a history of poor maintenance and aircraft unreliability, in part due to the hiring of low cost contractors and a lack of helicopter experience. In turn this led to missions being cancelled and a breakdown of the supply chain. Another causal factor cited may be the imminent final report by the US National Transport Safety Board in the fatal crash and post impact fire that destroyed one of the aircraft (N805AR) during a post-maintenance check flight from the company’s base at Melbourne airport in Florida in September 2016. The S-61N was registered to subsidiary company EP Aviation and all three crew aboard died in the incident.

The final straw appears to have been triggered by the arrival of Canadian Helicopters, Construction Helicopters and then Columbia Helicopters in Afghanistan. AAR was unable to match the mission readiness and availability that these competitors provided and simply lost the business.

The company is allegedly now trying to dispose of all 18 S-61Ns in its fleet by the end of February, in order to meet a Board deadline of getting out of that part of the business, and has already sold two aircraft to Air Palace Korea. This company is reported to be bidding on the remaining S-61s. Canadian Helicopters is also considering the purchase of two aircraft, to replace two S-61Ns they have just shipped to Yemen to support US medevac operations there in the mountainous terrain. Two Sikorsky S-61Ns, registered to TVPX Aircraft Solutions Inc in Utah but likely being operated by Construction Helicopters of Michigan, are providing support in Afghanistan under contract to US Transportation Command. TVPX is a company registration service that helps foreign aircraft owners wishing to use the US Federal Aviation Administration aircraft registry through trust services. The two aircraft, registered N903CH and N904CH were air freighted to Bagram Air Force Base by Antonov An-124 and have been operating from Kabul since late August.

Both S-61Ns were previously registered to Canadian companies, VIH Group and Rotormaxx Support Group in British Columbia, who have historic links with Construction Helicopters.

CASA criticised

The Australian Civil Aviation Safety Authority (CASA) has been criticised by a Coroner reporting on the death of a helicopter pilot in May 2014, for failing to take action on design and structural issues discovered on the Cicare CH-7B light helicopter during the accident investigation. The helicopter had crashed into a dry river bed whilst mustering at the remote Hulton Station in south Queensland, after a section of the tail stabiliser failed and separated from the helicopter, striking the tail rotor and causing the crash.

The investigation also showed that two other Australian-based CH-7 helicopters had crashed in similar circumstances and that the pilot had previously reported excessive vibration, and play in the tail rotor, gearbox and stabiliser assembly to the manufacturer for comment. Such was his concern that a new tail rotor gearbox was installed only six days prior to the accident. Despite this evidence, the Coroner noted that CASA had taken no action following the accident report published by the Australian Transport Safety Board (ATSB), whilst neither the manufacturer or its Australian distributor participated in the inquest, despite contact with them and notification of the hearing.

The Coroner noted that at least 40 CH-7B helicopters have been sold to date worldwide, including about 12 delivered in Australia, and all are likely to have the same design or manufacturing defect. He therefore ruled that CASA should carry out a full investigation in conjunction with the ATSB and take the necessary regulatory action to protect pilots flying the aircraft model.

...and Macquarie bites

Only two weeks after Waypoint Leasing announced it had filed for Chapter 11 bankruptcy protection, fellow leasing company Macquarie announced that it had reached a deal to purchase the assets for $650 million, a substantial discount from the $1.5 billion valuation of Waypoint listed in the bankruptcy papers. The transaction is subject to bankruptcy court approval but is expected to close before March 2019.

Several of Waypoint’s lenders have agreed to provide a $45 million debtor-in-possession facility in the meantime to allow the company to continue trading until the deal closes.

Macquarie plans to merge Waypoint, including its staff, with its own subsidiary Macquarie Rotorcraft Leasing, which was set up in 2013 with the aid of several ex-Sikorsky senior executives. Previously Macquarie had been close to being a launch investor in Waypoint, which began trading in the same year. By 2016, Waypoint was however already beginning to suffer from reduced utilisation rates and revenues in the oil and gas sector. In that year the company had 121 helicopters on lease, generating $135 million in annual revenues, but declining. By November 2018, when it had 165 aircraft on lease, the annual revenues had actually decreased to $106 million, and the company was also faced with customers wanting shorter lease periods due to the market uncertainty, averaging 2.2 years compared to 3.1 at the end of 2016.

Until now Macquarie Rotorcraft has been a small part of the overall Macquarie aircraft leasing business but the transport finance bank has a strong track record and balance sheet, with some $381 billion worth of assets under management. This expertise and the combined resources of the two companies is expected to allow the company to compete more effectively with GE helicopter leasing subsidiary Milestone Aviation Group and bring stability and a long term balance to the helicopter leasing sector, which has been filled with so much uncertainty in recent months.
Kopter progress...
The third Kopter SH09 prototype (P3), registered HB-ZXC, began flight trials at the company’s Mollis airfield facility on 22nd November, following the completion of pre-flight ground tests and regulatory clearance. The aircraft was airborne for 40 minutes and the flight included a series of handling manoeuvres, aimed at obtaining preliminary flight data and validating test design features. P3 has incorporated a number of improvements and modifications based on feedback from the testing of the first two SH09 prototypes, both of which are now grounded. The next stage of the programme will see P3 relocate to the sunnier climes of Pozzalo in Sicily, where it will undergo an intensive flight test campaign, aimed at accelerating the certification programme. Meanwhile the Kopter team at Mollis will finalise the assembly and preparation of the next SH09 prototype, the Pre-Series fourth aircraft (PS4). This is expected to join P3 at the new Sicily flight test centre in 2019.

The company has also revealed more details of the delay in beginning flight trials of the third prototype, which was originally due to make its first flight last March. It was known that the set back was due to a sub-contract supplier manufacturing fault, but the company has now explained the flaw. The issue was apparently with sub-standard porosity and cracks found in the main gearbox upper housing casting, with reworking and structural testing then required to check that the component’s strength and fatigue life would be sufficient for the initial flight testing. Part of the solution involved carrying out some welding to strengthen the casting, but this led to another quality flaw when it was discovered that the sub-contractor had used improper procedures.

However Kopter carried out a series of static tests, up to the maximum load, on two different castings from the same batch and ran an additional 300 hour main gearbox endurance test. These tests confirmed that the part was strong enough to meet the SH09 flight envelope requirements and is being used on the third prototype.

In addition to its contribution to the development programme, the Mollis team will also now begin to focus on converting the existing facility into a fully operational commercial production centre for the SH09, to meet the expected future demand for the single engine turbine helicopter.

Meanwhile Kopter has replaced the original casting supplier with a new sub contractor, who is expected to deliver their first part in the coming weeks. This will eventually be retrofitted to the third prototype, with future deliveries also being made for installation on the next SH09, the pre-series PS4. This aircraft will incorporate further improvements, including the Garmin G-3000H/ avionics suite which is replacing the original Safran equipment, and a more maintenance-friendly rotorhead, main gearbox and hydraulic system. Kopter is also planning to introduce a new pre-impregnated carbon fibre in the airframe construction, that it expects will absorb less humidity and so better deal with ageing.

...and Expansion
Kopter is expected to finalise a location for a US assembly plant for the SH09 helicopter by early 2019, according to senior officials attending the recent Air Medical Transport Conference in Phoenix, Arizona. The company is also looking to set up a North American flight training facility, probably with an established training partner and likely located in one of the southern US states.

Meeting the anticipated North American demand, where Kopter believes the new technology SH09 can take on existing helicopters like the Airbus H125, and H130, Bell 407 and Leonardo AW119K, is driving the development of a US assembly centre. At a base price of about $3 million, the eight place single engine design with its full carbon fibre airframe, glass cockpit, dual hydraulic system and dual electric circuit is expected to bring advantages in safety, cabin volume, payload and performance.

Meanwhile in Europe, at the Helitech event in Amsterdam, Kopter announced the appointment of Swiss Helicopter Norway as its Nordic distributor, covering Scandinavia, Finland, Iceland and Greenland, and backing this up with a firm order for four SH09s for delivery to customers in 2021 and 2022. The company is aiming to market the aircraft for external lift operations and passenger transport, and will be supported technically by Helitrans AS in Norway, which itself ordered 12 SH09 helicopters plus six options last March. The company also displayed the grounded first prototype SH09, wrapped in the colours of the latest customer, Systemic Aviation Services of Malaysia.

Kopter now has about 70 SH09s under either firm contracts or letters of intent to buy, that are due to turn into commitments once certification is secured, and is planning an ambitious production ramp up from 2020 into “triple digits” annually by 2024. This will require a doubling of staff from the current 300 employees to bring in more engineering and product support personnel.

ANWB orders H135s
The Royal Dutch Touring Club ANWB roadside assistance organisation has signed a framework contract with Airbus Helicopters for up to six new H135s, equipped with the Helionix cockpit and configured for helicopter emergency medical services (HEMS). The aircraft are intended to replace older EC135 helicopters in the ANWB fleet. The first batch of three will be delivered over the next two years.

ANWB is the sole HEMS provider in the Netherlands, carrying out more than 8500 missions annually on a 24/7 basis and serving four trauma centres across the country. The company also operates larger H145 helicopters for the Dutch Wadden Isles, carrying out more than 600 HEMS missions each year in cooperation with the local ambulance service provider.

The upgrade to the H135 from the EC135 will provide the organisation with the latest technological advances, including a four-axis autopilot, much enhanced situational awareness, a night vision goggle compatible cockpit, and a first limit indicator that highlights the appropriate engine instrument data for the pilot in one indicator. The new aircraft will be powered by the Pratt & Whitney Canada PW206B3 engine.

Above: Kopter is now flight testing the third SH09 prototype, HB-ZXC whilst finalising assembly of the next aircraft at its Mollis factory.
configuration have no impact on the helicopter’s handling qualities. Certification is anticipated in the test and certification campaign. This will ensure the changes introduced to the production configuration have no impact on the helicopter’s handling qualities. Certification is anticipated in late 2019 and the aircraft is then expected to be delivered to launch customer, Babcock in 2020.

New K-Max orders
Kaman Aerosystems has received new orders for three K-Max helicopters from three new customers, expanding their fleets to meet utility and growing fire fighting demands. The additional interest by operators in the K-Max capabilities has also prompted Kaman to commit to a Lot III production run of 10 aircraft to follow on from the current 15 aircraft Lot II manufacturing batch.

One of the three new operators will be Mountain Black Runner Helicopters in Montrose, Colorado which will use its K-Max to support high altitude external lift work and fire fighting missions. The helicopter will supplement the company’s existing fleet of Airbus AS350B3e aircraft, essentially offering double the lift capability at high altitudes and providing a strong US Forest Service Type 1 fire fighting helicopter to combat wildfires. A second operator will be St Louis Helicopter in Sellersburg, Indiana which will use its K-Max for agricultural aerial work, including seeding, fertilisation and fire fighting. St Louis will finance their aircraft through a leasing arrangement with Rainier Helicopters, which earlier in 2018 entered into an agreement with Kaman to offer K-Max leasing solutions to customers.

Subsequently on 6 December Kaman announced that Precision Lift of Baker City, Oregon had also ordered an additional aircraft, its second K-Max order in 12 months and bringing the total orders since the relaunch of production to 11 units.

46 K-Max have been built to date, with 11 of these written off since delivery, a further three damaged examples likely to be rebuilt, and three withdrawn from use. All three new operators will take delivery of their aircraft in the coming month.

New Helipad for Midrand
National Airways Corporation in South Africa and partner Ultimate Helicopters opened the first phase of a new heliport in November, at Midrand Airport in central Gauteng Province. Situated midway between Pretoria and Johannesburg, the new R60 million heliport is adjacent to the N1 motorway between the two cities, and opposite the Mall of Africa in Waterfall City.

The first phase is on 32 hectares of land and includes 3100sq.m (33,300sq.ft) of hangar space and 2800sq.m (30,139sq.ft) of administration space, with a terminal building, VIP lounge facilities, restaurant, fuel farm and parking pads for up to 16 helicopters. The heliport also features a European standard Final Approach and Take Off (FATO) area and has already been granted its operating licence last August from the South African Department of Transport. Phase Two will add more hangar and office space as it is needed. The two partners aim to relocate their existing helicopter operations and pilot training schools from Grand Central and Rand Airport to the new heliport, together with their maintenance facilities.

NAC is South Africa’s largest helicopter operator, offering helicopter sales, charter, scenic helicopter flights, helicopter contracts and specialised operators, as well as helicopter management, maintenance and training.

New Transport Canada regulations criticised
Canadian helicopter operators have criticised new flight and duty time regulations released by Transport Canada on 12 December, despite support from the Transportation Safety Board of Canada which says fatigue management cited in the revised regulations is one of the most pressing issues impacting aviation safety.

Speaking on behalf of its 140 members, the Helicopter Association Canada (HAC) says the regulatory changes are “a catastrophe” for this segment of the aviation industry, even though aerial work operations are exempt. This is because most operators mix both utility and passenger transport sorties, which are subject to the more restrictive regulations, sometimes many times in the same day when they are flying at remote locations out in the field. The new regulations reduce the permitted length of a work deployment from the current 42 days to just 17 days, but “allowing for positioning that will leave just two weeks to work productively on a job site” says HAC. “Worse, pilots will need 36 hours off in every seven days, meaning that the customer will lose a day’s work each week unless there is a second pilot on the site”. Rotating pilots in and out of remote sites every two weeks is also considered a problem.

Transport Canada has recognised that some operators may find it difficult to comply with the new regulations and are offering an option in the form of a Fatigue Risk Management System (FRMS). In essence this will allow operators more flexibility to set flight hours based on their unique circumstances, but only if they can demonstrate that alertness and safety will not be affected. HAC worries that developing a viable FRMS will be too complicated, costly and time consuming for small operators.

Transport Canada is giving the helicopter industry a four year lead time to prepare for implementation of the new regulations and meanwhile HAC is continuing to object to the new changes, whilst also considering creating an FRMS framework for its members to simplify the exemption option.
Ex-Change Parts AB takes AS332M1

Ex-Change Parts AB, based in Stockholm, is taking delivery this month of six Airbus AS332M1 Super Puma helicopters from the Swedish Defence Material (FMV), together with a large support inventory including engines, components, ground support equipment and special tools. The aircraft were previously operated by the Swedish Defence Forces for transport and search and rescue operations, but were retired in October 2015 after 27 years of service.

Ex-Change says it has worked with the various authorities and Airbus Helicopters for the past two years to bring the project to a point where it can offer a complete helicopter system to military operators worldwide. The deal was approved by the Swedish and French authorities in July, and the company says it will now cooperate with the industry’s leading maintenance, repair and overhaul organisations to refurbish and configure the helicopters to specific customer requirements.

All six helicopters are reportedly in exceptionally good condition, with low flying hours and have been maintained to the highest standards. Four of the aircraft, serials 10405, 10410, 10411 and 10412, are Hkp 10A variants. Two other Hkp10s were previously allocated to museums and one to the armed forces training school in Halmstead, whilst the remaining three of the original 12-strong fleet were written off in accidents in 2000, 2003 and 2005.

Ex-Change Parts AB specialises in helicopter support and is a major source for SA330 Puma, AS332 Super Puma and H225 parts, with 15,000 line items in stock. It also stocks parts for the EC120 and AS365 models, and for the products of most of the other major helicopter manufacturers.

Leonardo proposes autorotation simulation for AW609 certification

Leonardo Helicopters has entered a proposal with the US Federal Aviation Administration (FAA) for an autorotation simulation programme as part of the certification efforts for the AW609 aircraft, which is the world’s first civil tiltrotor. The company says it has already demonstrated this simulated approach as an alternative to a live full down autorotation and believes it is in keeping with FAA guidance on the subject.

Whilst Leonardo wants to avoid the risk of possible damage to the AW609 during a live touchdown autorotation, it has carried out dozens of autorotations with power recovery, including some at different centres of gravity and different gross weights. In this respect the aircraft is ahead of the larger Bell Boeing V-22 tiltrotor which, as a military programme, has never had to physically demonstrate an autorotation capability. The test flights carried out by the AW609 have also been successfully transferred to the flight simulator, showing that the aircraft can achieve an acceptable engine-off landing criteria including sink rate, proprotor speed, ground speed and control margins.

