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Farnborough takes off

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Honeywell Aerospace

MRO News
from around the world

People on the Move
latest appointments

AVITRADER MRO

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Opinion

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Big business at the airshow

This year's instalment of the Farnborough Airshow was arguably one of the best yet, particularly for the big aircraft manufacturers. Embraer struck gold with announcements and commitments for 300 aircraft worth \$15 billion.

Despite heavily marketing the new E2 jets, its interesting to see how popular the E1 is. For instance

Embraer and United Airlines announced at the airshow that they signed a firm order for 25 E175 jets in a 70-seat configuration. The contract has a value of USD 1.1 billion, based on current list prices, and will be included in Embraer's 2018 third-quarter backlog. Deliveries will begin in the second quarter of 2019.

Coming 37 weeks before Brexit, the show attracted its highest global attendance ever, with around 100 countries present and record Chinese presence. There was also a rise in trade visitors of nearly 10% compared to previous years, more than 80,000 passing through the gates on the trade days.

In many respects, Farnborough 2018 was dominated by the Airbus takeover (51%) of the Bombardier C series project for €1 and renamed it as the Airbus A220. One of the biggest beneficiaries will be the former Short Brothers plant at Belfast, a major supplier of components both to the Montreal assembly line and the proposed Mobile, Alabama, operation.

Keith Mwanalushi
Editor



FIA 2018 flying display.
Photo: Airbus

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Years of Support

A large jet engine is displayed in a hangar, with its complex internal components visible. The scene is bathed in a deep blue light, creating a high-tech, industrial atmosphere.

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Lufthansa Technik Cyclean Dry Ice
Photo: LHT

Lufthansa Technik introduces first engine wash with carbon dioxide pellets

Lufthansa Technik has developed a unique procedure to wash engines with dry ice, the solid form of carbon dioxide (CO₂). The company has filed several patent applications, which means it can now develop an actual product, which will be called Cyclean Dry Ice. As of 2019, the system will be used alongside the water-based Cyclean® engine wash. During the new engine wash procedure, dry ice pellets that are only a few millimeters in size are shot into the engine via a mobile blasting system. When they hit the components, the pellets release kinetic energy. Through this energy and contact with the ice-cold pellets (-78.5 degrees Celsius / -109.3 °F), dirt is dislodged from the components. The new procedure has many advantages: The carbon dioxide used is a by-product of the oil refinery and fertilizer industries so that no additional carbon dioxide has to be generated, and since the pellets transition fully to a gaseous state, there are no residues to deal with. In addition, the procedure can also be applied at outdoor temperatures below freezing. Engines can thus be washed 365 days a year, even in permafrost regions. The mobile Cyclean Dry Ice washing system is mounted on a platform with an omnidirectional drive. A height-adjustable scissor lift enables fast and thorough cleaning of all engine types, regardless of their size and height. Since there is no need to fasten any pieces of equipment to the engine or to perform a run-up after the engine has been washed, the time needed for the cleaning process – and thus the ground time – is reduced to just 30 minutes compared with conventional engine washes.

MTU Maintenance Canada completes first V2500 shop visit

MTU Maintenance Canada re-delivered the first V2500 engine for customer IAE International Aero Engines (IAE) in Vancouver at the end of June. The engine falls under the contract between IAE and MTU last year that sees MTU Maintenance Canada serving V2500 aftermarket customers. The V2500 is the engine that powers the A320neo family. "MTU Maintenance performed over one third of all V2500 shop visits worldwide in 2017," says Michael Schreyögg, Chief Program Officer, MTU Aero Engines. "By introducing the line in Canada, we aim to strengthen our market position and grow as the engine family matures into the early 20s." Helmut Neuper, President and CEO of MTU Maintenance Canada adds: "Seventeen million Canadian dollars have been invested to establish the line in Richmond, British Columbia, by MTU. The MTU Maintenance Canada facility aims to service around 25 V2500 engines this year, ramping up to 40 in 2019."

AAR signs agreement with LORD Electromechanical Solutions

AAR's OEM Aftermarket Solutions group has signed an agreement with LORD Corporation to be its channel to the Americas market for LORD Flight Control Equipment repairs. LORD products covered by this agreement are cockpit controls for systems on Airbus commercial fixed-wing aircraft. LORD acquired LORD Electromechanical Solutions (formerly Fly-by-Wire Systems France) from SKF in June 2016 and established a U.S.-based re-

pair station for the products in August 2017. AAR will manage customer repairs going into LORD's Cambridge Springs, Pa., facility.

HAECO ITM deploys RAMCO Aviation Suite in its operations

HAECO ITM, a member of the HAECO Group, has selected Ramco Systems (Ramco) – provider of the Ramco Aviation Suite of software – to support the company's IT operations. HAECO ITM will benefit from Ramco's end-to-end solution by unifying various techno-commercial functions – covering Customer Contract Management, Supply Chain Management, Inventory Management, Financial Management, and Component Engineering including Reliability Management – on a single platform equipped with advanced supply chain planning and optimization. Ramco Aviation Suite will integrate with HAECO's existing business systems, while the partnership will also enable HAECO ITM to interface with customers and suppliers through Aeroexchange. Aeroexchange is the only electronic business network that supports all MRO business processes within the aviation industry for buyers and sellers.