The FAA is marrying parts of CFR14 Pt. 25, governing large transport aeroplanes, and Pt. 29 which covers heavy transport helicopters, to come up with the certification requirements for the tiltrotor. Pt. 29 includes the engine-out landing requirement, noting that this can be demonstrated by placing throttles in the idle position and ensuring no power is delivered to the drive train. Also “computer analysis may be used in conjunction with simulated in-flight checks to give reasonable assurance that an actual safe touch down can be accomplished”. Other methods may also be considered to demonstrate compliance including a power recovery after flare effectiveness has been determined.

Leonardo has stressed that it is not seeking to bypass any autorotation requirement and that, if the FAA accepts its simulation methodology, it plans to publish the paper to show how the AW609 will be able to perform a safe autorotational landing. Meanwhile the company hopes to complete certification of the aircraft by the end of 2019, with the first customer deliveries following soon after.

Helitech rebranded

Reed Exhibitions have confirmed that it is to rebrand the Helitech Conference and Exhibition, calling it the Vertical Flight Expo and Conference. The company had already announced a new venue, at Farnborough Airport, where a professional exhibition centre is available right next to the airfield for visiting aircraft.

The rebranding will go hand in hand with some redirection of the event and a decision to make it biennial in Farnborough, with more emphasis on attracting aircraft and technology demonstrations. However the move is also a response to the decision made earlier this year by the European Helicopter Association (EHA) to no longer support Helitech. Instead the EHA is expected to support a new European event in conjunction with the European Aviation Safety Agency’s Rotorcraft Symposium. This is likely to come about in 2020. Meanwhile the British Helicopter Association has pledged to provide continued support for the new exhibition at Farnborough.

Less known is the level of continued support from the major manufacturers for the 2019 event, currently due to take place in early November. The 2018 event in Amsterdam saw only five helicopters from the major manufacturers on static display, including a Leonardo AW169 (D-HHTI) from HeliService, an Airbus H145 (PH-HOW) and H-175 (PH-OSF) from local operators, and a Bell 505 (F-HIRX) and model 429 (HB-ZOP). Apart from the Kopter SH09 (HB-ZXA) an EC225 (LN-OHJ) from GFS on a low loader and the cabin section of an MBB Bo105, displayed by Airborne Lynx, there was no other helicopter presence.

Early signs are that some, like Bell, are not overly impressed with the idea of a UK centric show in winter, and Reed Exhibitions may have to work hard over the coming months to return the show to the levels of popularity that it once enjoyed in the past.
Helicopter was struck by a flock of geese, crashing and medical fight in Arkansas in November 2017 fatal crash, when a Bell 407 on an air period however bird strikes caused only one or other factors. Over the recent three year unreported due to a lack of resulting damage gauge, as some incidents continue to go even today an accurate figure is difficult to likely due to more strikes being reported years.

Recorded since 2010, when the reported strikes increased significantly over previous years.

Researchers believe the increase was likely due to more strikes being reported rather than any other factor, but note that even today an accurate figure is difficult to gauge, as some incidents continue to go unreported due to a lack of resulting damage or other factors. Over the recent three year period however bird strikes caused only one fatal crash, when a Bell 407 on an air medical fight in Arkansas in November 2017 was struck by a flock of geese, crashing and fatally injuring the pilot and two medical personnel on board.

Elsewhere eight injuries were reported in separate bird strike incidents, involving four to passengers and all involving medium to large birds and flying debris from broken windshields. 12 percent, (71 strikes) of the reported strikes resulted in damage to the helicopter involved and six percent of those 41 strikes, caused substantial damage requiring major repairs or replacement of the affected component.

Of these incidents, 28 resulted in over $10,000 in repair costs, whilst four exceeded $100,000. Over the three year period the total bill was over $3.7 million, not including the revenue lost whilst the aircraft was out of service being repaired. The vast majority of the recorded strikes were to helicopters on business flights, with only 12 privately-owned aircraft in the total count. 77 strikes involved government-owned helicopters, including the US Coast Guard, Customs and Border Agency and other government agencies.

Not surprisingly the most damaging strikes were from larger birds, in particular vultures, but interestingly most bird strikes occurred en route rather than during take off and landing. Evidence also suggests that pulsing exterior lights may reduce the risk, as recent tests have shown that aircraft using these are hit less often and suffer less damage when struck.

Heli One modifies H225s for Iceland
Heli One is to overhaul and install search and rescue (SAR) cabin modifications in two Airbus H225 helicopters owned by Knut Axel Ugland Holding but destined to replace two AS332Ls operated by the Icelandic Coast Guard. The work will be carried out at the Heli One facilities in Stavanger, Norway with each aircraft expected to be turned around in approximately six weeks.

Earlier this year Iceland did have preliminary discussions with Norway about purchasing the Leonardo AW101 SAR and sharing training and maintenance, but this idea did not move forward and instead the Coast Guard will receive refurbished ex-CHC H225 helicopters. The programme will include return to service maintenance for the helicopters, and the installation of various upgrades alongside new installations for the SAR role.

These include a Euronav 7 upgrade, a USB Charging Port installation, dual hoist, Trakka searchlight FLIR console, NVIS-compatible cabin, AIS Transponder System, a stretcher and a medical equipment wall. Heli One has previously carried out a similar SAR upgrade on the Airbus Helicopters AS332L and the Sikorsky S-92.

The Icelandic Coast Guard will deploy the two H225s for SAR operations and coastal defence within the Icelandic economic zone and the country’s SAR region, an area of approximately 1.9 million sq.km (733594sq.miles).

FAA logs bird strikes
The US Federal Aviation Administration says there were 665 bird strikes involving helicopters in the United States between 2015 and 2017, showing an annual strike count of just over 200. This figure matches the average recorded since 2010, when the reported strikes increased significantly over previous years.

Researchers believe the increase was likely due to more strikes being reported rather than any other factor, but note that even today an accurate figure is difficult to gauge, as some incidents continue to go unreported due to a lack of resulting damage or other factors. Over the recent three year period however bird strikes caused only one fatal crash, when a Bell 407 on an air medical fight in Arkansas in November 2017 was struck by a flock of geese, crashing and fatally injuring the pilot and two medical personnel on board.

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Elsewhere eight injuries were reported in separate bird strike incidents, involving four to passengers and all involving medium to large birds and flying debris from broken windshields. 12 percent, (71 strikes) of the reported strikes resulted in damage to the helicopter involved and six percent of those 41 strikes, caused substantial damage requiring major repairs or replacement of the affected component.

Of these incidents, 28 resulted in over $10,000 in repair costs, whilst four exceeded $100,000. Over the three year period the total bill was over $3.7 million, not including the revenue lost whilst the aircraft was out of service being repaired. The vast majority of the recorded strikes were to helicopters on business flights, with only 12 privately-owned aircraft in the total count. 77 strikes involved government-owned helicopters, including the US Coast Guard, Customs and Border Agency and other government agencies.

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Above: The latest pictures of the Airbus electric VTOL Vahana show motor changes, nose mounted sensors and other changes to the configuration since its first flight. A second prototype is also now at the Pendleton, Oregon test site.

Matrix UH-60 delays
Sikorsky Aircraft has run into delays with its programme to install its Matrix autonomous piloting system into a Black Hawk helicopter, after discovering problems with the installation in the 1979 UH-60A which the company acquired for the test programme. As a result the company has yet to begin flight testing, although it says an autonomous flight is expected “soon”.

The objective is to use the new autonomous technology to provide a production standard optionally-piloted kit, for retrofitting to US Army Black Hawks for remote controlled operations. The modifications include fly-by-wire flight controls and new levels of artificial intelligence and external sensing, including degraded visual environment mitigation that will allow the helicopter to effectively act as a co-pilot to the ground controller, with an active exchange of information during a mission.

Sikorsky has already demonstrated with its S-76B Autonomous Research Aircraft (SARA) how the Matrix can take on basic planning and mission tasks, such as obstacle and terrain/air traffic avoidance, to allow the human pilot to concentrate on the actual mission objective.

SARA has carried out ten autonomous flights to date, including one landing onto a 34m (110ft) barge, representing a naval LHD vessel. Although this was carried out under relatively benign sea conditions, it demonstrated the potential for naval operations and also for offshore oil and gas platforms. The company now hopes to take this area of testing further, with shipboard landings up to at least Sea State Four.

Sikorsky stresses that Matrix is still currently in the experimental stage but is now working on developing a production version, with lighter and smaller Lidar and electronic optical sensors that would save weight and reduce costs. The company will also consider licensing the data link agnostic technology so it can be integrated on smaller and a wider range of platforms.

Meanwhile the US Army is also planning to convert a second experimental Black Hawk, using the technology for certification work in preparation for fleet-wide fielding on legacy UH-60 helicopters.
**New electric helicopter distance record**

Tier 1 Engineering in California established a new record for the farthest distance travelled by a manned electric-powered helicopter on 7 December, when its modified Robinson R44 covered 93km (50nm) to an altitude of 244m (800ft), with an average speed of 148km/h (80kt). The flight was piloted by Ric Webb of OC Helicopters and carried out around Los Alamitos Army airfield under an experimental airworthiness certificate.

Tier 1 has been developing the electric-powered project under a contract with Lung Biotechnology PBC, which is investing in the semi-autonomous helicopter for organ deliveries. The company already uses conventional helicopters to deliver restored lungs to waiting surgeons, but owner Martine Rothblatt firmly believes that replacing “fossil fuel” powered aircraft with greener energy is the way to go in future. The electric R44 actually features twin motors, with a control system that weighs only 45kg (99lb) in total, as against the 225kg (500lb) weight of the original Lycoming IO-540 engine installation. However this saving is offset by the weight of the lithium polymer batteries, which collectively weigh 500kg (1,100lb) and are installed in a tray under the fuselage.

The prototype electric R44, registered N311ST, first flew under power in September 2016 and successfully demonstrated the technology in early 2017. It was then grounded whilst Tier 1 worked on improving the battery and motor technology, before resuming the flight test programme last year. The company expects to further improve on its record early this year, whilst building a new prototype incorporating various improvements to pursue a supplemental type certificate. The second aircraft is expected to receive the battery and motor technology, before ongoing work on improving the control system that weighs only 45kg (99lb) in total, as against the 225kg (500lb) weight of the original Lycoming IO-540 engine installation. However this saving is offset by the weight of the lithium polymer batteries, which collectively weigh 500kg (1,100lb) and are installed in a tray under the fuselage.

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**New Russian MRO Centre in Peru**

Russian Helicopters has officially opened its new maintenance, repair and overhaul centre in Peru, in conjunction with the Peruvian Air Force Maintenance Service (SEMAN). The new facility, Helicentro Peru, will be used to repair Mil Mi-17 family civil helicopters operated in the region and to overhaul Mi-17 and Mi-171 variants of the Peruvian Air Force and Army.

Peru has over 100 Russian helicopters in the country and Russian Helicopters sees the establishment of a maintenance and repair centre in the country of strategic importance. The centre already has nearly 40 helicopters scheduled for repair over the next five years and sees the geographic location advantageous for winning work from other countries in the region.

With this centre up and running, Russian Helicopters is now planning to certify during 2019 another maintenance, repair and overhaul centre for the Mi-8/M-17 helicopter, based in Egypt at the Helwan factory for Developed Industries. Initially this facility will overhaul Mi-8T and Mi-17-1V helicopters operated by the Egyptian Air Force but future plans would also include the newer generation Mi-17V-5. The Helwan centre has already been fitted out with the required equipment and personnel training undertaken, and Egyptian staff are currently carrying out a pilot Mi-8T and Mi-17-1V overhaul as part of the plant certification process.

**Bell flies APT70 Drone**

Bell carried out the first flight of its APT70 drone multicopter in late December. The 2m x3m (6ft x 9ft) APT (Autonomous Pod Transport) is designed to carry cargo up to 32kg (70lb) in weight over a range of 30km (19 miles), at speeds up to 222km/h (120kt).

Bell has already flown a smaller APT20 drone and is also looking to scale up the design to carry loads of up to 450kg (1000lb) to meet anticipated military and commercial logistics demands. The technology uses gimbaled four-bladed rotors mounted at each end of two biplane wings. Underneath each of the four rotors is a vector thrust module housing all the electronics etc necessary for the propulsion system. These modules culminate in simple tail fins and landing units. A fully integrated avionics and sensor suite is embedded in the airframe and a cargo pod is mounted on brackets between the two wings. The aircraft is designed to be fully autonomous, taking off vertically before tipped on to 90 degrees on the pitch axis to transition to forward flight. The design can then use waypoints to fly to a predetermined destination before transitioning back to the vertical for landing.

Bell is currently developing the APT under a National Aeronautics and Space Administration contract and will be using the APT70 to carry out demonstrations beyond visual line of sight with detect and avoid capability, in and out of controlled airspace. These technology demonstrations should begin the first half of 2020, but meanwhile the company will continue flight tests of both the APT20 and APT70 under its own experimental type certificate to prove the reliability of the onboard sensors. This is necessary to convince the Federal Aviation Administration that the operations are safe, especially in an urban environment.
Helicopter INTERNATIONAL

Heli-Expo 2019

THE ANNUAL Helicopter Association International Convention and Exhibition arrives in Atlanta, Georgia this year. Taking place at the Georgia World Congress Centre from 4-7 March, the event promises over 700 exhibitors, including 60+ aircraft on static display and a range of education courses, workshops and forums for its members and visitors. The main event opens with the opening of the exhibit hall on 5 March at 10.30 hours.

Among the various highlights to look out for will be the Bell Nexus full scale urban air taxi project which builds on the fuselage mockup for a five seat aircraft introduced 12 months ago, by displaying the proposed design with the addition of the propulsion system, integrated landing skids, central wing and a tail unit.

The Nexus design features a hybrid/electric distribution propulsion system development by Safran Engines and feeding six tilting ducted fans, each powered by individual electric motors. In this system a turbine engine mounted on the upper rear fuselage feeds an electric distribution system, which routes power direct to the fan motors but also to a battery pack.

This technology provides system redundancy in the event of a turbine failure but also allows the turbine to run independently of the rotors, allowing the blades to be stopped when the aircraft lands without reducing the engine rpms and thus avoiding spin up delays on take off. The hybrid architecture is also seen as a stepping stone towards eventual fuel cell and full electric propulsion.

The six four-bladed ducted fans each span about 2m (8ft) in diameter and are mounted three to each side of the fuselage. The front and rear ducts are attached directly to the fuselage whilst the central units are attached to the end of stub wings, thus providing a circular planform. To counteract torque, three fans rotate clockwise and three anti-clockwise, whilst providing not just thrust but also pitch roll and yaw control. The ducts also serve to reduce the noise levels from the rotor blades, seen as essential in an urban environment, and to enhance the thrust at the same time.

Other partners in the Nexus project include Thales, providing flight control computer hardware and software, and Moog who are developing the flight control actuation systems. In addition Garmin will integrate the avionics and the vehicle management computer to reduce the pilot workload.

Initially the Nexus is being developed as a piloted vehicle, with an open cockpit layout for a single pilot ahead of the four passengers and fly-by-wire controls, but Bell envisages the aircraft eventually being fully autonomous as the relevant technology and regulations mature in the future. In the meantime the company is developing and testing a variety of Future Flight Control (FFC) simulators in single, dual and tri-control configurations to help gauge feedback and decide the final control layout. These FFC simulators will be taken to various trade shows and other venues over the coming months to provide potential user feedback.

Bell expects to be flying prototypes of the Nexus by the early 2020s at its Arlington, Texas research and development centre. Meanwhile initial testing of the pivoting ducted fans and other components is already underway in Texas and in Canada, at Bell Mirabel and in the NRC wind tunnel in Ottawa. The complete 4sq.m (40sq.ft) aircraft will fit into an area little more than the area taken up by a typical five-seat helicopter today and should come in at around 2722kg (6,000lb) all up weight and cruise at 241km/h (150mph). If all goes well, then the company expects viable commercial operations will be possible by 2025, with a fully autonomous version being available by the late 2020s.