LHT signs MoU with Norwegian for comprehensive CFM56-7B engine services

The Norwegian Air Shuttle Group and Lufthansa Technik have signed a Memorandum of Understanding to create an early extension to an existing Total Engine Support (TES®) contract with Lufthansa Technik. The agreement covers all-inclusive services for the CFM56-7B engines powering the airline's current fleet of 115 Boeing 737-800 aircraft. According to the MoU, Lufthansa Technik will cover all planned and unplanned shop visits for the next five years at its highly dedicated CFM56 engine shop in Hamburg, Germany. The extended agreement will also cover a far-reaching engine lease management. Lufthansa Technik will secure the leasing of spare engines for Norwegian to ensure availability during peak overhaul periods. The contract will also include the regular employment of Lufthansa Technik's proprietary Cyclean® Engine Wash and on-site services such as the use of the portable device aerotracer. Lufthansa Technik has been maintaining Norwegian's CFM56-7B engines since the fleet introduction of the Boeing 737-800 in 2008. In addition to the current engine agreement, Lufthansa Technik also supports the 737-800 fleet of the Norwegian Group with a range of other services, including extensive airframe maintenance.



PPG aerospace sealants cured on demand
Photo: PPG

PPG family of aerospace sealants cured with ultraviolet light undergoing qualification

PPG has begun qualification and shop trials for a family of aerospace sealants that are cured on demand using ultraviolet (UV) light, allowing for substantial reductions in process time, waste and costs, while increasing efficiency. Based on PPG PERMAPOL® polymer technology and known in the industry as sealants cured on demand (SCOD), these proprietary sealants cure in seconds with the simple application of UV light, rather than hours or even days required for traditional-cure products. These new sealants are fuel resistant, offer low shrinkage, are highly flexible and exhibit excellent physical properties. PPG SCOD products are undergoing evaluation for qualification to the new SAE Aerospace Material Specification (AMS) 3102 written for UV-cured sealants. Several aircraft manufacturers have begun or will soon begin the evaluation and approval process for these products. "The new UV-cured SCOD family of aerospace sealants based on proprietary PPG Permapol technology represents the next inspired step in aerospace sealant technology – one that promises to provide value, performance and cost savings to our customers," said Bill Keller, PPG Global Segment Manager, aerospace sealants.

West Star Aviation receives Brazilian approval for East Alton, IL (ALN) facility through 2020

West Star Aviation has reported that the Agência Nacional de Aviação Civil (ANAC),

the Brazilian civil aviation authority, has approved West Star's East Alton (ALN) facility to work on Brazilian-registered aircraft through 2020. This approval is the latest addition to a growing list of authorizations which have allowed West Star to expand business worldwide. West Star will now offer full-service maintenance, installation, inspections and repairs on Brazilian-registered aircraft beginning June 2018.

CTT Systems receives Zonal Drying™ system order for eight Boeing 737-800s

CTT SYSTEMS AB (CTT), a leader of aircraft humidity control systems, has received a Zonal Drying™ order from an undisclosed airline for eight Boeing 737-800 aircraft. The eight Zonal Drying™ systems will be retrofitted over the last quarter of 2018 and first quarter 2019. Peter Landquist, VP Sales & Marketing, CTT Systems AB, comments: "We see an uptick in airline demand for our Zonal Drying™ system, supported by higher oil price and driven by long-term supporting trends in high-density seat layouts and high load-factors. Several airlines that increased seat capacity by adding more seats now experience moisture problems from condensation due to insufficient support from built-in, passive drainage solutions. More airlines recognize the importance to master condensation. These airlines are not only committed to cut fuel consumption and emissions, but are also looking for ways to improve reliability in equipment and in their operations." The Zonal Drying™ system removes trapped water in blankets, keeps the crown area dry and prevents unwanted excess weight from water accumulation. Thus, on every flight airlines can operate with lower energy needs and lower pollutant emissions. Lowered excess aircraft weight of 200 kg reduces block fuel consumption by around 0.4%, resulting in fuel savings of approx. 25,000 liters per year per aircraft, cutting carbon dioxide emissions by more than 65 tons. Additional cost savings come from lower repair costs of moisture-related damage to electrical components and equipment, repair/replacement of blankets and reduced down-time due to electrical failures.

Special Purpose Operator status awarded to UK flight test company

EASA (European Aviation Safety Agency) Special Purpose Operator (Part-SPO) status has been achieved by Nova Systems UK, an arm of the Australian Nova Group. Using its EC135 helicopter G-NSYS, the Nova team has worked hard to deliver the safety systems

and organizational structures required by the Agency. Nova now adds this important operating declaration to its existing Part 21 Flight Test capability. This award means that Nova Systems can utilize its aircraft to deliver an extensive range of commercial aerial work operations, including specialized activities in industries such as agriculture, construction, photography, surveying, observation, patrol and aerial advertisement. Stephen Campo-reale, CEO of Nova Systems UK said: "The ability to deliver a broader range of operations marks a step-change in Nova Systems UK aerial delivery capability. With our commitment to the highest levels of professional project delivery and efficiency we continue to aim to simplify airborne tests in the interests of our customers." These important additions enable Nova Systems to provide customers with end-to-end airborne flight test and evaluation services which are not wholly reliant on major aircraft modifications. These services can range from the airborne assessment of pilot assistant devices such as airborne tablets, through collision avoidance equipment, to the delivery of electro optical or electronic assessment of ground targets or warships.

Pattonair to open Bangalore facility, selected for Access India Programme

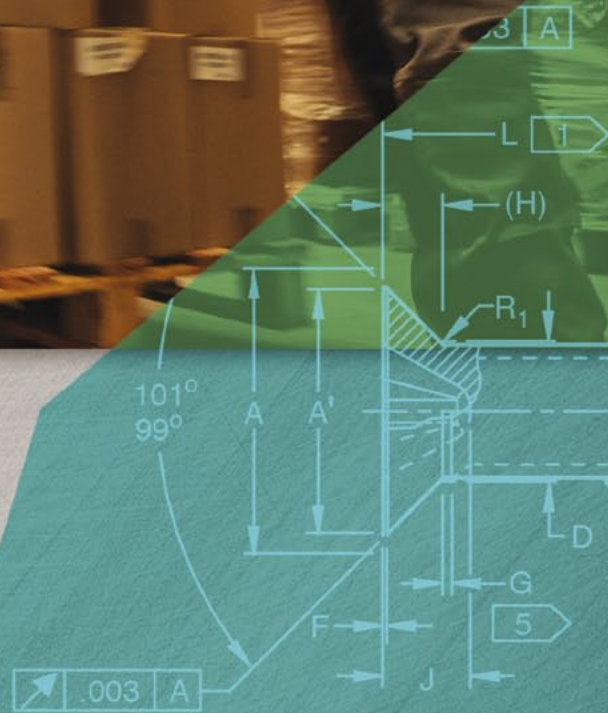
Pattonair, a leading global supply chain provider to the aerospace industry, has been selected as one of the first group of UK companies to participate in the Access India Programme (AIP). Sponsored by the Government of India, the program is the first of its kind to facilitate investments and market entry by small- and medium-scale companies in the UK into India. As the latest stage in Pattonair's global expansion, the Derby, UK-headquartered company is establishing a wholly owned subsidiary and support facility in Bangalore, scheduled to become operational by January 2019. Pattonair's strategy is to support customers where they operate, which speeds up supply and allows it to tailor services to each customer's specific needs and performance goals. Pattonair has serviced UTC in India since 2014 supplying C class parts to UTC's Actuation Systems and Sensors & Integrated Systems (SIS) sites in Bangalore for major programs such as the 787, A350 and A320neo. Bangalore is the hub of India's rapidly growing civil and military aerospace industry, which has attracted major companies including Airbus, Rolls-Royce and UTC. India boasts the world's third-largest aircraft order book of over 1,000 aircraft, after the USA and China.



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AFI KLM E&M gains FAA approval for LEAP maintenance
Photo: AFI KLM E&M

AFI KLM E&M gains FAA approval for LEAP maintenance

AFI KLM E&M has received approval from the Federal Aviation Authority, to carry out on-wing/on-site work on LEAP-type engines. The MRO Group has thus passed a new milestone in the industrialization and marketing of its maintenance services dedicated to the new-generation powerplant. Along with the European Air Safety Agency (EASA), the FAA is one of the world's most important bodies responsible for civil aviation. After gaining approval from EASA and now the FAA, AFI KLM E&M is accordingly continuing to ramp up its LEAP industrialization program. The Group is now also able to offer its services to North American airlines operating the new-generation engine. One of the first MRO services' suppliers to support LEAP operators worldwide, AFI KLM E&M is already meeting the needs of its customers in carrying out the first on-wing/on-site work on LEAP-1A and LEAP-1B engines. The scope of that work may include engine build-up services, borescope inspections, or changing Line Replaceable Units (LRUs).

Oerlikon and Lufthansa Technik to jointly accelerate additive manufacturing processes and standards

Oerlikon, a leading technology and engineering group, and Lufthansa Technik, have signed a Memorandum of Understanding (MOU) to establish robust and repeatable processes for additive manufacturing (AM) in the aircraft MRO industry. The partnership is an important step toward the industrialization of AM in the aircraft MRO industry and aims to take ad-

vantage of potential flexibility and cost savings in manufacturing, procurement, warehousing and supply chain management. Oerlikon AM and Lufthansa Technik will build up representative component geometries. The components will be printed on identical printers in three global locations: Oerlikon AM Charlotte (North Carolina, USA), Oerlikon AM Barleben (Germany) and Lufthansa Technik in Hamburg (Germany). The same process parameters and powder specifications will be used to understand process repeatability. The partnership is for a one-year period and may be extended to other models of printers as more data on manufacturing processes is collected. The collaboration between Oerlikon AM and Lufthansa Technik will help drive the industrialization of additive manufacturing as the study results will be shared with relevant industry bodies to support defining standards for the qualification and approval of aircraft components.