The Nexus is not the first Bell project using tilted ducted fan technology, but you have to go back to 1965 and the previous Niagara Falls factory for the beginning. This was where the company assembled the X-22A, an eight-place 8,000kg (17,644lb) gross weight aircraft powered by four 1,267shp General Electric YT-58-GE-8D turboshaft engines driving four ducted fan propellers with a tilting mechanism.

The first flight was on 17 March 1966, with transitions to and from forward flight almost immediately successful. The aircraft later crashed five months later due to a propeller control failure, but was followed into the air by a second prototype on 26th August 1967 which continued the programme until 1988. That aircraft is now on display at the Niagara Aerospace Museum in New York State.

Leonardo attends Heli-Expo 2019 showcasing a range of products including an AW119 in offshore/Utility configuration, an AW109 Trekker for EMS missions and an AW169 in VIP/passenger transport configuration as well as national sales teams.

Above: Bell has revealed its Nexus full scale urban air taxi project.
The first of 150 Subaru-Bell UH-X for the Japanese Ground Self Defence Force (GSDF) was seen ground running at the Subaru factory at Utsunomiya in mid-November. The aircraft, in full military camouflage colours, is closely based on the Model 412EPI variant, with the Fast Fin tail modifications.

The UH-X is scheduled to replace the UH-1J in GSDF service, but Subaru will also offer a civilian variant, the Bell 412EPI Advanced for domestic and export sales. The upgraded aircraft is expected to extend the availability of the 412 line to at least 2040.

The Bell AH-1Z Viper attack helicopter is looking favourite to replace Japan’s current fleet of ageing FujiBell AH-1S Cobras. This follows a Request for Information (RFI) issued earlier in 2018 that called for the new helicopter to be marinised and able to operate from ships at sea as well as from expeditionary airfields.

The RFI also asked for pricing information for 30, 40 and 50 helicopters, with a firm Request for Proposals expected to be circulated in the first quarter 2019. As well as a Subaru/Bell bid, Mitsubishi Heavy Industries is likely to offer the UH-60/IA Black Hawk helicopter, fitted with stub wings and weapon pylons, whilst other possible contenders include Airbus Helicopters with an H145M HForce entry, Boeing with the AH-64E Apache and Leonardo with the new AW249, although this new attack helicopter is still under development.

HeliTSA, which provides approved rotary wing maintenance training for the Leonardo AW139 helicopters from its base in Brisbane, Australia, has now expanded its offer to include Sikorsky S-92 courses. The decision followed multiple requests from engineers in Australia and abroad, and will be carried out in partnership with PH/HRNZ Australia in Broome.

Currently there are 22 S-92 helicopters supporting offshore oil and gas operations in Australia and HeliTSA will provide local engineers with an affordable alternative to travelling overseas for training, as well as providing reliable advice on licensing due to the company’s direct exposure to the Australian Civil Aviation Safety Authority (CASA). Engineers travelling from aboard for training courses also benefit from fees charged in Australian dollars.

Leonardo AW139 training courses will still continue, alongside AW139 Exclusion Removal training and AW139 first of type OIT (On the Job Training) journals recently approved by CASA.

Efforts by Bell Canada to find a way around a Canadian government ban on selling 16 Model 412EP helicopters to the Philippines government appear to have failed, with Philippines Defence Secretary announcing that the Air Force has selected the Sikorsky S-70 Black Hawk instead. The US manufacturer is reportedly offering 16 Black Hawks for the same $240 million budget price as the previous Bell offer.

Sikorsky was competing with the Korean Aerospace Industries Sunion and the Leonardo AW139M helicopters to secure the deal, after the Mil Mi-171 was apparently ruled out because of US sanctions against Russia introduced in 2017. The Philippine Air Force has also shortlisted the Turkish Aerospace Industries T129 ATAK helicopter to meet its future multi role combat needs, with up to eight-ten aircraft likely to be acquired. The recommendation has now been passed to Philippine defence department officials for negotiation with their Turkish counterparts.

Air Taxi.ph in the Philippines has taken delivery of its first H130 helicopter, registered RP-C8330, from Airbus Helicopters for commercial operations in the southern Philippine islands, including Boracay, Cebu and Palawan. The new aircraft will join two Airbus H145 helicopters in the Air Taxi.ph fleet.

In the Philippines nearly 30 H130s are now in service with civil operators for various missions, including VIP and passenger transport, sightseeing flights and cargo transportation. The eight seat configuration and large unobstructed cabin, together with the wide panoramic view and low noise signature, are claimed to make it especially popular with passengers and operators.

The Royal Australian Navy has transitioned the former Naval Unmanned Aircraft Systems Unit at Nowra, New South Wales to No. 822X Sqn, making it the fourth operational squadron in the RAN Fleet Air Arm. The unit was commissioned at the base on 25 October with the motto “See the Enemy”.

The new unit is operating the Schiebel S-100 Camcopter, carrying payloads such as electro-optic and infrared sensors, as well as the Insitu ScanEagle long endurance, low altitude fixed-wing drone. An earlier generation Government Aircraft Factory Jindivik drone was also present at the commissioning ceremony.

The Chinese Academy of Aerospace and Aerodynamics (CCAA) revealed a new tiltrotor drone on 31 October, afterwards displaying it in the static park at the Zhuhai Air Show 2018 in Guangdong Province. The aircraft features two twin-bladed proprotors mounted at each end of the wing, with short outboard surfaces that tilt together with the proprotor nacelles. A swept back fin topped by a T tail plane and a skid undercarriage completes the basic design.

The new drone, designated the CH-10, is intended for shipboard operations, carrying out reconnaissance, communications relay, search and target identification missions, but might also provide research data for an eventual scaled-up manned tiltrotor.

The Skyline Aviation Group in Australia has acquired 11 former Royal Australian Navy Sikorsky S-70B-2 Seahawk helicopters, currently in storage and some with main rotor head and main gearboxes removed. The purchase however includes a comprehensive surplus spares package.

The company, which specialises in helicopter charger operations, has yet to announce the future use for the aircraft, but conversions for fire fighting work appears to be one option being discussed.

Enstrom Helicopters was recently granted a type certificate for its F-28, 280 and 480 Series helicopters by the New Zealand Civil Aviation Authority, updating previous certification for the piston-engined models but also approving the turbine Model 480 in the New Zealand market.

The first Model 480, serial 5095, has already been shipped into the country and Enstrom believes its fully articulated three blade rotor system and power reserves will provide major safety benefits in the often windy conditions and mountainous terrain prevalent in New Zealand.

Hawk criticism by those trying to market the Surion overseas. Whilst some modifications would be required to use the aircraft as a command centre, the cabin size is seen as adequate for this role and for VIP transport. Both types are powered by the GE T700 engine, with the South Korean version assembled locally under licence as the Hanwha Techwin T700-ST-701K.

The KUH-1 is already in large scale production for the Republic of Korea military forces.
The NH Industries NH90 helicopter programme has recently secured new orders whilst progressing deliveries of backlogged aircraft. This example is the first NH90NFH in Belgium service, currently replacing the Westland Sea King helicopters.
Japan defers V-22 deployment

The Japanese government is deferring the deployment of its Bell Boeing V-22 Osprey tiltrotors to Saga airport in southwest Japan, after continued protests from local residents concerned about noise and safety issues. The Saga prefectural government did approve the plan last August, but only on condition that it received 10 billion yen ($88 million) in compensation payments over the next 20 years.

The local objections stem from accidents to Ospreys stationed at the US Marine Corps base in Japan at Futenma in Okinawa prefecture which, at 3.27 per 100,000 flight hours at the end of September 2017 was higher than the worldwide accident rate for the aircraft, which stood at 2.72. The rate is calculated on the occurrence of Class A accidents, causing at least $2 million in damage of death.

The Japanese Defence Ministry has 17 V-22s on order, with the first aircraft already flying in the United States and likely now to remain based there for operational training pending a decision on the deployment to Saga. Deliveries of the aircraft are taking place over a four year period, as part of a move to improve Japan’s defense of its offshore islands in the southwest in the face of China’s recent aggressive posturing in the region.

14 UK WAH-64 now in USA for AH-64E remanufacturing

The UK Ministry of Defence (MoD) has shipped the last of its 14 stored Westland WAH-64 Apache AH-1 helicopters from Wattisham in Suffolk to the United States for component recovery to support the AH-64E remanufacture programme for the Army Air Corps. The MoD has ordered 38 AH-64E helicopters to upgrade the Army’s Apache fleet under a $488 million Foreign Military Sales (FMS) contract, with options for up to 12 additional aircraft.

Under the FMS contract, the current Apache AH-1 aircraft will be harvested for high value components, including the mast-mounted fire-control radar assembly, the Modernised Target Acquisition Designation Sight/Pilot Night Vision Sensor, the main rotor hub and other transmission parts, and some structural components. In addition the Leonardo defensive aids system in the AH-1 will also be utilised, following the company under a separate contract.

All these components will be married to new AH-64E airframes being built by Boeing at their Mesa, Arizona plant, together with new composite rotor blades, and avionics. Boeing will also replace the current Safran RTM322 powerplants with GE Aviation T700-GE-701D engines, marking the first off-the-shelf purchase of a GE engine by the MoD.

67 Apache AH-1 helicopters were originally purchased for the Army Air Corps, with all but eight assembled and fitted out by Westland Aircraft at their Yeovil facility. The company has also been involved in progressive upgrades for the fleet during its time in service, including the introduction of flotation gear and folding main rotor hubs for ship-based operations.

Shipment of the stored aircraft began last February following the earlier despatch of a pattern aircraft in November 2017, and ended with serials ZJ174 and ZJ206 delivered to RAF Brize Norton this November for onward shipment by air.

MQ-8C shows sonar potential

Northrop Grumman recently demonstrated the potential for the MQ-8C Fire Scout drone helicopter to air drop sonobuoys and deploy the micro synthetic aperture sonar in an exercise at Newport, Rhode Island. A civil-registered manned Bell 407 aircraft, N427VB, carried four rearward sloping canisters for the demonstration, with the sonobuoys being ejected in a gravity free fall.

During the same exercise the manned MQ-8C demonstrator completed an automated sea mine demonstration, coordinating with an unmanned submersible and a small robotic surface vessel.

Above: Japan has deferred deployment of its Bell Boeing V-22 tiltrotors amidst continuing political protests regarding basing the aircraft in Saga prefecture.

IAR licence deal for H215M

Airbus and IAR Ghimbav have signed a final exclusive collaboration agreement, giving IAR lead contractor recognition for the H215M helicopter for a period of 15 years in the event of any future order from the Romanian Defence Ministry. The principles of the agreement were initialled last August. Airbus and IAR have over 50 years of successful collaboration, resulting in the Romanian production of more than 360 helicopters.

The newly confirmed agreement comes as the two companies attempt to fend off a strong offer by Bell to meet future Romanian military helicopter requirements with the AH-1Z Venom/UH-1Y Viper attack/utility helicopter combination.

Airbus and IAR have partnered for more than 15 years in Airbus Helicopters Romania, a successful maintenance and repair service centre for military and civil helicopters, with 75 per cent of its turnover represented by export contracts. In 2016 the plant was also selected for production of the H215M Super Puma variant.
HAL clears LUH for new trials

Hindustan Aeronautics (HAL) recently completed a high altitude test flight with the second prototype Light Utility Helicopter (LUH) as part of the envelope expansion trials of the indigenous design. The flight, carried out by chief test pilot U.K. Pillai and co-pilot Anil Bhambhani from the company’s flight test centre in Bangalore, reached an altitude of 6km (19,700ft).

With the completion of this test, the 3 tonne class LUH is now cleared to carry out high altitude cold weather trials in the Himalayan region, scheduled for January, as the company continues to demonstrate the suitability for the single engine LUH to meet future Indian armed forces needs. HAL is especially pursuing a requirement to replace the ageing HAL Cheetah and Chetak helicopters and claims to have an order in principle for 187 LUH, including 126 for the Indian Army and 61 for the Air Force. This is in addition to an agreement signed last July for 140 Indian Army and 61 for the Air Force. This is in addition to an agreement signed last July for 140

Meanwhile the company announced the maiden flight on 14 December of the third LUH prototype at its Bangalore facility. This aircraft has been built to a production standard, incorporating lessons learnt from the test and certification programme carried out over the last 30 months.

HAL has previously flown two LUH prototypes to date, the first on 6 September 2016 and the second, which featured a number of improvements, on 22 May 2017. All three aircraft are powered by the HAL/Safran Shakti turboshaft engine with a dual channel full authority digital engine control system with back up, and have been designed to carry at a range of missions, including air medical, troop transport, search and rescue, VIP and surveillance roles.

Russian MoD reviews Ka-52 and Mi-28N munition options

The Russian Ministry of Defence is to review the range of munitions for carriage by the Kamov Ka-52 and Mil Mi-28N attack helicopters, following the success of Mil Mi-17s in the Syrian conflict with barrel bombs fighting against rebel forces. If trials are successful the helicopters could replace frontline fixed wing aircraft in a ground attack role to reduce operational costs.

Up to 22 Ka-52 and Mi-28N helicopters could be modified over the next two years with training being undertaken at a Syrain-based training school on the banks of the Volga River. The aircraft will be fitted with bomb racks usually mounted on the Suhkoi Su-30SM, Su-35S and Mig 29 fighter bombers. The racks are capable of carrying and releasing a range of bombs, including the 500kg high explosive FAB 500 unguided warhead. Onboard computers will gauge speed, distance to ground and wind variances to ensure precision targeting.

Following training the helicopters will likely be deployed to Syria or other Middle East hot spots.

Russian Helicopters is also planning a new upgrade programme for the Kamov Ka-52 attack helicopter, following experiences in Syria where the aircraft has been used in air-to-ground combat missions. A previous upgrade to the avionics and electronic warfare systems, powerplant and fuel system took place in 2006. The new modifications will focus on better protection from larger calibre guns than the current 7.62mm and 12.7 weapons protection. This will include the introduction of lightweight composite armour to replace the heavier titanium plates, with the cockpit area, controls fuel system and other vulnerable components especially covered. The upgraded aircraft should then be protected against ZU-23 anti aircraft, guns, widely used in the Middle East and mounted on cross-country ‘technical’ vehicles, and against 57mm automatic weapons.

Longer range missiles and improved optronics are also likely to be developed for the Ka-52 over the next two years.

India requests MH-60R

The Indian government took a step forward to acquire new anti-submarine helicopters for its Navy on 13 November, with a letter of request to the US State Department for 24 Sikorsky MH-60R Seahawks. The potential purchase is valued at Rs13,500 crore ($2 billion).

If approved by the US government, the Foreign Military Sale could see the new helicopters being introduced to service in a 2020-2024 time frame, replacing the last dozen or so ageing Westland Sea King Mk.42Bs and eight Kamov Ka-28 helicopters. 24 MH-60R are only an urgent starting point for the Indian Navy re-equipment plans, with up to 123 additional helicopters being sought for ship-based roles, including assault missions.

However the government wants these under its “Build India” policy, and may insist on offsets for the initial MH-60R buy as part of any deal. There is also no commitment at this stage to purchase the Sikorsky aircraft to meet the longer term need.

Hungary orders Airbus H225M

The Hungarian Ministry of Defence announced an order for 16 Airbus H225M multi-role helicopters in mid-December. The contract includes equipping aircraft with the HForce weapon management system and an extensive training and support package provided by Airbus to ensure operational availability.

The H225M will replace older Mil Mi-17 helicopters operated by the Hungarian Air Force under the government “Zrínyi 2026” armed forces modernisation programme, joining previously ordered H145M helicopters to jointly cover a full range of missions. These include light utility, tactical transport, combat search and rescue, special operations and light attack roles. The H225M features state-of-the-art avionics and communications, with a 4 axis autopilot and all-weather capability with night vision goggle compatibility.

Worldwide 88 H225Ms had been delivered by mid-December to six countries, and with orders in hand from Kuwait and Singapore.
AVIC introduces export Z-10ME

AVIC (Aviation Industry of China) introduced an improved version of the Z-10 multi-role attack helicopter at Airshow China in Zhuhai on 6 November. Designated the Z-10ME and with an eye on the export market the new variant made its first flight at the Changhe Aircraft Industries plant earlier this year.

The example on static display, described as the first production example and with serial number Z-10ME001, features a number of protective improvements over the Z-10 variants operated by the China Peoples Liberation Army Air Force. This includes new inlet filter separators to the engine intakes to minimise damage to the turbine components, and upward-directing engine exhausts to dispense the hot gases in the rotor downwind and reduce the infrared signature. Also new is an indigenously developed airborne countermeasures system, with missile approach warning and radar warning receivers linked to two chaff/flare dispensers mounted on either side of the fuselage. Passive armour protection is enhanced by the addition of lightweight graphene panels added to the fuselage just under and forward of both tandem cockpit side windows, with the front panel wrapped around the adjacent missile warning sensor.

The base Z-10 has long been believed to include design technology copied from the South African Denel Rooivalk attack helicopter, which itself used a dynamic system copied from the Denel Oryx/Eurocopter Super Puma family. The Z-10ME, which arrived at Zhuhai partially disassembled, does however feature some obvious changes, including an X-type tail rotor configuration.

8 more MH-60R for US Navy

Sikorsky Aircraft has been awarded a $382 million contract by the US Department of Defence to supply eight MH-60R Seahawk helicopters for the US Navy. Delivery of the aircraft is scheduled to be completed by September 2020.

Approximately $147 million in funding will come from US Navy FY2018 procurement money, with 40 percent of the work being carried out at the Sikorsky facility in Stratford, Connecticut and eight percent at the company’s Troy, Alabama plant. The remaining 52 percent, including the bulk of the avionics and mission systems work, will be the responsibility of the Lockheed Martin facility in Owego, New York.

The order was previously approved in principle by the US Congress, to strengthen the US Navy MH-60R fleet. The multi-role helicopter is used for a range of missions, including anti-submarine and anti-surface vessel warfare, surveillance and communications relay, combat search and rescue and logistics support.

First flight of military Mi-38T

Russian Helicopters carried out the first flight of the 15.6 tonne class Mil Mi-38T military variant on 23 November at the Kazan Helicopters plant. The aircraft, registered RA-38015, is the fifth Mi-38 airframe produced at the facility and the first of two pre-production military T variants for Russian Defence Ministry evaluation and service trials. The flight was carried out in semi-whiteout conditions at the Kazan airfield, with blowing snow, but the crew completed a series of handling manoeuvres including hovers, 360 degree turns and sideways flight before landing again. Afterwards Kazan Helicopter representatives reported no issues had arisen during the sortie.

Originally designed as a civil helicopter, with an eye on replacing the Mil Mi-8 in the oil and gas market, the first Mi-38 (RA-38011) was powered by Pratt & Whitney Canada PW127H engines and included a substantial portion of Western avionics and equipment. However the third aircraft introduced Klimov TV7-117V powerplants with an integrated digital avionics system and five liquid crystal cockpit displays following a political shift by the Russian government. The fourth aircraft, RA-38014, was rolled out as a civil pre-production model and first flew in October 2014. Civil certification by the Rosaviatsiya civil aviation authority was achieved with the third and fourth Mi-38s in December 2015.

RA-38015 thus contains 99 percent domestically manufactured components and is in a multi-role configuration, able to be fitted out with 40 passenger seats or with a medical transport layout, or with cargo, loaded through the rear ramp using roller floor equipment. Two Mi-38T are due to be delivered to the Russian Air Force during 2019 for service evaluation but RA-38015 will initially undergo joint flight trials with Mil Helicopter and Ministry test pilots to check compliance with the military specification. Further purchases are planned, with 15 Mi-38T expected to be ordered over the next two years as production increases.

AH-64 corrosion issue fix delay

Boeing officials now believe that fixing the strap pack nut corrosion problem on the AH-64E Apache attack helicopter cannot be completed until at least 2020, despite previous US Army statements that the retrofit process would be finished in 2019. Boeing also says that no foreign Apaches have yet been modified with the new strap pack nut installation.

Boeing is instead delivering a temporary fix, in the shape of a fail-safe collar that fits over the nuts and holds the rotor blades to the head in event of the strap pack nut failing. This is intended to give the crew time to land the helicopter. In addition customers are being advised to carry out frequent inspection of the strap pack nut area for signs of corrosion. The US Army has now taken delivery of collars for all 653 AH-64D/E aircraft in its inventory, whilst deliveries to international customers were completed by mid-December.

Whilst Boeing is covering the cost of the new strap pack nuts, the company says that the US Army is leading on the retrofit schedule, but the limiting factor is how fast Boeing can manufacture the retrofit kits. About 25 percent of the Army Apache fleet has been retrofitted to date. Meanwhile the company is slowly catching up on delivery delays and in the 4th quarter FY2018 planned to hand over 22 aircraft to the US Army out of an original estimated total of 48.
Kamov reveals new high speed concept

Head of the Kamov Design Bureau, Sergy Mikheyev showed illustrations of a concept high speed attack helicopter at a recent meeting. Mikheyev suggested that this future design could reach speeds of up to 700km/h (435mph).

A three-view drawing of the aircraft showed a Ka-52 style side-by-side two-seat cockpit with a classic and improved coaxial double four-blade rotor pylon, but with an internal weapons bay taking up much of the fuselage mid-section with new turbofan engines providing drive to the rotor gearbox, plus high speed thrust through aft jet pipes as the forward speed increases. The design also features nose-mounted canards and a swept delta wing, as well as a tail unit with end plate fins and a tricycle landing gear.

Elsewhere Kamov has recently displayed its Ka-52K trials aircraft, 062 yellow, with an X-35 (kh-35U) cruise missile. The 590kg (1212lb) weapon has a range of 260km (144 miles) and can be used against surface vessels of up to 5,000 tonnes as well as heavily fortified land targets, flying as low as 305m (1000ft) above the terrain in the final stages of an attack.

New support for CH-53E fleet

Sikorsky Aircraft has been awarded a $717 million performance-based contract to provide supply and logistics support for the entire fleet of in-service CH-53E Super Stallion and MH-53E Sea Dragon helicopters. Some 146 CH-53E and 29 MH-53E currently remain in service with the US Marine Corps and Navy for heavy lift and long range mine sweeping missions, pending their eventual replacement by the new CH-53K King Stallion variant.

The scope of the new contract includes repairs, overhauls, spares, obsolescence mitigation and asset management over the next four years, including the supply of additional readiness-critical parts such as main and tail rotor blades, main gearbox, main rotor head and flight control components. The arrangement will also cover accessories, including refueling probe and cargo system components.

In recent years obsolescence and parts shortages have impacted on H-53E readiness, especially with increased hours being flown in various world hot spots. The contract is expected to ensure a reliable base of long term sustainment through the remaining in-service life of the fleet.

DGA studies Tiger and NH90 upgrades

The French defence procurement agency (DGA) has launched midlife upgrade studies for the Airbus Helicopters Tiger Mk.3 combat helicopter and the NH Industries NH90 Special Forces variant, operated by the French military. Study contracts for the Tiger upgrade work were awarded by the Organisation for Joint Armament Cooperation (OCCAR) on 26 September to Airbus Helicopters, Thales and MBDA.

The Tiger Mk.3 will introduce network centric combat capabilities, including connections to the army’s Scorpion system and the ability to communicate directly with drone systems. The new variant will also be able to use the European Galileo satellite positioning system in addition to the current GPS, and is also likely to replace the Lockheed Martin Hellfire II with a new tactical air-surface missile, together with new generation targeting and avionics systems.

The upgrade is expected to extend the Tiger’s operational life to at least 2040, and is being offered to all the current operators of the type, as well as to potential new customers.

Meanwhile the NH90 study contract is more specific, being awarded by the DGA to the Safran Group to develop the Eurof’eye panoramic camera for special operation forces versions of the helicopter. This camera features multiple sensors rather than a single unit, giving the pilot and co-pilot independent fields of view and is expected to considerably improve flying in extreme environmental conditions. This study will begin with ground tests, followed by flight testing on simulators and a trials helicopter at the DGA Istres test centre in the south of France.

The Army Aviation 4th Special Forces Helicopter Regiment, based at Pau in the Pyrenees, will also be involved in the qualification process.

CH-53K Supplier collapses

The collapse in 2016 of a single source sub-contractor providing thin wall casting manufacturing technology for the Sikorsky CH-53K heavy lift helicopter is now jeopardising production of the aircraft, with the US Marine Corps and Sikorsky officials still seeking an alternative source, according to an industry report. The issue was revealed in a recently released defence industrial base report under a section headed “Fragile Supplier”.

This noted that the unnamed supplier had declared bankruptcy, leaving the CH-53K programme without a qualified source for the castings, which forge very precise narrow passageways for coolants and lubricants to flow inside a metal housing. The process is designed to reduce the weight of the component.

After assessing various options US Navy officials are now expected to issue a request for proposals for an alternative supply, using a $16 million budget to match fund an expected investment from a new supplier. With the Marines wanting 200 CH-53K helicopters to meet its requirements, the officials hope companies will come forward to bid for the sub-contract to avoid the whole programme facing delays.

The current plan for CH-53K procurement budgets $2.3 billion for FY2019-2023, with a projected acquisition cost per aircraft of $139.5 million, including development.

Above: Taken from a presentation by the head of the Kamov design bureau, these images purport to show the layout of a future high speed attack helicopter.
The US Navy is to trial autonomous vertical replenishment to resupply ships at sea, using vertical take off/landing (VTOL) drones, capable of carrying a 9.1kg (20lb) payload in the first instance over a distance of 46km (25nm), via two waypoints and at a speed of not less than 74km/h (40kt) to a vessel moving at 6-9km/h (3-5kt). The drone must then be able to return to shore, with the same payload and without refuelling or recharging.

Ultimately Navy officials want a payload capacity of at least 22.7kg (50lb), with stores contained internally or in an attached water tight container rather than using an external sling. To avoid GPS jamming, officials also want navigation systems used that have a low probability of intercept. Both Bell and Boeing are already flying potential contenders, capable of carrying a 318kg (70lb) and 227kg (500lb) payload respectively.

A second NH Industries NH90 ASW variant serial 393, was delivered to the Royal Norwegian Air Force on 2 December, joining the first aircraft serial 392 at the new Naval helicopter base at Haakonsvern, near Bergen. Eight of the 14 NH90 ordered by Norway will be allocated to anti-submarine warfare operations with No 337 squadron. Six NHF variants are already in service with No 334 squadron, headquartered at Bardufoss for coast guard operations.

The NH90ASW are due to operate from the five Nansen class frigates operated by the Royal Norwegian Navy, although one of these ships sank on 8 November following a collision with an oil tanker close to the Sture oil terminal north of Bergen.

The Pakistan government has ordered a second batch of Mil Mi-35M multi-role combat helicopters for operations by the Army. Four Mi-35M were previously delivered in 2017 and are based at Multan, 500km (311 miles) south of Islamabad in Punjab.

The new order is for five aircraft, presumably for operation by the same unit, 35AA (CBT) Squadron. It is not confirmed at this stage whether the additional Mi-35Ms are to complement the existing small fleet, or have been ordered to replace the recently purchased Bell AH-1Z order.

The Spanish Navy has signed a contract, valued at $25.4 million, with Science and Engineering Services in Huntsville, Alabama for the refurbishment, modification and delivery of an additional four Sikorsky SH-60F helicopters under a US government Foreign Military Sale. The aircraft, from surplus US Navy stocks, are expected to be delivered in April 2021.

Spain is already operating two SH-60F alongside several Sikorsky SH-3G Sea King helicopters in a transport and vertical replenishment role and the new SH-60F batch will replace the last SH-3Gs in due course. All six SH-60F had been in storage at the Davis-Monthan maintenance and regeneration centre in Tucson, Arizona since retirement from the US Navy in 2009.

The US Coast Guard is now evincing interest in the Future Vertical Lift (FVL) programme, with a growing need to replace its Airbus MH-65 Dolphin and the Sikorsky MH-60T Jayhawk helicopter fleets. The 98 MH-65 have been progressively modified and rebuilt since entering service, and are now in their fifth life extension upgrade and passing 30,000 flight hours. Likewise, the 42 MH-60T are also likely to continue flying beyond the intended service life.

Whilst MH-60 helicopters transferred from the US Navy may help to plug a gap, the Dolphin is no longer being manufactured and will need replacing in the next 10 years or so. Watching the FVL progress is thus of interest, even though the Coast Guard is well down the pecking order when it comes to acquisition and budget priorities.

The first of nine Airbus H145M helicopters for the Serbian Ministry of Interior and Serbian Air Force was officially unveiled at the Donauworth factory on 22nd November. Deliveries are expected to begin with the hand over of the first two aircraft in December and be completed by the end of 2019.

The contract includes four of the H145Ms destined for the Air Force being fitted with the Airbus HForce weapon management system, as well as the transfer of technology and training, spare parts and tools for the helicopters’ maintenance and repair. Airbus Helicopters will also certify Serbia’s Moma Stanovljovic aeronautical plant as a centre for the maintenance of Soko-Aerospatiale SA341H and SA342L Gazelle helicopters and will include it in its wider overhaul network.

Airbus notes that the first Serbian H145M hand over was on cost and ahead of schedule.

The Russian Central Aerohydrodynamic Institute (TsAGI) in Zhukovsky, Moscow has confirmed work is being undertaken to improve the performance of a new advanced high-speed helicopter, being developed by Kamov on the basis of the Ka-52 design and by Mil based on the single-seat Mi-24 derivative.

The Mi project focuses mainly on new rotor blade technology, whilst the Kamov concept features the signature coaxial rotor configuration married to a cranked delta wing with a canard foreplane, twin vertical fins, and turboshift engines providing thrust in cruise flight. Kamov believes the new experimental helicopter will be capable of achieving speeds in excess of 400km/h with a cruising speed in level flight of at least 360km/h (224mph). A scale model of the new design has already been tested in the TsAGI wind tunnel.

The Royal Bahrain Air Force has confirmed an order for 12 Bell AH-1Z Viper attack helicopters to be purchased through a $912 million Foreign Military Sales agreement with the US State Department. The aircraft will supplement the existing fleet of AH-1E Cobras previously supplied from US Army stocks and which are currently due to complete an upgrade programme by the end of 2019.

The AH-1Z deal includes various weaponry, including Lockheed Martin AGM-114 Hellfire missiles and the BAE Systems Advanced Precision Kill Weapon System II guided rockets. Deliveries of the helicopters are expected to get underway in the second half of 2022.

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Above: Seen in late January this is the fourth and last Leonardo AW109E, serial 11843, ordered for the Cameroonian Air Force (O. Bernardi).
the French Chief of Air Staff has said that he expects French helicopter crews to undertake heavy lift helicopter training in Germany in the near future.

■ The US Army Special Operations Command (SOCOM) is to receive an additional four new-build Boeing MH-47G Chinook heavy-lift helicopters under a $42,835,847 contract modification, being funded from the FY2018 Army procurement budget. The aircraft are in addition to four MH-47G Block II Chinooks ordered earlier in 2018 for SOCOM.

■ The contract modification is intended to protect an urgent need for additional SOCOM aircraft, pending the completion of testing and entry into service of the upgraded Block II Chinooks in 2023. These will include performance improvements and the ability to carry 9979kg (22,000lb) payload, with a maximum take off weight boosted to 24494kg (54,000lb). All 69 current MH-47G aircraft in service will eventually be upgraded to the Block II standard, presumably including the four aircraft now being ordered in due course.

Delivery of the four is expected in 2021-2022.

■ Flight trials of the first Leonardo AW159 Series 220 maritime helicopter for the Philippine Navy began at the manufacturer’s Yeovil plant on 6 November, using the temporary UK military serial ZZ549. Two AW159 Series 220, based on the Royal Navy Wildcat HMA.Mk 2 helicopter, were the subject of a Philippine government order placed in early 2016 for anti-submarine warfare operations, and valued at $114 million.

Delivery of the two aircraft is anticipated in March 2019, for service aboard two missile-armed frigates being manufactured by Hyundai Heavy Industries in South Korea. The new vessels are due to be delivered to the Philippines Navy from 2020.