AerFin brings new E170 EJets and Pool programs to the market

AerFin E170, MSN 17000123, has completed its full heavy maintenance and transition check at Atitech MRO in Naples and will be positioned with BeyondPool™ support program. The EASA-compliant aircraft, part of the 15 E170LR aircraft purchased by AerFin from Saudi Arabian Airlines, completed its heavy maintenance check on time and within budget as part of AerFin's drive to place the E170 aircraft with its BeyondPool™ program, thus lowering the EJet maintenance cost to airlines. The aircraft, which is under LOI negotiation, is the first of seven to be remarked for sale or lease. It has attracted signifi-

cant interest from airlines seeking to increase their regional 70- to 80-seat capacity with the competitive advantage of the AerFin program. The program also provides guaranteed flight hour costs and rotatable pool program support, including support for the APS2300 APU and CF34-8E engines.

LHT signs component support contract with Avianca Brasil

The Brazilian airline Avianca Brasil and Lufthansa Technik have signed a comprehensive Total Component Support (TCS®) contract, covering repair and overhaul of components for the fleet of Avianca Brasil. The fleets consist of Airbus A320 family and Airbus A330 long-haul jets. Component support of the Airbus fleet will be ensured through a home base stock to be established in São Paulo, Brazil. In addition, Lufthansa Technik will support Avianca Brasil in the build-up of in-house capabilities, for example for the maintenance and repair of A320 emergency slides and other safety equipment. As part of the contract, Lufthansa Technik will also oversee the production of Airbus A320neo aircraft Avianca Brasil has on order. By performing independent checks during critical phases of the aircraft production, Lufthansa Technik's Aircraft Production Inspection Program (APIP) ensures enhanced quality.

Materials Laboratory of Liebherr-Aerospace Toulouse SAS accredited by NADCAP

Liebherr-Aerospace Toulouse SAS, center of excellence for aerospace air management systems within the Liebherr Group, has obtained accreditation from NADCAP (National Aerospace and Defense Contractors Accreditation Program) for its Materials Testing Laboratory. This accreditation follows an audit conducted in early March 2018 by the Performance Review Institute (PRI), which focused on both the overall quality system of the laboratory and the practice of static and dynamic mechanical tests. NADCAP is a program that aims to gather the requirements of aeronautics' stakeholders in unique audits, which are applicable in many special processes. The objectives are twofold: to improve the quality of the products and processes, while cutting costs. The investment of Liebherr-Aerospace Toulouse SAS in this program demonstrates the company's level of commitment to be as close as possible to the demands of the aircraft manufacturers. This certification represents an important step within an overall continuous improvement of quality.



Spirit Aero Systems opened its new logistics warehouse
Photo: Spirit AeroSystems

Spirit AeroSystems expands manufacturing operations in Subang, Malaysia

Spirit AeroSystems has officially opened its new logistics warehouse at its manufacturing operations in Subang, Malaysia. The 50,000-ft² facility will accommodate increasing volumes of assembly work on aerostructure components for commercial airliners. The expansion will free up other manufacturing space and improve the site's capacity to rapidly build complex aerostructures for high-rate production programs at competitive cost. The new warehouse is adjacent to other buildings on Spirit's campus in the Malaysia International Aerospace Centre near Kuala Lumpur. The building and its supporting infrastructure have been designed with future expansion in mind, giving the company flexibility to eventually add another 75,000 ft² of warehousing space.

Embraer and Sahara Africa Aviation sign multi-year Pool Program Agreement

Sahara Africa Aviation, Africa's leading provider of end-to-end aviation services, has signed a multi-year Pool Program Agreement with Embraer for spare parts and support, covering more than 500 components for their two recently acquired Embraer ERJ 145 jets. Based in Nelspruit at Kruger Mpumalanga International Airport in South Africa, Sahara also has the world's largest fleet of Embraer 120 Brasilia twin-turboprop planes; operating and leasing out a fleet of 14 E120 aircraft to regional airlines and

corporate clients throughout Africa. Sahara holds an Air Operating Certificate (AOC) as well as an Air Maintenance Organization (AMO) certification under the South African Civil Aviation Authority (SACAA) regulations and is regularly HART & OPG audited. This enables it to provide contract services to the oil, gas and mining sectors as well as regional airline operators.

TRUEAERO Asset Management completes first Boeing 777 C-Check

TRUEAERO Asset Management (TAAM) has completed its first Boeing 777 C-Check. The aircraft, a Rolls-Royce Trent 800-powered 777-200ER, underwent the major inspection event, which was completed over 45 days between February and March, as part of a transition to a new lessee. TAAM provided contractual oversight services on behalf of the aircraft's owner, with deployment of a four-person supervisory team on site at Pulsar Aviation Services at its San Bernardino (California) International Airport facility. The 777-200ER project was TAAM's first C-check on a wide-bodied airframe after years of experience overseeing major maintenance on narrow-bodied transports. TAAM, a business unit of TRUEAERO LLC, focuses on investments in mid-to-end-of-life aircraft, as well as undervalued aircraft and parts which benefit, over time, from market volatility, throughout North America, South America, Europe and Asia. At TAAM, management takes an active approach to investing, seeking opportunities where significant value can be unlocked through capital restructuring, operational improvements, and strategic asset manage-

ment. Founded in 2014, TRUEAERO is a leading commercial aircraft and turbine engine sales, leasing, aftermarket parts and materials management company. Headquartered in Sebastian, Florida, the company has facilities in Dallas, Singapore, and Dublin.