■ The Italian Air Force has reformed No.23 Gruppo after more than eight dormant years, to operate the Leonardo HH-101A Caesar helicopter in the combat search and rescue role. Initially the revived squadron is based at Cervia in northeast Italy, where it is sharing the airfield with the resident HH-101A training unit. However the squadron unit is expected to relocate to Istrana air base near Treviso, once additional HH-101As are available.
THE US Army has released a formal Request for proposals (RfP) for a Future Attack Reconnaissance Aircraft (FARA), with initially a competition for prototypes only that it hopes to see flying by 2023. FARA is intended to replace the retired Bell OH-58D Kiowa Warrior and to complement the Boeing AH-64E Apache, which is now covering the mission alongside MQ-1C drones.

The Army is seeking conceptual FARA designs in the first instance, before short listing two design teams by 2020 to build competitive prototypes for evaluation in 2023. As FARA is expected to operate in conjunction with the new generation Joint Multi-Role (JMR) aircraft, it is likely to face some political stick, having spent $7 billion on the previous reconnaissance attack helicopter programme that resulted in the cancelled Sikorsky RAH-66 Comanche helicopter in 2004, then abandoning the less risky Bell 407 based ARH-70 Arapaho in 2008, after unit costs increased to $14.5 million, and finally the AH-64E Apache, which is now covering the mission alongside MQ-1C drones.

L3 and partner AVX Aircraft Company are entering their revised compound helicopter design in the FARA competition.

The Army programme schedule for FARA envisages the award of between four and six initial design contracts by June 2019, at approx $15 million each, split between FY2019 and FY2020 at $8.5 million and £6.5 million respectively. No later than March 2020, the Army expects to shortlist two of the bidders to finalise their designs and build competing prototypes. These would receive approx $735 million for development over FY2020-23. The target date for the prototypes to make their first flights is November 2022, with the following 12 months allocated for ground testing and company/government flight trials. This would be followed in 2024 by a final decision on whether or not to take one of the designs into production and, if so, the rapid fielding of the aircraft to combat units.

Several rotorcraft currently under development could be offered to meet the FARA requirement. Airbus Helicopters is developing its compound RACER, based on its successful X3 demonstrator which achieved speeds in excess of 470km/h (290mph) during its experimental flight test programme. Meanwhile US industry partners L3 and Fort Worth, Texas based AVX Aircraft Company have renewed efforts to secure a US Army order for their patented coaxial rotor and ducted propulsion design. The compound helicopter lost out in the short listing stage of the Joint Multi-Role Technology Demonstrator competition, against the Bell V-280 tiltrotor and the Boeing-Sikorsky SBI Defiant compound helicopter.

The L3/AVX partners have now submitted a joint proposal for the (FARA) programme. L3 will contribute its expertise in system engineering, weapons, sensors and communication systems integration to the project whilst AVX, which includes former Bell Helicopter engineers in its team, will provide the expertise in clean-sheet helicopter design. Bell is already flying the V-280 Valor tiltrotor JMR technology demonstrator, which the company says is scalable, or could offer a version of the smaller V-247 which is currently being drawn up as an unmanned tiltrotor. Leonardo Helicopters is also flying a small tiltrotor, the AW609, although this is aimed primarily at the civil and parapublic market and could face licensing concerns with Bell, which originated the design. Sikorsky is also flying a potential FARA competitor, the S-97 Raider compound co-axial helicopter, which again could be adapted to meet the RfP specification.

Whatever decisions are made, the US Army is likely to face some political stick, having spent $7 billion on the previous reconnaissance attack helicopter programme that resulted in the cancelled Sikorsky RAH-66 Comanche helicopter in 2004, then abandoning the less risky Bell 407 based ARH-70 Arapaho in 2008, after unit costs increased to $14.5 million, and finally the Armed Aerial Scout in 2013 after the estimated costs for that programme reached $16 billion.

Then the Army went ahead and withdrew the OH-58D fleet, despite concerns, on the basis that the AH-64E could plug the gap - a decision that many now regard as misplaced, in view of the shortfall in the Army’s capability to provide surveillance and security in the urban environment of modern warfare and which has now led to the FARA proposals.
US increases FY2019 rotorcraft funding

Recommendations by the US Congress for the FY2019 Defence Appropriations Act include fully funding the military rotorcraft programmes, but also adding to the procurement of several helicopters for the Army and Bell Boeing V-22 Osprey tiltrotors for the US Army and Marine Corps.

For the Army, Congress added six Boeing AH-64E Block III new-build aircraft for the National Guard, valued at $510 million, in addition to 12 previously requested by Army officials. This brings the total AH-64E request to $3.8 billion, including 48 remanufactured aircraft and 12 new build, valued at $1.04 billion. Procurement of the Sikorsky UH-60M Black Hawk was increased by eight aircraft, adding to the 49 requested by the Army for a total value of $1.2 billion, whilst the Congress also added four Airbus UH-72A Lakota helicopters to the FY2019 budget, at a cost of $34 million. Other additions to the Army request included $20 million for improved vibration control systems on Boeing CH-47F Chinooks and $20 million added to the UH-72A sustainability improvements and ballistic protection budgets.

Procurement for the US Navy and Marine Corps helicopter fleet was agreed at $20 billion, including $1.26 billion for eight Sikorsky CH-53K heavy-lift helicopters and three additional MV-22B Osprey tiltrotors, valued at $240 million. Congress is also adding $316 million to the Navy request for CVM-22 tiltrotors for Carrier Onboard Delivery missions, bringing the total from seven to 11 aircraft for $1.16 billion. Six Sikorsky VH-92A for the Presidential role are also part of the FY2019 budget, at $649 million.

Only the US Air Force saw Congress recommend a reduction in its helicopter budget, with a recommendation to reduce the funding for the Bell UH-1N replacement programme by $30 million to $258 million for FY2019, reflecting the delay in the acquisition programme. However US Air Force proposals to introduce 27 additional Special Operations Command squadrons in the future has led to speculation of further Bell-Boeing CV-22 tilt-rotor purchases adding to the $4 already in service or on order. One or two extra CV-22 squadrons could be included in the Special Forces expansion, if it takes place.

New LASS pylons for Afghan Black Hawks

Unitech Composites, based in Hayden, Idaho is to supply its composite Lightweight Armament Support Structure (LASS) weapons pylons for the Sikorsky UH-60A Black Hawk helicopters being supplied via the US Army to the Afghan Air Force. The LASS uses the same fixture hard points as the original Sikorsky external stores support system and has been in service with the US Army Special Operations Aviation Regiment MH-60 Black Hawk fleet for the past decade.

The single point pylon design is 52 percent lighter than the legacy metallic units and reduces drag whilst also maintaining a neutral lift. With one pylon on each side, the new LASS can be configured to support various weapons configurations including several missile payloads, 30mm cannon, 0.50cal machine guns and 2.75in rocket pods. Up to 58 weaponised UH-60As are scheduled for delivery to Afghanistan but the initial LASS contract is for just three shipsets, with the first delivery due later this year for airworthiness trials and certification.

New MD530 2019 deliveries

Deliveries of six MD Helicopters MD530F Cayuse Warriors for the Kenya Defence Force are now scheduled to begin this April and continue through to August 2019. Kenya has previously listed a requirement for 12 MD530F helicopters for close air support and reconnaissance in its struggle with Al-Shabaab terrorists.

In addition to the order for Kenya, MDH has also secured an agreement to provide six armed MD530G variants for Lebanon by the end of September 2020, with an enhanced stores management system giving the ability to fire guided missiles. This variant is expected to receive a US Army airworthiness release later this year. In addition to an all-glass cockpit and ballistic tolerant fuel system the armed MD530G will be fitted with the standard Cayuse Warrior mission equipment, including the FN Herstal weapons management system, a six-station Dillon/Aero Mission Configurable Armament System and Fixed-forward Sighting System, 7.62mm ballistic armour protection, FN Herstal 0.50cal HMP-400 machine gun pods, and M260 7-shot rocket pods. The aircraft will also feature an enhanced comms system with a Harris RF-7850A tactical radio and the Rockwell Collins HF-9000D.

The 12 aircraft total will be allocated from the contract signed with the US Army for 150 aircraft, to be delivered to US partner countries over a five year period. Under this $1.4 billion contract, MD Helicopters is already delivering 30 Cayuse Warriors to the Afghan Air Force.

New propulsion system for TOW missile

Raytheon has been awarded a $21 million contract to develop a new longer range propulsion system for the Tube-launched, optically guided (TOW) missile. First introduced in 1970, the TOW system has been constantly improved over the years for anti-armour and heavy assault operations, and is currently integrated in over 15,000 ground, vehicle and helicopter platforms.

The new propulsion system will increase the range and performance of the missile, offering enhanced protection and providing more capability for the user. The improvements will be introduced to all TOW missile variants, including the direct attack TOW2A, top and direct attack TOW2B, and the Bunker Buster missiles. Raytheon has delivered more than 690,000 TOW weapon systems to the US and allied military services, and expects the missile to remain in service until at least 2050.
Sea Venom/ANL missile behind schedule

Despite MBDA claiming a successful third firing trial of the new Sea Venom/ANL helicopter-launched anti-ship missile in November, the UK Ministry of Defence says development is up to 12 months behind schedule, delaying its introduction to service until the second half of 2021.

MBDA received a contract in 2014 from the French and UK governments to develop the Anti-Navire Léger (ANL)/Future Anti-Surface Guided Weapon-Heavy (FASGW/H), to arm the Airbus Helicopters H160M and the Leonardo Helicopters Wildcat HM.2 respectively. Whilst the H160M has yet to enter production, the Wildcat is already in service and the delay will mean the aircraft will not be equipped with its principal anti-ship armament for at least the next two years.

The first firing of the Sea Venom/ANL took place on 21 June 2017 from an Airbus AS565M Panther helicopter of the French Direction Generale de l’Armement over the Ile du Levant range in the Mediterranean. A second firing followed on 18 April 2018, a long range test to demonstrate the sea-skimming ability and to validate the two-way datalink, and the third took place on 14 November, when MBDA demonstrated the lock-on before launch capabilities, using the infrared seeker to designate the target prior to firing.

The missile is designed to disable ships up to corvette size, as well as offering an attack capability against land targets. It carries a 30kg (66lb) warhead and is guided via an imaging infrared seeker, with provision for an additional semi-active laser guidance channel. A two-way datalink gives operator-in-the-loop control and provides options to re-target or refine the aim point, although the missile is capable of fully autonomous flight to its target.

Despite the delay in procuring the Sea Venom, the Royal Navy is also planning to purchase a FASGW (Light) from Thales. This Lightweight Multirole Missile (LMM), to be named Martlet in service, will give the Wildcat helicopter an anti-surface vessel attack capability against smaller targets, such as fast inshore attack craft.

New delays for CH-53K programme

Despite efforts by Sikorsky Aircraft to overcome development issues with the CH-53K King Stallion heavy lift helicopter, the $31 billion programme is now expected to face new delays in achieving initial combat capability by the December 2019 deadline, following new problems emerging during the flight test programme.

These include early life limitations for components in the main gearbox, deficiencies with the tail rotor drive system and the discovery that exhaust gases can be reingested back into the engine in some flight modes. There has also been late delivery of redesigned parts, adding to further test delays. As a result the US Defence Contact Management Agency now estimates that flight trials will not be completed until May 2020, five months later than previously expected.

The US Navy’s current budget plan envisages purchasing 61 CH-53K helicopters for the US Marine Corps through 2023, with annual purchase spending rising to $2.3 billion from $1.3 billion this year. In FY 2020-2024, the Navy is now proposing to save up to $1.2 billion by procuring 10 fewer helicopters than previously planned, but with still a long term goal of buying 200 CH-53Ks to replace the current US Marine Corps CH-53E, each carrying more than three times the payload of its predecessor.

Whilst Sikorsky has fully staffed its flight test team with the company’s “most experienced and seasoned engineers, pilots, maintainers and support staff” and remains focused on delivering the CH-53K in time “to support operational deployment in 2023-24”, the delays and cost over runs have now awoken members of the US Congress. Democrat members have already challenged the 20 percent increase from the 2005 baseline unit cost to the current $139.5 million per aircraft now being quoted by Navy officials, and are expected to closely scrutinise the programme when the House Armed Services Committee comes under their control early this year.

In anticipation of the new challenges, Navy officials are already working with Sikorsky and parent company Lockheed to re-evaluate costs and restructure the programme schedule. This should allow negotiations for a second batch of six CH-53Ks to be resumed, after they were put on hold last year pending resolutions to the development issues.

UK to purchase more Chinooks

The US State Department Defence Security Cooperation Agency has approved a possible Foreign Military Sale to the UK of 16 H-47 Chinook (Extended Range) helicopters for an estimated cost of $3.5 billion. The approval was notified to the US Congress for ratification on 19 October.

Currently the Royal Air Force operates a fleet of 60 Chinooks, including 38 HC.Mk.4 helicopters which were originally built to the CH-47 standard as HC.Mk.1 and Mk.2 aircraft. These are going through an upgrade to Mk.6A configuration, with the Boeing digital automatic flight control system in line with the newer aircraft. All in the fleet are eight HC.Mk.5, upgraded from HC.Mk.3 and in an MH-47E configuration with long range tanks, and 14 HC. Mk.6 which are to the CH-47F basic standard. All the helicopters have UK-specific equipment modifications.

If finally confirmed, the new helicopters would likely replace the older Chinooks in the Royal Air Force fleet, which date from 1981, and take on the special forces role from the HC.Mk.5 which today is deployed more as part of the wider UK fleet. However this is not confirmed. What is known is that the sale would include 36 Honeywell T-55-GA-714A engines, 48 embedded GPS inertial navigation units, 20 common missile warning systems, 22 radio-frequency countermeasures, 19 multi-mode radars, 19 electro-optical sensor systems, 40 M-134D-T mini guns and 40 M240 machine guns plus the necessary mounts and tools. The sale would also include communications, navigation and survivability equipment plus a complete support package.
Leonardo TH119 makes first flight
Leonardo Helicopters successfully completed the initial flight of its IFR equipped TH-119 prototype, N824BM, at the company’s Philadelphia plant on 20 December. The single-engined helicopter is a customised derivative of the AW119, aimed at the US Navy request for a new generation training helicopter.

The first flight, flown by Leonardo test pilot Patrick McKernan, included an assessment of general handling and avionics systems and is being followed by further flights leading to full Federal Aviation Administration instrument flight rules certification early this year. Leonardo says the TH-119 is the only modern single engine helicopter certified to operate in actual instrument meteorological conditions (IMC), providing more available training days that otherwise limit VFR only aircraft and thus potentially reducing overall training time.

The aircraft is also capable of carrying out the full spectrum of training, including autorotations, instrument and night vision goggle lessons, hoist, external cargo and search and rescue. The dual-display Genesys Aerosystems glass cockpit allows instruction from either seat with full IFR capabilities including a flight director and a three-axis full autopilot. A 180 degree adjustable observer seat offers a second student a full view of the cockpit, providing a better learning environment even when flying as a passenger.

The US Navy is looking to replace its existing Bell TH-57 fleet with over 125 new generation trainers and Leonardo says that, if selected, the TH-119 would be assembled in Philadelphia alongside the existing AW119 production line. Over 270 AW119s have been delivered to date, most from the Philadelphia plant, and the type is in service with some 150 operators worldwide. In the US Navy competition, the TH-119 is expected to compete against the Airbus Helicopters H135 and the Bell 407GX.

Heli Operations to expand Portland training programme
Heli Operations, based in Portland, Dorset and currently operating two leased military Westland Sea King HAS.Mk.5 helicopters for specialist search and rescue and other military training, is to purchase both aircraft and buy four more from the UK Ministry of Defence in an expansion programme. The company recently completed an initial training contract with the Federal German Navy but has signed a new five year agreement to start in January.

All four of the additional Sea Kings have been stored at HMS Sultan in Gosport since being flown there from No 771 Sqdn on retirement in 2016. Three of the aircraft will be made airworthy, whilst the fourth is expected to be used for spares recovery. The company has also purchased the Night Vision capable Sea King simulator, previously at RNAS Culdrose.

Heli Operations facilities include the former Portland search and rescue base, adjacent to Portland Harbour, together with student accommodation, classroom facilities and access to the UK military Low Flying System and over water and overland training areas. All its instructors and senior staff are ex-military personnel.

Spain to double NH90 buy
The Spanish government has approved agreements to double the size of its fleet of NH Industries NH90 helicopters and to upgrade all 17 of its Boeing CH-47D Chinooks to the CH-47F configuration. The contracts were signed off on 2 January.

Airbus Helicopters España (AHE), which is a partner in the NH Industries consortium, will take responsibility for the $1.57 billion NH90 deal which will supply 16 more TTH tactical transport aircraft to the Spanish Army and seven new NHF naval variants to the Navy. The latter will begin a replacement programme for the ageing Sikorsky SH-3D/G Sea King helicopters still in operation. The TTH production will be centred on the AHE facility at Albacete, which is already delivering aircraft from the original order for 22 aircraft until 2021. This plant is also responsible for manufacturing the front fuselage sections for all NH90 aircraft. The new contract will restore the Spanish commitment to purchase a total of 45 NH90s, which was the number the government had originally signed up for in 2006, before budgeting pressures forced it to reduce the order to just 22 aircraft.

Meanwhile the second contract signing, with Boeing for the Chinook upgrade, marks the first order from a non US customer placed through a contract signed with the US Army in July 2018. This covered up to 150 F-Model Chinooks for the United States and international customers. Deliveries to Spain will begin in 2021.

New MELB kits ordered for US SOAR
Boeing has been awarded a $48 million indefinite delivery/indefinite quantity contract to supply Mission Enhanced Little Bird (MELB) kits to upgrade US Special Operations Command AH-6 and MH-6 helicopters. The aircraft are operated by the US Army 160th Special Operations Aviation Regiment, with the AH-6 being a dedicated gunship variant of the MD500/MD530 helicopter and the MH-6H being an unarmed assault version, with space for two/three troops in the cabin and up to six externally on fold-down platforms.

The MELB programme introduces a number of improvements to the earlier aircraft, including a six-bladed main rotor and four-bladed tail rotor, an upgraded tail rotor drive system, a chambered vertical tail fin and an improved tail stinger and main landing gear struts for rough terrain landings. The cabin also features enlarged rear doors and openings to improve cabin access/egress, with crashworthy main fuel tanks resistant to 0.50 cal small arms fire and fittings for optional external long range fuel tanks.

The upgraded aircraft is designated the AH/MH-6M and the provision of the kits will be mostly carried out at the Boeing plant in Mesa, Arizona for completion by December 2026.

Above: The Leonardo TH119 demonstrator made its first flight on 20 December at the company’s Philadelphia plant.
SB-1 Defiant delays continue

The prototype Sikorsky-Boeing SB-1 Defiant compound helicopter is not now expected to make its first flight until the 2nd quarter in 2019, over a year behind schedule but with high hopes that it can catch up on the delay and be flying at 370km/h (200kt) by mid-2019. Manufacturing problems with the main rotor blades, which the partners say have been the main cause of the programme slippage in recent months, are said to have now been resolved.

Senior US Army officials recently accepted that their preference for automated rotor blade manufacturing contributed to the delay, as they sought to find ways to speed up the production of the SB-1 composite main blades.

The eight rigid 9m (30ft) long blades use a new automated fibre placement process, developed by Boeing to manufacture the central spar of each blade, and getting the tooling right for the layering of the composite fibres has taken longer than expected. Boeing says it took two years to actually build the first spar to an affordable and acceptable manufacturing standard for production, whereas the latest spar was built in just 11 days. The first four flight-worthy blades were finally delivered to the Sikorsky flight test centre in West Palm Beach, Florida on 9 October, with the remaining blades following a few days later.

Prior to the first flight however the SB-1 Iron Bird ground rig will carry out power train tests with a set of blades installed. This rig has already been run twice without the rotor blades, but with the aft pusher airscrew blades fitted to give confidence in the dynamic system, and is carrying out one more similar run before beginning a 200 hour, ground test programme with the complete dynamic system, ahead of the prototype’s first flight. Previously the partners have separately bench tested all the component parts of the drive system and run the electric and hydraulic systems, engines and main transmission in the aircraft.

Ground runs of the flight prototype, with the main blades installed, began in November. However the companies programme managers say progress will depend on doing it safely and properly rather than trying to meet deadlines.

MH-60R offered to German Navy

Lockheed Martin has teamed with Rheinmetall in Germany to offer the Sikorsky MH-60R Seahawk to replace the Federal German Navy (FGN) ageing Westland Lynx Mk-88A anti-submarine/anti-surface vessel warfare (ASW/ASuW) helicopters. The two companies, who are also partnering on a bid to provide the Sikorsky CH-53K to the German Air Force, signed a Letter of Intent on 12 October.

22 Lynx Mk.88A are currently in service and the FGN is seeking to replace these with between 18 and 24 new helicopters, covering the same shipboard roles. Lockheed Martin will be competing with Leonardo Helicopters, which is expected to offer the AW159 Wildcat HM.Mk.1, and NH Industries/Airbus Helicopters which is promoting a reconfigured NH90NFH Sea Lion variant. The AW159 is configured to carry active dipping sonar and sonobuoys, with weaponry including torpedoes, missiles, rockets and guns whilst the MH-60R is equipped with the Thales/Raytheon AQS-22 Airborne Low Frequency Sonar and a similar range of weaponry.

The FGN is hoping to short list and then award a contract in a 2020/2021 time frame, with entry into service in 2023 and full operational capability being achieved by the Lynx out-of-service date of 2025.

RoK lifts Surion grounding

The Republic of Korea Army grounding began lifting the grounding of its Korean Aerospace KUH-1 Surion helicopter fleet in October, following detailed checks and inspections of key dynamic components. All 93 KUH-1 and MUH-1 variants of the Surion were grounded following the fatal crash on 17 July of an MUH-1 during take off.

The subsequent investigation showed the cause to be a manufacturing fault in the main rotor mast, causing it to fracture and separate the main rotor head from the aircraft. Since then, the authorities have been carrying out x-ray inspections of the suspect components removed from the fleet, as well as working with the supplier to resolve the issue in new manufacturing. The inspections are expected to continue until March 2019, but meanwhile the Army is allowing a limited number of cleared KUH-1s to resume maintenance and training flights. This will relieve fatigue pressure on the Army’s UH-60 Black Hawk helicopters, which have been used in place of the Surion since the grounding.

Four KUH-1s had been returned to service for training by early November, with more to follow over the coming weeks.

New Chinese high speed VTOL drone

The Beijing Science and Technology Company displayed a model of its new TD15 high-speed drone helicopter at the early November Airshow China exhibition in Zhuhai. The 1:4 scale model on the company’s booth showed a close resemblance to the Sikorsky X2/S-97 technology, with a similar coaxial/contrarotating rigid rotor, pusher airscrew and tail unit, but with a retractable skid main landing gear.

An adjacent description board claimed the highly streamlined TD15 would have an operational range of 1200km (746miles), a service ceiling of 6500m (21325ft) and be able to achieve maximum speeds of up to 450km/h (280mph). Whilst no external mounting points were visible, the unmanned helicopter is said to be intended for a range of military missions, including light attack and battlefield reconnaissance.
The Bell Training Academy opened a new commercial pilot training facility close to its headquarters in Hurst, Texas on 9 July. Named after the company’s pioneering test pilot, Floyd Carlson, the airfield provides runways for training critical normal and emergency procedures, including full touch-down autorotations which Bell sees as a differentiator in its customer training experience.

Many training schools in the United States rarely teach students this skill, preferring to demonstrate only partial autorotations before recovering and flying away. This is because of the perceived risk to the helicopter and its occupants if a full touch-down autorotation goes wrong. The Bell Training Academy challenges this assumption. The new airfield also features other training situations, including a raised platform to familiarise pilots with landing offshore and on elevated hospital helipads.

Carlson was notable as having performed the first flight of every Bell helicopter from the early Model 47 in 1945 until his retirement from flying in 1971.

Kaman Aerosystems has partnered with K-Max helicopter operator Rainier Heli International to offer leasing solutions to customers for the specialist external lift helicopter. Rainier currently owns and operates a mixed fleet of helicopters in the United States, including the K-Max which has been deployed by the company on fire fighting and utility missions for more than 20 years.

Kaman is currently producing the last airframes of a new batch of 10 K-Max for potential customers and is about to commit to a further production run to meet expected demand. The tie-up with Rainier, which specialises in providing lease and lease-to-purchase programmes to meet the specific needs of helicopter operators worldwide, is expected to offer a new financing option for K-Max customers engaged in external load operations.

Earlier in August 15 K-Max were involved in fire fighting operations on the US west coast. The unique single-seat, single-engine helicopter with its intermeshing contra-rotating rotor system can lift up to 2722kg (6,000lb).

The US Defence Department awarded contracts to two US companies on 24 August. Columbia Helicopters will receive $243 million under an option year modification to provide airlift support to the US Central Command in Afghanistan, taking the cumulative value of the contract to $468.7 million.

CHI Helicopters was awarded $54.6 million, also to provide airlift services in Afghanistan and taking the previous contract cumulative value to $115 million.

MD Helicopters has received US Federal Aviation Administration certification for the upgraded glass cockpit installation in the MD930F light helicopter. The approval follows the earlier certification last year of similar cockpits for both the MD930F and MD600N variants of the same helicopter.

The new cockpit includes a Howell Instruments Electronic Engine Instruments and Crew Alert System, Garmin G900 (H) TXi Electronic Flight Instrument System with touch screen GDU 700P PFD/MFD, Garmin GTN 650 touch screen NAV/COM/GPS and an optional L-3 ESI 500 electronic standby instrument. Deliveries of production aircraft with the new cockpit are already underway, with the first aircraft going to the US Army and Afghan Air Force, and to the Virginia Beach Police Department.

MD Helicopters is now focusing on obtaining certification for the same cockpit configuration for the remaining single-engined variants in the family.

Senior executives at Hansen Helicopters, who are awaiting trial on fraud and conspiracy charges relating to the company operations in Guam have been allowed by a judge to communicate with each other, after claiming that a previous court ordered restriction was negatively impacting the business. At a hearing on 27 August the judge agreed that company owner John Walker, Executive vice president Marvin Reed, Operations Director Kenneth Crowe, and Maintenance Director Phillip...
The first Leonardo AW189 helicopters for the Malaysian Fire and Rescue Authority, Bomba Malaysia, officially entered service on 4 December, in a ceremony witnessed by the Minister of Housing, YB Puan Haja Zuraida Kamaruddin and the Italian Foreign Minister, Manlio di Stefano. Two AW189s have been delivered to Bomba Malaysia. 9M-BOE serial 49045 and 9M-BOF serial 49053 were both registered to the authority last March.

Bell Helicopter delivered the first law enforcement-configured Model 505 Jet Ranger X on 1 December, to the Sacramento Police Department in California. The aircraft, registered N279PD serial 65102, was first certificated last June but has been undergoing a comprehensive fit out for the police role, completed by Hangar One in San Diego.

This includes high skid gear and hard points for mounting equipment, with a Trakka Beam searchlight on an aft hard point and a MX-10 EO/IR sensor under the nose. The aircraft also features a loud hailer and a 38cm (15inch) cabin monitor, with a moving map system.

The Sacramento Police have previously operated ex-US Army surplus Bell OH-58 Kiowa helicopters in the surveillance and law enforcement role, but the Model 505 marks a major step change in performance, with ergonomic seats allowing the pilot and tactical flight officer better comfort and the larger windows providing greater visibility when searching for suspects and missing persons.

Sacramento is the first of two police forces in California to order the Jet Ranger X, with Stockton Police Department due to launch its own air support unit in early 2019. Their Model 505 is also being delivered by Hangar One, and is expected for delivery in March.

Sikorsky Aircraft is developing a new variant of the S-70 helicopter, aimed at shore-based coastal patrol missions for countries looking to monitor and intercept shipping, carry out fishery protection and search and rescue missions, and general coastal surveillance. The new design is currently in the concept phase but could be available by the early 2020s at half the cost of the current MH-60 Seahawk.

One target for the “Coastal Patrol Black Hawk” is Chile and neighbouring coastal countries in Latin America, where the company is also pushing for sales of the wider S-70 family. To this end Sikorsky is establishing an office in Chile, to use as a base for naval business in the region.

Metro Aviation in Shreveport, Louisiana has handed over the second of two refurbished Helibras HB350B3 helicopters, configured for parapublic and law enforcement operations, to the Mendoza provincial police force in Argentina. Both aircraft, registered LQ-BEZ and LQ-BFB respectively have undergone a 12 year inspection, with upgraded navigation systems and equipment, including provision to carry a Bambi Bucket for fire fighting.

In service, the helicopters carry out law enforcement search and rescue and air medical work including high altitude mountain missions when necessary. The handover marked the latest completion delivered by Metro to Argentina in conjunction with local agent Aero-Link. Previously the company carried out a similar AS350B3 refurbishment in 2017 for the police, the first of seven upgrades scheduled in total, and in May 2018 delivered an H125 completion to the government of Jujuy Province in Argentina for parapublic use.

Scotland’s Charity Air Ambulance (SCAA) has confirmed that it will open its second base in Aberdeen, with plans to begin operating there by 2019. The SCAA currently operates from a single base at Perth airport, supplementing the Scottish Ambulance Service and liaising with the Service’s own air ambulance operation.

The introduction of a base in Aberdeen will double the number of air ambulance helicopters operating in Scotland, improving the cover and response times for emergencies in the north east region. It will also help to fulfil one of the Scottish Trauma Network’s key objectives of transporting patients to a trauma centre within 45 minutes of serious illness or injury.

The Canadian Coast Guard has leased new Bell 429 helicopters recently purchased and deployed under the Coast Guard’s Fleet Renewal Plan.

The new helicopter facility is covered by a 15 year lease, valued at C$2.9 million and provides an 84sq.m (904sq.ft) office space, a 391sq.m (4209sq.ft) hangar and workshop area, and an external concrete apron of 1024sq.m (11022sq.ft) for take off and landings. The helicopter is expected to play an essential role in supporting programmes in the eastern Canada maritime region, such as ice breaking, marine communications, environmental response, waterway protection, conservation, and support to other government departments.

Meanwhile the Canadian government has confirmed that ten engineering training centres across the country have each been donated a Canadian Coast Guard MBB Bo105 helicopter following the type’s withdrawal from service. The aircraft have been replaced by 15 Bell 429s after over 30 years of service and will now be used for hands-on maintenance and classroom training of students entering the aviation industry.

Med Flight, which provides air medical services for the University of Wisconsin health system (UW Health), is to enhance its emergency cover in the north-central area of the State, by opening a third helicopter base at the Divine Savior Healthcare hospital campus in Portage. Currently the service operates from a regional base at Iowa County Airport, covering southwest Wisconsin and from its main base at University Hospital in Madison, using a fleet of three Airbus EC135 helicopters. The new base will become operational in summer 2019.

The UK National Police Air Service (NPAS) has received the first of seven upgraded Airbus EC135 helicopters, following a major overhaul of the aircraft avionics and mission
equipment. The work is being carried out at the manufacturers UK facility at Oxford Airport.

The £1.5 million contract between NPAS and Airbus will see the seven helicopters being equipped with new night-vision capable cockpit instrumentation, together with new FENN700+ night vision goggles, as well as upgraded flight and mission equipment to provide a standardised fit across the fleet. The helicopter being modernised are the older examples in the NPAS fleet, with the first aircraft, registered G-POLF, having originally entered service in 2002 and now with more than 15,000 flight hours total time.

- Aerolite AG in Ennetbürgen, Switzerland has secured a US Federal Aviation Administration (FAA) Supplemental Type Certificate (STC) for its Leonardo AW169 helicopter air medical interior. The new STC follows previous certification of the lightweight interior by the European Aviation Safety Agency.

The interior has quick-change capabilities with provision for one intensive care patient and two minor injured patients, with up to six medical crew seats. It also features an oxygen supply, provisions for medical devices and IV bags, a medical storage cabinet, a baggage net for loose equipment and a 12/14V DC and 24/28DC power supply. Aerolite has already delivered some 24 of the medical interiors to customers, mostly in Europe, but the FAA certification now opens up the US market for the product.