Technology Depository Agency and Thales sign Pre-Industrial Collaboration Program agreement

Technology Depository Agency (TDA) and Thales signed a Pre-Industrial Collaboration Program Agreement (Pre-ICP agreement) on Wednesday, July 4, at Celestica plant in Kulim Hi-Tech Park. This agreement is the result of a thorough negotiation between TDA and Thales for the sub-contracting job of Thales' In-Flight Entertainment (IFE) screens for global supply to be carried out in Malaysia and to be recognized as ICP credit. Thales, one of the worldwide market leaders in IFE systems selected Celestica Malaysia, a Malaysian company based in Kulim, Kedah to carry out the complete manufacturing, assembly and final testing of airborne displays for the latest generation of Thales' IFE. This project is expected to achieve 60% local content and to generate more than RM1 billion (US\$250m) ICP credit value worth of business opportunities by 2022, and at the same time create about 450 job opportunities per year for the next 5 years.

Airbus Helicopters and Safran roll out major competitiveness boost to H125 and H130

Airbus H125 and H130 helicopter customers will get a boost in their operations thanks to a significant reduction in direct maintenance costs for the Safran Arriel 2D engine, which equips both single-engine aircraft. The two main improvements provided by Safran are the extension of 25% for the time between overhaul (TBO) to 5,000 hours for new and in-service helicopters, and the new three year/2,000 hours warranty conditions – replacing the previous two year/1,000 hours warranty – for all H125 and H130 helicopters delivered in 2018. H125 and H130 customers will also benefit from the removal of the calendar limitation, which until now required an engine inspection at a repair centre every 15 years, regardless of the number of hours logged. The robustness of the Arriel 2D eliminates the need for a calendar limit on modules 1, 2, 4 and 5, while for module 3, the engine's condition can be restored during a periodic visit performed during regular maintenance.



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Direct Maintenance starts B787 line-maintenance service for Scoot at Berlin-Tegel

Direct Maintenance has entered into an agreement with Singapore-based airline Scoot Tigerair, to provide line maintenance support to Scoot's latest B787 operation into Berlin-Tegel (TXL). Scoot Tigerair is the low-cost division within the Singapore Airlines Group, operating a rapidly growing fleet of A320 and B787 aircraft. The new TXL route was inaugurated on June 20, 2018 and represents the first western-Europe destination for Scoot. As a result of this new customer, Direct Maintenance has applied to obtain Singapore CAA (CAAS) approval, which is expected shortly.

PPG begins preliminary windshield design for Antonov AN-132 aircraft

PPG has begun preliminary windshield design work for the Antonov AN-132 multipurpose transport plane, following the execution of a memorandum of understanding. "PPG looks forward to working with Antonov to complete the windshield design for the AN-132 aircraft using innovative technology that offers reliable performance," said Brent Wright, PPG Global Director, Aerospace Transparencies. "This is the first Antonov aircraft for which PPG will provide its transparencies' expertise. We appreciate the opportunity to demonstrate our unique ability to work with our customers to address their challenges and bring product benefits that far exceed their expectations." Once commercial terms are agreed to, PPG and Antonov will develop the final design and production schedule. Qualification of the two windshields is expected to be completed in 2019. The Antonov AN-132 multipurpose transport plane is a new generation of the AN-32 aircraft. The program is being implemented by the Antonov company in cooperation with the Saudi King Abdulaziz City for Science and Technology (KACST) and Taqnia Aeronautics Co. The first aircraft will be assembled in Ukraine, with series manufacturing transitioning to Saudi Arabia with the in-

volvement of Taqnia Aeronautics and KACST.

Robertson Fuel Systems and StandardAero attain EASA certification for retrofittable CRFT for Airbus Helicopters AS350/EC130

StandardAero has attained European Aviation Safety Agency (EASA) certification for their retrofittable crash-resistant fuel tank (CRFT) system for the Airbus Helicopters AS350 and EC130 family of light single-engine helicopters. The newly approved CRFT was developed in partnership with Robertson Fuel Systems, the leader in the design and manufacture of fuel containment systems. StandardAero achieved Federal Aviation Administration (FAA) certification in early December 2017 and has since begun delivery of CRFT kits to its customers, including launch customers, Air Methods and WeatherTech Aviation. StandardAero and Robertson jointly recognized Air Methods in a celebratory event during HAI Heli-Expo, at the time commemorating the successful installation of 11 crash-resistant fuel tank retrofits, representing the first step in updating their entire fleet of affected aircraft. Since FAA certification, StandardAero has delivered 40 CRFT kits to its customers and has been actively engaged with several fleet operators interested in enhancing their fleet with this new technology.

AJW partners with Allegiant Air

AJW Group has signed a component repair agreement between the US-based leisure carrier Allegiant Air (Allegiant) and the Group's Montreal-based MRO facility, AJW Technique. The contract, covering 150-part numbers, is a significant win for the aircraft parts maintenance and repair specialist, which signed the deal during the MRO Americas expo in Orlando, Florida. Allegiant has outlined ambitious growth plans that will see AJW supporting up to 100 aircraft by 2020 for the low-cost, Las Vegas-headquartered carrier. The agreement is a fixed price repair contract that utilizes quality focused engineering

practices to increase the on-wing life of the components and thus improve dispatch reliability. The contract, which will be carried out at AJW's 160,000 sq. ft. state-of-the-art facility near Montreal International Airport, will provide Allegiant with access to a full pool of A320 forward exchange spares material.