- The Polish Police signed a contract for a third Sikorsky S-70i helicopter on 19 November in a ceremony at the PZL Mielec assembly plant, with the first example registered SN-70XP/A101 on display as a back drop. The first two aircraft were due to be delivered in December and the third S-70i is expected to follow in March 2019.

- Aerolite has served as a second final assembly line for the S-70 Black Hawk since 2010.

Above: The first of three Airbus H145 helicopters in this blue/white colour scheme for the Serbian Police Air Wing was test flying in December at the Donauworth production plant in Germany.

Below: Still carrying its Isle of Man civil registration, this is the first refurbished ex-CHC H225 to be delivered to the Ukraine State Emergency Services, routing from Airbus Helicopters in France via Italy and Hungary to Kiev.

- Airbus Helicopters began deliveries of 21 refurbished H225s to the Ukrainian Ministry of Interior on 21 December, with the hand over of the first two aircraft in Kiev for search and rescue and law enforcement missions respectively. Ukrainian pilots have already received H225 certification training in France, allowing the helicopters to become operational almost immediately. The next step will be to set up a local training and maintenance centre in Ukraine to support the fleet.

The 21 H225s are all ex-CHC offshore configured EC225LP aircraft, which are being re-configured and upgraded to H225M standard before delivery to Ukraine. All have been temporarily registered in the Isle of Man to finance company Dhoon Glen Aviation with the first two, marked up as M-ABJX (serial 2715) for the Ukraine National Guard, and M-ABIZ (serial 2725) for the State Emergency Services, leaving Marignane on 19 December and routing via Treviso in Italy and Budapest in Hungary to their Kiev destination. The remaining 19 deliveries include serials 2708, 2722, 2729, 2739, 2740, 2744, 2745, 2747, 2768, 2773, 2775, 2779, 2794, 2798, 2801, 2827, 2848, 2851 and 2882 all temporarily registered in the range of M-ABJO-W and M-ABKA-K.

- Ontario air ambulance provider Ornge, which operates a fleet of 12 Leonardo AW139 helicopters from eight bases across the Canadian province, has signed a contract with Australian company HeliMods for the installation of a new stretcher system in the aircraft. Ornge says the agreement follows an exhaustive search and competitive procurement process to find the right solutions for both patients and staff.

The centrepiece of the new system is a Powered Aero Loader (PAL), a zero-lift push-button operated self loading powered stretcher for the rapid loading and unloading of land ambulance stretchers into air ambulance helicopters. A typical loading/unloading time of less than 30 seconds is thus achievable by only one paramedic. The system also includes an equipment bridge that will be able to hold all medical devices in all phases of flight and will do away with the current need to reconfigure the aircraft for obese patient transport.

HeliMods, which has offices in Vancouver, British Columbia but with its main base at Caloundra Airport in Queensland, Australia will work with Ornge’s engineering team to carry out the installation of the PAL on an aircraft-by-aircraft basis. The first AW139 with the new system is expected to re-enter service in early 2019.
PHI Inc has provided further information on its refinancing and restructuring arrangements.
Helicopter History

A former Royal Navy Westland Wessex HC.Mk.5, serial XT761, has received a Permit to Fly from the UK Civil Aviation Authority following a 12 month restoration by Navy Wings supporter Andrew Whitehouse and a small team of ex-Fleet Air Arm engineers. The aircraft is expected to join the UK airshow circuit in 2019.

Originally built in 1966, the helicopter served initially with No.848 Sqdn aboard HMS Albion and Bulwork in the commando role before being converted for search and rescue duties in 1978 with No.771 Sqdn at RNAS Culdrose. In 1982 it was repainted in low visibility markings and shipped out to Ascension Island to provide support for ships transiting to the Falkland Islands, before returning to the UK for overhaul and eventual reallocation for ground instruction in 1988. 10 years later XT761 was passed to the Royal Navy Historic Flight but, lacking the funds for restoration, was sold to Whitehouse and joined the Navy Wings associate aircraft collection.

The collection also has a second Wessex Mk.5, serial XT771, whilst Whitehouse separately flies an ex-Royal Air Force Whirlwind Mk.10 helicopter, serial XI729, and has purchased two Sea King helicopters for possible future restoration to flying condition.

MSS Holdings in Preston, Lancashire has become the first historic helicopter operator to receive UK Civil Aviation Authority (CAA) Safety Standards Acknowledgement and Consent (SSAC) approval, allowing it to offer flights to paying passengers in an ex-military Bell UH-1H helicopter. Previously SSAC had only been granted for dual seat Supermarine Spitfire aeroplanes, approved in 2014.

To meet the SSAC standards an operator has to carry out a detailed risk analysis to ensure the necessary high levels of safety are maintained for the participants, other airspace users, and the general public. Ahead of a flight the operator must ensure that passengers are informed of the key risks and then must acknowledge their consent to participate. The CAA says it knows members of the public are very interested in flying as passengers in classic aircraft and so, where it can, it will assess a safety case for a particular aircraft type to potentially allow it to be used for paid flights.

MSS Holdings and owner Phil Connolly has been operating the Bell UH-1H, registered G-UHIH, since it was imported to the UK in 2005. Originally built in 1972 and formerly in US Army service, serial 72-21509 spent time in Vietnam before returning to the United States in February 1973 and continuing in service until it was finally retired in the late 1990s. Subsequently it underwent a complete restoration to flying conditions by North West Helicopters in Seattle, Washington State in 2003, after a period of use as a donor aircraft for other UH-1H restorations. This required the sourcing of the complete dynamic system, tail boom, cockpit furnishings and other components from the company’s spares inventory, before assembling and flight testing the aircraft prior to shipment to the UK.

Since then, the UH-1H has appeared at various airshows, but is now likely to participate in more events now that its costs can be better covered by earning revenue.

The Italian Guardia di Finanza (Customs) first Nardi-Hughes NH500M helicopter has been presented to the Museo Storico del Servizio Aereo at Practica di Mare, following its return from storage at Luqa in Malta.

Originally part of the fleet assembled in Italy by Breda Nardi, following a licence agreement signed with Hughes Aircraft in 1971 to replace the Agusta Bell AB47G then in service for customers and border patrols, serial MM80848 coded GdiF9 was the first of four NH500M, subsequently followed by the improved NH500MC and later by the NH500MD. Some of these are still in service today.

However MM80848 is one of only two surviving NH500Ms, and in June 1992 was transferred to the Maltese government for service with the Malta Air Squadron, registered 9H-ABY. It was later militarised as AS9213 in May 2000 but eventually retired and stored at Luqa airport. Once restored by the museum at Practica di Mare, MM80848 is expected to go on display in its original livery.

Its surviving sistership, serial MM80850, meanwhile was last seen on gateguard duty at the Guardia di Finaza training centre at L’Aquila.

The Helicopter Museum

The Helicopter Museum at Weston-super-Mare, England has broken ground on a new single-storey extension to its main building, to replace the previous temporary “Pratten Building” Visitor Services facility that had been in use since the museum opened to the public some 30 years ago.

This temporary building, which had originally been donated by Westland Helicopters and refurbished by museum volunteers for its new role, had deteriorated in more recent years to a point where it was unsafe and uneconomic to repair, so was demolished earlier this year.

The new building is larger and will eventually house a new reception, café, shop and conference/education areas together with a showpiece introduction to the museum collection, built around the world’s oldest surviving helicopter, the Hafner R2 which dates back to 1931.

Initially the Museum Trustees have agreed funding to erect the basic building, using the museum’s own reserves, but are seeking sponsorship and volunteers to help with the fit-out of the new facility, including the installation of power, plumbing and other services and equipment.

Whilst the museum has been able to apply for grant aid towards the exhibition and education aspects of the project, efforts to obtain grants for the more practical elements, required to ensure sustainability have so far been unsuccessful. Instead the museum hopes to raise further funds and support to complete these elements as and when it can. The target is to finish works by the end of 2019 to coincide with the 30th anniversary of the official opening of the museum by HRH The Duke of York, Prince Andrew, in 1989.

The museum, which was recently awarded it 5th annual Certificate of Excellence by Trip Advisor and rates as the world’s largest rotary-wing aircraft collection, has always been volunteer-led as a registered charity and welcomes offers that can contribute to its success.

Offers of sponsorship with this latest project can contact Lee Mills, the museum’s General Manager by email: helimuseum@btconnect.com to discuss ways in which support can be given. Financial donations can be made through BACS (Sort Code 08-92-99) to the British Rotorcraft Museum, Acc. No. 65014170.
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Donaldson Aerospace & Defence has announced that its Inlet Barrier Filters (IBF) have been cleared for installation as a factory-fitted option on the Leonardo Helicopters AW189, following approval by the European Aviation Safety Agency. The system is also now available to the after market.

The Donaldson IBF features an innovative filtration technology using SynteqXP synthetic non-woven media, that the company claims provides exceptional dust holding capacity and great stability. In addition, the AW189 installation includes differential pressure transducers that provide continuous status of filter health.

Donaldson is also in the process of developing an IBF system for the AW139 helicopter under an agreement with Leonardo. Once approved as an addition to the Type Certificate these will also be available on new production and as a retrofit.

Bell and Electric Power Systems EPSi have signed a teaming agreement for the development of energy storage systems for Bell’s new vertical take-off and landing aircraft and on-demand mobility solutions.

EPS specialises in high performance, low cost battery technology, power electronics, thermal management systems and battery management systems, and the partnership will see the company designing energy storage systems to provide energy resources for the hybrid propulsion system in the Bell aircraft. In the first instance this will be for the Bell Air Taxi, working with Safran which is developing the hybrid propulsion systems, whilst Bell concentrates on the design, development and production of the four/five seat aircraft, as well as the on-demand mobility network.

Previously Bell has also named Garmin and Thales as partners in the project, developing the autonomous vehicle management computer systems and the flight controls system avionics respectively.

FlightSafety International has been selected by the US Naval Air Warfare Centre to design and manufacture flight training devices for the Bell AH-1Z and UH-1Y helicopters, to be installed at the Marine Corps Air Station at Futenma in Okinawa, Japan. The simulators will feature FlightSafety’s VITAL 1100 image generators, and a dome visual display with 270 x 80 degree field of view plus minus 30 degree up and minus 50 degrees down.

FlightSafety also will modify four existing AH-1Z and UH-1Y flight training devices located at MCAS Camp Pendleton in California. These modifications will include a new aft-entry area, instructor operating system position and design, a visual display dome and visual turret structure, and an expanded field of view and six-axis degrees of freedom.

CNC Technologies of Los Angeles has recently signed new contracts with the Florida Highway Patrol and the Orange County Sheriff’s Office, for the installation of airborne mission suites in their patrol helicopters. The company recently completed an installation in two Airbus H125 helicopters, (N782BC and N783BC), belonging to the Broward County Sheriff Office in Florida.

Built from the ground up to match Broward’s specific mission requirements, the comprehensive surveillance and downlink system was designed around Churchill Navigation’s ARS700C augmented reality moving map system. Other key components include the Flir Star Safire 380-HD imager, Spectrolab SX-16 searchlight and Troll microwave video downlink system.

In addition to its contract with the Broward County Sheriff Office, CNC has also worked with a broad range of other law enforcement and government agencies, including the New York and Los Angeles Police Departments, Texas Department of Public Safety, Georgia State Patrol, and Michigan State Police.

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Commercial

- SYSTEMS & SUPPORT

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- Donaldson Aerospace & Defence has announced that its Inlet Barrier Filters (IBF) have been cleared for installation as a factory-fitted option on the Leonardo Helicopters AW189, following approval by the European Aviation Safety Agency. The system is also now available to the after market.

- The Donaldson IBF features an innovative filtration technology using SynteqXP synthetic non-woven media, that the company claims provides exceptional dust holding capacity and great stability. In addition, the AW189 installation includes differential pressure transducers that provide continuous status of filter health.

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August  

1 Mil Mi-2 RA-15652 of Kavkaztrans destroyed in post impact fire after crashing into rice field near Novoskoorskiy: hospital in Southern Russia during aerial application flight. 1 fatal.

1 Mil Mi-35 of Afghani Air Force substantially damaged in hard landing near Muramond in Sarobi district whilst on a technical problem. 1 fatal.

1 Robinson R22B G-ODX of HO Aviation substantially damaged when it rolled onto port side during post-impact fire operation on uneven ground in field at Naunta Beauchamp, Worce.

2 Bell UH-1Y of US Marine Corps substantially damaged in hard landing at Lastic Lake, California.

1 Unknown during survey flight near Gardn Tandi, Sokoto State, Nigeria.

2 Bell 47G-3B1 N347BH of Black Hills Aerial Adventures on training flight substantially damaged near Custer, South Dakota during emergency landing following partial loss of power. Pilot landed successfully but helicopter struck a run and tail separated before helicopter crashed over onto starboard side on verge.

3 Mil Mi-171A2 RA-XXXXX substantially damaged in hard landing at Dengnong. 1 fatal.

1 Bell 407GX N450AM of Air Methods damaged at Rapid City Hospital, Rapid City, South Dakota when tail was struck by vehicle at night.

1 Brantly B2A N950X of Beating Air substantially damaged in emergency landing at Jack Barstown Airport. The rotorcraft was unable to land due to low fuel and struck a power pole, severing tail boom and main rotor blades together with main fuselage damage around port cockpit area. 1 fatal.

1 Bell 206B-3 C-GJSZ of Little Rock Rock Helicopter Substantially damaged whilst on a fully instrumented training course at Osmolni River Golf Club, Near Mullern, Nebraska when pilot lost tail rotor control and helicopter spun clockwise 3-4 times before main rotor and fuselage impacted terrain.

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1 Bell 206B-3 C-GJSZ of Expedition Helicopters substantially damaged in Cochrane, Ontario when main rotor, blade, skid, and front and rear landing gear. 1 pilot delayed power recovery and helicopter made an emergency landing on grass (2461m) 1 fatal.

1 Mil Mi-2M RA-15652 of Vefl-Avia substantially damaged in Uvati crash in Uvatsky district, Yurman region.

1 Bell 206BI N607RA of Ranger Aviation Leasing written off in post impact fire during aerial application operations near Basin City, Washington State, when it fell to the ground and caught fire. 1 fatal.

1 Airbus AS350B3 HB-ZDX of Swiss Helicopter substantially damaged when main rotor struck a power pole near Krubingen, Un canton when pilot delayed power recovery and helicopter made a forced landing.

4 Hughes 369F N369M of USAF, written off after takeoff failure at the Vankor oil field, Draosnay region, Siberia when it struck external load of a second helicopter that was also airborne and crashed. 2km (1 mile) from the helicopter and caught fire. 18 fatal.

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1 Helisport CH-7I-5681 written off in forced landing at Petting-Kuzenned airfield, Bavaria following suspected engine failure. Helicopter remained upright with main tail boom separated and landing gear fully deployed. 1 fatal.

1 Robinson R22B N4058ST of Honey B substantially damaged at Convalis airport, Oregon following a loss of control while landing. Helicopter came to rest on grass. 1 fatal.

1 Bell 212 N512TA of Trans Aero substantially damaged during fire fighting mission near Dardanelle, California whilst under power and helicopter landed on farm crop. Helicopter came to rest nose high with tail boom, main rotor blades and skid landing gear badly damaged.

1 Unknown Type damaged during take off at Nellim, Finland when rotor struck bight tree. Helicopter subsequently landed safely with only minor damage.

2 NH Industries NH90 of French Navy damaged when engine caught fire whilst en route. Helicopter made emergency landing at Krentz, Finistère and fire extinguished with only minor damage.

1 Robinson R44 N99645 of Apache Air substantially damaged in hard landing at Auckland airport when undercarriage leg buckled, causing local damage to fuselage and nos.

1 Bell UH-175 G-EMEA of NHV Helicopters substantially damaged in heavy landing at Auckland airport when undercarriage leg buckled, causing local damage to fuselage and nos.

9 September  

1 Hiller UH-124G A-GASAZ substantially damaged whilst being transported by road from Shobdon airfield to Sherburn-in-Elmet, North Yorkshire when trailer broke the road.

2 Mil Mi-8MTV-EMR of Valan International Cargo Charter crashed during take off from Afghan Army Shahr-e-Nur Corps (HC), Balik province, and destroyed in post-impact fire. 12 fatal.

2 Mil Mi-8MTV-1 RA-25502 of Angara Airlines written off in crash in Lekutsk region whilst enroute from Ust-Kut airport on survey flight for Siberian Scientific Research Institute. Helicopter came down 290km (180miles) south east of airport. 3 fatal.

1 McDonnell Douglas MD509E N1601Y of Hilly Air substantially damaged whilst attempting to land in private wooded area in Orchard Lake, Michigan when pilot lost tail rotor control and aircraft impacted ground and rolled on to port side. Main rotor blades and rotor tail system separated, skids splashed and minor fire damage.

1 Schweizer 299C N950X of Blade Runner Chopper substantially damaged in landing at Delaware County, Ohio.

1 Guimbal Cabri G2 N40158 of Spitzer Helicopters substantially damaged in hard landing near Santa Ana, California during autorotation training when pilot delayed power recovery and helicopter impacted terrain from height of about 3m (1ft) and main rotor severed tail boom. Helicopter remained upright with tail deforms scattered nearby.

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17 Mil Mi-17 557 of Sudanese Air Force written off in crash landing at Khaskan Alan Airport, east of Riyadh when it impacted terrain.

6 Bell 430 TC-HY of Unver Aviation impacted sea offshore Bostanci coast, Turkey in poor weather whilst en route to Sefakoy neighbourhood of Istanbul, Turkey. 5 man fatalities.

11 Mil Mi-8MTV 25 Yellow of Ukraine Ministry of Emergency Situations substantially damaged in accident when rotor main rotor blade in water during flight that took place during fire fighting mission near Natalko, Kharkiv region.  Aircraft force landed on hard of river amongst high reeds.

8 Boeing AH-6i of 1st Avn Brigade, Saudi National Guard written off during training flight at Khaskan Alan Airport, east of Riyadh when it impacted terrain.

12 Bell 206L-4 N1957Z of Chinilna Equipment written off in crash landing at Port Douglas Queensland following flight from Cairns Airport.

17 Robinson R44 VX-310 of Military Helicopter Joint Office, India written off in crash landing at Okhla Helipad near Delhi, India when it impacted tail boom and vertical stabiliser.

20 Bell 206L-4 N1957Z of Chinilna Equipment written off in crash landing at Port Douglas Queensland following flight from Cairns Airport.

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Accident Spot

whilst positioning two linemen for short haul operations. 1 fatal.

Leonardo AW109 PP-MTX of Filipinas Emppreendimentos Imbílibos crashed on road in forested area of Mogi das Cruzes, São Paulo, Brazil whilst on route from Juquehy to Alphaville, Barueri. Helicopter destroyed in post impact fire. 5 fatal.

Bell 206B 417WT of WT. Byler Co destroyed in impact with side of 442m (1450ft) hill near Chalk Bluff Park, Uvalde County, Texas after departing at night from family ranch 8km (5 miles) west of crash site, with newly wed couple on route to San Antonio airport. Helicopter struck terrain approx 300 (100ft) from apex of hill with a wreckage path estimated at 68-91m (229-300ft) long to the main fuselage. 3 fatal.

Rotorway A600 F-PSPM of M.Hélène written off at Savoyard, St Pierre and Miquelon during departure from private home strip when it crashed into field and broke up. 1 fatal.

Mil Mi-8T RA-25600 of AK Barkell written off during pipeline monitoring flight when it crashed into wooded area near Bobyshchyna, Teri Region, Russia following suspected mechanical failure. 1 fatal.

Robinson R44 N445KP of Hawaii Pacific Aviation involved in incident at Lihue, Hawaii when mobile phone flew out of cabin during flight and struck tail rotor.

Guimbal Cabri G2 N370PA of Precision Flight substantially damaged in autorotation landing in field immediately outside stadium, impacting on stepped level and breaking up before coming to rest on port side and immediately catching fire. 5 fatal.

Bell OH-58A N1032F of Yuyan Aviation destroyed after rotor blade dislodged during sightseeing flight.

Bell OH-58A N1032F of Treblig LLC written off during precautionary landing. The severed power cable strike at Lakeview, Washoe County and made government substantially damaged at Toluca airport.

Bell 430 N450TF of Cedar Ridge Aviation substantially damaged in forced landing in field after loss of power during approach.

Hughes 369D N5187S of 4385403 Canada Inc written off in crash in Coconino Co, Arizona whilst en route from Juquehy to Alphaville, Barueri whilst on route to Mirabel. 1 fatal.

Leonardo AW169 V-SDKP of Forskold Ltd destroyed by post impact fire following loss of tail rotor servos control during transition after take off from King Power Stadium, Leicester. Helicopter crashed from about 111m (400ft) into car park area immediately outside stadium, impacting on stepped level and breaking up before coming to rest on port side and immediately catching fire. 5 fatal.

Bell 206B-3 JDF H-3 of Jamaica Defence Force written off near La Romana, Dominican Republic in crash amongst trees and scrubland whilst en route to Mirabel. 1 fatal.

Bell 206B-3 JDF H-3 of Jamaican Defence Force written off in severe hard landing during solo training flight in Dunbehavlen area. Helicopter came down in scrubland near Forum Beach, St. Catherine, with skids collapsed, tail boom severed by rotor blades and main rotor head detached from mast, cockpit windows smashed and fuselage structure damaged.

31 Bell 206B-3 JDF H-3 of Jamaican Defence Force substantially damaged during sling load operations near Helmet, British Columbia when cargo net became entangled with object on ground during transition to forward flight. Helicopter pitched forward nose down and impacted terrain before pilot could release load.

30 Robinson R22B VH-KZV of Heath Cattle Australia written off 125km (78miles) north east of Alice Springs, Northern Territory during hending operations. Helicopter collided with terrain and crashed into dry river bed. 1 fatal.

30 Mil Mi-26T RA-06029 of Afghan Air Force written off in take off crash in Maruf district, Kandahar province after unloading troops. Possible technical problem or enemy action caused attempt to make an emergency landing. 1 fatal.

27 Bell 430 N370PA of 4385403 Canada Inc written off in crash in Coconino Co, Arizona whilst en route from Juquehy to Alphaville, Barueri whilst on route to Mirabel. 1 fatal.

27 Bell 407XLT N102RF of J Bradley stepped level and breaking up before coming to rest on its side.

26 Rotorway Exec 162F N162RF of M.Hélène written off at Savoyard, St Pierre and Miquelon during departure from private home strip when it crashed into field and broke up. 1 fatal.

26 Bell 206B-3 JDF H-3 of Jamaican Defence Force substantially damaged during sling load operations near Helmet, British Columbia when cargo net became entangled with object on ground during transition to forward flight. Helicopter pitched forward nose down and impacted terrain before pilot could release load.

26 Sikorsky HH-60L of Afghan Air Force written off in take off crash in Maruf district, Kandahar province after unloading troops. Possible technical problem or enemy action caused attempt to make an emergency landing. 1 fatal.

24 Robinson R22B VH-KZV of Heath Cattle Australia written off 125km (78miles) north east of Alice Springs, Northern Territory during hending operations. Helicopter collided with terrain and crashed into dry river bed. 1 fatal.

24 Leonardo AW109SP PT-FPS of Cristália Prod.Oxim, Farmaceuticos written off when it collided with trees and terrain near peak of Itapeva whilst en route from Itapara to Campos do Jordao, Sao Paulo and broke up. 6 fatal.

24 Bell UH-1H of Turkish Army destroyed when it crashed in street in residential district of Istanbul following suspected loss of tail rotor control. Helicopter was on training flight from nearby Sancaktape air base and collided with roof of apartment block during descent, before coming to rest with tail boom separated and main fuselage wreckage badly crushed. 4 fatal.

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22 PZL W-3A 923 of 4385403 Canada Inc written off during approach to landing at Palace of Arts, Belgrade, Serbia when it struck top of adjacent pole before fuselage entangled with a pole in Beekmantown, New York whilst attempting to install pulley back for fibre optic cable in strong winds.

22 PZL W-3A 923 of 4385403 Canada Inc written off during approach to landing at Palace of Arts, Belgrade, Serbia when it struck top of adjacent pole before fuselage entangled with a pole in Beekmantown, New York whilst attempting to install pulley back for fibre optic cable in strong winds.

21 Robinson R44 N4167Y of Novicor Oahu Helicopters crash landed when it force landed on Kaneohe sand bar near Oahu, Hawaii and rolled onto port side after pilot suffered an apparent medical incapacitation and passed out twice 20 minutes into the 45 minute sightseeing flight. Helicopter was subsequently inundated by seawater.

21 Robinson R44 N4167Y of Novicor Oahu Helicopters crash landed when it force landed on Kaneohe sand bar near Oahu, Hawaii and rolled onto port side after pilot suffered an apparent medical incapacitation and passed out twice 20 minutes into the 45 minute sightseeing flight. Helicopter was subsequently inundated by seawater.

21 Robinson R44 N4167Y of Novicor Oahu Helicopters crash landed when it force landed on Kaneohe sand bar near Oahu, Hawaii and rolled onto port side after pilot suffered an apparent medical incapacitation and passed out twice 20 minutes into the 45 minute sightseeing flight. Helicopter was subsequently inundated by seawater.

Above: This brand new Norwegian Air Force Leonardo AW101 rolled over whilst ground running at Sola Air Base in November 2017 after the pilot failed to check the collective was fully down, and allowed the main rotor to accelerate to full rotational speed. The aircraft has since been returned to the company’s Yeovil factory for repair.

November

2 Robinson R44 G-FLXY of HO Aviation written off during training at Denton airfield, Bucks when it nosedived into ground and rolled over after pilot lost control.

2 Bell 47G-3B1 N1559W of Treblig LLC written off near crash site in Colorado when it clipped a powerline, and crashed into field after loss of power during hydroICS-off, autorotation practice. Helicopter impacted terrain hard and main rotor blade severed tail boom before aircraft spun and rolled onto side.

2 Hughes 369D N5187S of Air 2 written off in crash 244m (800ft) off Highway Q2 west of McDougall, Arkansas when it struck utility pole and crashed into live power line and caught fire. 2 fatal.

Reports in Accident Spot are drawn from a number of sources; and the detail given may be provisional only, pending confirmation and official investigation. These factors should be taken into consideration when analysing the data provided.
more than eight percent, from 471 to 510 units.-whilst turbine helicopter shipments grew by almost 16 percent, from 190 to 220 units, Manufacturers Association. The survey notes by ten percent at the end of the third quarter Civil Aviation Authority.

The fuselage frame is manufactured from welded from 450kg (992lb) to 600kg (1323lb). The engine which allows the gross weight to range powered by a choice of a 100-115hp Rotax main rotor and ring- enclosed tail rotor, the United States. It features a two bladed exported to a number of countries, including reverse engineering.

NASENI says the H3 technology is easy to The two-seat H3 can be provided complete or as a kit for local construction and has been exported to a number of countries, including France, China, South Korea, New Zealand and the United States. It features a two bladed main rotor and ring- enclosed tail rotor, powered by a choice of a 100-115hp Rotax engine which allows the gross weight to range from 450kg (992lb) to 600kg (1323lb). The fuselage frame is manufactured from welded stainless steel tubing.

NASENI says the H3 technology is easy to copy for training engineers to manufacture and modify, and expected the agency to have mastered production by the end of 2019, subject to certification of the facilities by the Civil Aviation Authority.

Commercial helicopter shipments were up by ten percent at the end of the third quarter 2018, compared to the same time in 2017 according to the US General Aviation Manufacturers Association. The survey notes that piston helicopter deliveries increased by almost 16 percent, from 190 to 220 units, whilst turbine helicopter shipments grew by more than eight percent, from 471 to 510 units.

Despite the growth in deliveries however, the soft market for heavy and high value aircraft saw a drop in values, with sales for the period at $2.6 billion compared to $2.7 billion last year, representing a total of 730 aircraft deliveries. Of these Airbus delivered 202, Bell delivered 146 and Leonardo were responsible for the bulk of the remaining 162 turbine deliveries.

UK helicopter company Helicopter Services has relocated from Wycombe Air Park to nearby White Waltham airfield, where they have set up a new headquarters with a briefing and seminar, facilities, including ground school training for commercial pilot and air transport pilot licences. The company is also establishing itself as an Approved Training Organisation with the European Aviation Safety Agency, in readiness for the post-BREXIT era.

Russian Helicopters has delivered two Mil Mi-172 helicopters from the Kazan production line to the Equatorial Guinea National Guard for transport operations. One aircraft is configured in the standard 26 passenger cabin layout, whilst the second is in the Salon VIP customised configuration with a 12 seat passenger interior.

Russian Helicopters previously sold two Mi-172 helicopters in 2006 to Equatorial Guinea for VIP and passenger transport, although one of these was subsequently lost in an accident. Nevertheless the performance and power reserves of this variant have proved to be valuable in this tropical central African country.

German operator Spezialflug Berlin has taken delivery of a Mil Mi-8MSB helicopter, registered OK-MSF, for transport and heavy lift missions, following European validation of the original Ukrainian supplementary type certificate by the Czech Civil Aviation Authority.

Spezialflug specialises in external lift and similar operations in the construction and powerline sectors, with a base at the Berlin Schönefeld airport. The company already operates a Mil Mi-8T on offshore windfarm construction and has access to other helicopter types, including the Airbus Helicopters AS332C1 Super Puma.

The Mi-8MSB is the most powerful variant of the Mi-8 family, powered by two 2800shp Motor Sich TV3-117VMA-SBM1V4E turboshaft engines, which give it an exceptional hot/high performance and a service ceiling of up to 9,150m (30,019ft). The helicopter can take off under full power at an ambient temperature up to 55 degree C and has a one-engine-out altitude capability of 5,500m (16,400ft).

Spezialflug says the performance means that, when other helicopters are having to reduce their payload, the Mi-8MSB can still take off with its maximum internal 4,000kg (8,800lb) on board, or 3700kg (6600lb) on the external hook. The maximum take-off weight is 12,000kg (26500lb).

Rolls-Royce is progressing its evtol 4/5 seat aircraft project, with the tilt-wing component currently under test in the R J Mitchell low speed wind tunnel at Southampton University. The unit also includes the four propeller fairings spread across the wing.

The Rolls-Royce aircraft will use an aft-installed Model M250 powerplant to generate about 500kw of electric power for both the four wing-mounted airscrews and two on a tilting tailplane, with the latter expected to be sufficient to drive the aircraft in forward flight. The M250 engine would also charge up a battery for energy storage, making the aircraft less reliant on external power sources and enabling it to operate more easily from existing heliports and airports. In level flight the wing-mounted airscrews would fold away.

First revealed at Farnborough Air Show last July, the company envisages its design being capable of cruise speeds of 159km/h (99mph) over a range of 805km (500 miles), but is still discussing possible partnering with an airframe manufacturer to take the project to a commercial stage. South African operator Ultimate Heli has deployed two Bell 412EP (registered ZS-HNB and ZS-HN1) helicopters to Southern Sudan, on a contract to provide humanitarian support for the International Red Cross under the UN World Food Programme. The two helicopters are based in Juba.

Previously the company has provided the support on an ad-hoc basis for the past five years, but the new contract has been agreed on a permanent basis.
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<tr>
<td>2017 - H-125</td>
<td>897 hrs</td>
<td>Cargo Swing, Enlarged glass cockpit, Dual Controls, Located Sweden</td>
<td>2,150,000 EUR</td>
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<td>2016 - H-125e</td>
<td>1750 hrs</td>
<td>Dual front seat installation, Dual Controls, Located: Sweden</td>
<td>1,880,000 EUR</td>
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<tr>
<td>1987 - AB412</td>
<td>6506 hrs</td>
<td>Rotor Brake, Dual Controls, Cargo Hook, Located Norway</td>
<td>2,300,000 USD</td>
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<tr>
<td>1981 - AB206B</td>
<td>5090 hrs</td>
<td>Always Hangared, Dual Controls, Particle Separator, Located Sweden</td>
<td>320,000 EUR</td>
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<tr>
<td>2009 - AW139</td>
<td>1295 hrs</td>
<td>Heated glass windshield, Autopilot 4 axis DAFCS, EGPWS</td>
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