BLR Aerospace announces first H125 FastFin System validation in China

BLR Aerospace has announced that the Civil Aviation Administration of China has validated the Supplemental Type Certificate for the H125 FastFin® System, clearing the way for installation of FastFin on Airbus H125 helicopters in China. It is the first FastFin System to be validated in China, according to BLR President Mike Carpenter. The H125 FastFin System uses advanced airflow management to increase the effectiveness of the H125 anti-torque system for significant increases to useful load and aircraft stability, especially in hot/high conditions. Benefits include a useful load increase up to 120 pounds and a 10% improvement in pedal margins. Thirty-five H125 FastFin Systems have been sold to date and are operating in seven countries. More than 1,100 FastFin Systems are flying worldwide.

Monarch Aircraft Engineering wins line maintenance contract with Air Transat

MRO provider Monarch Aircraft Engineering (MAEL), has been awarded a new line maintenance contract with Canadian carrier, Air Transat. The new agreement covers full line maintenance support for Air Transat's fleet of A310 and A330 aircraft at Glasgow airport. Air Transat, a MAEL customer since 2007, operates six weekly departures from Glasgow from May to October as part of their extended summer flight program. Since becoming an independent MRO provider in October 2017, MAEL has announced a wide range of new agreements with airlines which, in addition to Air Transat, include Virgin Atlantic Airways, China Airlines, Wizz Air, Icelandair and La Compagnie.



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New long-haul tail dock in operation at maintenance base in Munich
Photo: LHT

LHT puts new tail dock in operation at Munich base

On June 20, 2018, Lufthansa Technik AG put a new tail dock in operation at its Munich base. The company invested over €2 million (US\$2.34 million) in the new infrastructure. The dock is used for maintenance work on the Airbus A330, A340 and A350 aircraft types. The dock facilitates maintenance work at the rear of long-haul aircraft as it makes the vertical and horizontal stabilizer and the auxiliary power unit, the APU, easier to access. It also allows different work packages to be carried out simultaneously. The dock is 28.5 meters wide, 21 meters deep and 20.7 meters high. The weight is 125 tons. "After two years of project phase and three months of construction time, the tail dock enables more-efficient and safe handling of the work packages and is an investment in the future of long-haul maintenance operations at the Munich base", says Holger Beck, Senior Director Aircraft Line Maintenance Munich. With over 800 employees, Lufthansa Technik services short- and long-haul aircraft for more than 40 customers at its second-largest maintenance base within Germany, including more than 100 aircraft of the Lufthansa Group alone.

Barfield to distribute Falgayras components in the U.S.

Barfield, the U.S. bridgehead of AFI KLM E&M's global MRO network, has announced the signing of a regional distribution agreement with Falgayras SAS, a cutting-edge mechanical, electrical and electronics engineer-

ing OEM located at the heart of the aviation cluster around Toulouse in southern France. This is an exclusive multi-year agreement involving a selection of Falgayras products, and in particular windscreen wiper systems (wiper arms, blades and motors) fitted as original equipment to many Bombardier CSeries and Mitsubishi MRJ-family aircraft, as well as Airbus Helicopter helicopters. This latest partnership strengthens Barfield's growth strategy in the area of aircraft component distribution – one of the company's three businesses along with maintenance services and the supply of Ground Support Test Equipment (GSTE). Barfield already markets a wide range of aircraft parts in the Americas under partnerships with reputed OEMs, including Stelia, Airbus EAP, and Siemens Elta.

Airbus and THAI sign agreement to proceed with joint venture MRO

Airbus and Thai Airways International (THAI) have signed an agreement to establish a new joint venture maintenance and overhaul (MRO) facility at U-Tapao International Airport near Bangkok. The accord was signed on June 22, at Airbus headquarters in Toulouse by Usanee Sangsingkeo, Acting President, THAI and Eric Schulz, Chief Commercial Officer, Airbus, in the presence of Prayut Chan-o-cha, Prime Minister of Thailand and Guillaume Faury, President Airbus Commercial Aircraft. The new MRO center will be one of the most modern and extensive in the Asia-Pacific region, offering heavy maintenance and line services for all wide-body aircraft types. The facility will feature the latest digital

technologies to analyze aircraft maintenance data, as well as advanced inspection techniques, including the use of drones to monitor aircraft airframes. The MRO complex will also have specialized repair shops, including for composite structures, as well as a maintenance training center offering extensive courses for technical personnel from Thailand and overseas.

OEMServices and Whippany Actuation Systems partner to service operators in the Middle East, Africa and Russia

OEMServices and Whippany Actuation Systems have partnered to service operators in the Middle East, Africa and Russia. Whippany Actuation Systems, specialized in electromechanical actuation components, systems and subsystems for commercial and military applications has entrusted OEMServices with a long-term component services agreement. OEMServices, a leader in component, logistic and trading services for airlines and Original Equipment Manufacturers (OEMs), will operate component aftermarket services for Whippany Actuation Systems' operators in the Middle East, Africa and Russia. More specifically, the component services provided by OEMServices include a one-stop shop through its worldwide service centers for repair needs and a 24/7 AOG desk and hotline answering operators' urgent needs within an hour. OEMServices' expertise in servicing operators will ensure that the adequate solutions are immediately provided to optimize repair turnaround times and minimize operational interruptions.

AJW awarded PBH contract by Cambodia Airways

AJW Group has secured a new power-by-the-hour (PBH) contract with Cambodia Airways. The airline is due to begin operations later this year, serving all countries within the Southeast Asian region, mainland China, Japan, Korea, Hong Kong, Macau and Taiwan from its bases in Phnom Penh, Siem Reap and Sihanoukville. The carrier also has plans to expand its intercontinental network to Europe and Australasia in the coming years. The long-term contract covers Cambodia Airways' fleet of A320 family aircraft, which is set to grow to up to 20 over the next five years and will see AJW use leading expertise to manage the complete supply, repair and overhaul of the carrier's rotatable components.

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RUAG accomplishes first overhaul of PW206 engine

For the first time, RUAG Aviation has overhauled a Pratt & Whitney Canada PW206 engine. The maintenance of the engine that is used in the Airbus H135 and H135M helicopters was carried out in the engine maintenance shop in Stans, Switzerland. The fact that the PW206 engines can now be maintained in-house at RUAG Aviation will help to increase the availability of the Swiss Air Force's helicopter fleet. The Swiss Air Force has more than 20 of these helicopters, which are still listed under their former name "EC635" and each of the helicopters is provided with two Pratt & Whitney PW206 turboshafts. In the coming years, all of the engines of the Swiss Air Force's EC635s are to be maintained by RUAG Aviation in Stans. Experts from Pratt & Whitney, the engine's manufacturer, provided

RUAG Aviation employees with an intensive three-week training to prepare them for the PW206 maintenance work. In the past, the EC635's engine had to be sent to Germany or Spain if major maintenance work had to be carried out. Now, all maintenance and servicing tasks applicable to the PW206 engine can be accomplished by RUAG Aviation in Stans.

Donaldson to develop inlet barrier filters for installation on Leonardo AW169 Helicopters

Donaldson Aerospace & Defense, a division of the Donaldson Company, has signed an agreement with Leonardo to develop two new Inlet Barrier Filters (IBF) for the AW169 helicopter. After development and testing, the dry and oiled media IBFs will be approved by the

European Aviation Safety Agency (EASA) as an addition to the Type Certificate. Once certified, the IBFs will be available as a factory option for new Leonardo helicopters, as well as retrofitted to in-service European AW169s as a customer option. The IBFs will keep contamination, including dirt, dust, salt, and foreign objects, from degrading the performance of the AW169's twin 1,000 shaft horsepower Pratt & Whitney PW210A engines. "Providing world-class engine protection to our customers is an ongoing priority for Leonardo Helicopters," said Fabio Nannoni, SVP Engineering of Leonardo Helicopters. "Donaldson is the right choice to provide a superior filtration solution for our new-generation family of helicopters." Donaldson IBFs are already EASA certified for installation on AW139 and, soon, on AW189 helicopters.

Finance News

Héroux-Devtek completes acquisition of Beaver Aerospace & Defense

Héroux-Devtek, a leading international manufacturer of aerospace products, has successfully completed the acquisition of all the shares of Beaver Aerospace & Defense and its wholly owned subsidiary PowerTHRU, from Phillips Service Industries for a purchase price of US\$23.5 million including a US\$3.5 million balance of sale payable over the next two years, and subject to final working capital adjustments. The transaction was funded through the Corporation's available cash on hand. Founded in 1952, Beaver is a vertically integrated manufacturer with a growing portfolio of company-designed products. It designs and manufactures custom ball screws from a variety of materials based on customer and application requirements, as well as designs, manufactures, assembles and tests electromechanical actuators. Beaver operates three facilities totaling 82,200 ft² in Livonia, Michigan and employs approximately 100 people. It generates annual revenues of approximately US\$30 million, of which about two-thirds are derived from the defense sector.

ST Engineering divests shares in Airbus Helicopters South-east Asia

Singapore Technologies Engineering (ST Engineering) has announced the divestment of 25% equity interest in its indirect associates, Airbus Helicopters South East Asia (AHSA) to the joint venture partner, Airbus Helicopters SAS (Airbus Helicopters) of France. The consideration for the 25% stake is €9.125 million (approximately US\$10.7 million) which will be paid wholly in cash. AHSA was set up between ST Engineering and Airbus Helicopters in 1977 to provide helicopter sales, repair, overhaul, logistics and product support services. The divestment of AHSA is a result of ST Engineering's ongoing business review to streamline capabilities and optimise resources within its aerospace sector and is not expected to have any material impact on the consolidated net tangible assets per share and earnings per share of ST Engineering for the cur-

rent financial year. With this divestment, AHSA ceases to be an indirectly held associated company/joint venture of ST Engineering.

Bombardier confirms closing of C Series transaction

The closing of the previously announced C Series transaction between Airbus SAS, a wholly owned subsidiary of Airbus SE, Bombardier and Investissement Québec came into effect on July 1, 2018. Airbus now owns a 50.01% majority stake in C Series Aircraft Limited Partnership (CSALP), while Bombardier and Investissement Québec (acting as mandatory for the government of Québec) own approximately 34% and 16% respectively (total 49.99%). CSALP's head office, primary assembly line and related functions are based in Mirabel, Québec. Furthermore, as previously announced, on July 1, Bombardier has issued in the name of Airbus SAS warrants exercisable for a total number of 100,000,000 Class B shares (subordinate voting) in the capital of Bombardier, exercisable for a period of five years at an exercise price per share equal to US\$1.74, being the U.S. dollar equivalent of CAD\$2.29 on June 29, 2018.

Amedeo, Centerbridge and Reservoir agree on strategic partnership involving Intrepid Aviation

Centerbridge Partners, L.P. and Reservoir Capital Group, L.L.C. have agreed to acquire a minority stake in Amedeo Capital Limited (Amedeo) as part of their continued investment strategy in the aviation industry. Amedeo will acquire the U.S. management subsidiary of Intrepid Aviation Holdings Group (Intrepid) and will make a minority investment in Intrepid as part of a broader strategic partnership where Amedeo will provide management and aircraft support services to Intrepid. Intrepid, to be rebranded in due course, will continue to operate in Ireland along with its professional team and has entered into a multi-year aircraft management and services agreement with Amedeo. Amedeo is one of the largest wide-body aircraft asset managers, with aviation assets under management that now exceed US\$8 billion, including two pub-

licly listed vehicles on the London Stock Exchange. Intrepid will benefit from Amedeo's long-standing relationships with OEMs and top-tier global airline customers, as well as its scalable platform to support future growth and expansion. Doug Winter will become Vice Chairman of Amedeo and Mike Lungariello will become Chief Financial Officer.

GECAS and Oz Management close STARR 2018-1

GECAS and Oz Management have announced the closing of STARR 2018-1. Operating as START Ltd., this closing marks the first aircraft portfolio purchase vehicle structure to include a dedicated Asset Manager for equity investors. In this transaction GECAS is selling a portfolio of aircraft to Start Ltd, which is financing its acquisition through issuance of 144A debt and equity. The sales are subject to typical conditions precedent including any regulatory approvals that may be necessary. GECAS will continue to service the portfolio and an affiliate of Oz will serve as the Asset Manager. The diversified portfolio is comprised of 24 in-production Boeing and Airbus aircraft on lease to 16 global airlines in 15 countries, with a total appraised value of approximately US\$700 million. An affiliate of Oz, through an exclusive, multi-year agreement with GECAS, will serve as an asset manager on this and potential future transactions, acting on behalf of the syndicated equity investors as an advisor to the board regarding portfolio matters. In this capacity, Oz will provide increased transparency on behalf of START Ltd. through enhanced investor reporting to improve liquidity for debt and equity investors.

PSP Investments and ATL Partners announce the sale of Sky Aviation Leasing International to Goshawk Aviation

The Public Sector Pension Investment Board (PSP Investments) and ATL Partners (ATL) have announced that their jointly owned portfolio company, Sky Aviation Leasing International (SKY Leasing), has entered into a definitive agreement to sell Sky Aviation Leasing International (SALI), an Irish subsidiary of SKY Leasing, to Goshawk Aviation (Goshawk), an aircraft leasing company owned by Chow Tai Fook Enterprises and NWS Holdings. Following the completion of this transaction, PSP Investments and ATL will continue to own SKY Leasing, which, through its entities based in the United States, will continue to act as servicer to aircraft owned by various securitization vehicles. In October 2015, PSP Investments and ATL, in partnership with the management team led by industry veteran Richard Wiley, formed SKY Leasing as a new aircraft leasing platform. The investment was underpinned by the accelerating need for fleet planning in the context of strong growth in the global commercial aircraft fleet and movement to next-generation aircraft. In less than three years since its formation, SALI has acquired or committed to acquire 51 commercial aircraft, building a high-growth, established, and globally active commercial aircraft leasing platform focused on new and young-mid-life aircraft. The transaction is subject to customary regulatory and closing conditions and is expected to be completed in the third quarter of 2018.



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A 777 and MRJ on static display.
Photo: Keith Mwanalushi

The Farnborough Airshow got off to a flying start with an orders jamboree from the big OEMs but also showcased some of the many cutting-edge innovations in the aerospace industry. **Keith Mwanalushi** reports.

More than 1500 exhibitors from over 100 countries passed through the gates at the 2018 edition of the Farnborough Airshow (FIA) held bi-annually in Hampshire, England. The Show kicked off with UK Prime Minister Theresa May promising more investment for the aerospace industry, just weeks after Airbus threatened to reduce its UK presence due to uncertainties over Brexit.

Boeing was quick to get the ball rolling with a string of customer order announcements on the first day of the event including a \$4.7 billion order agreement from DHL for 14 777 Freighters, five 737 MAX 8 airplanes heading to TAROM Romania and the conversion of 30 current MAX orders to the 737 MAX 10 for GOL. The Brazilian airline also placed a new order for 15 more MAX 8 planes, growing GOL's total MAX orders to 135. Jet Airways also placed an order for an additional 75 737 MAX 8 aircraft.

Boeing announced more than \$100 billion in total orders and commitments, including \$98.4 billion for commercial airplanes at list prices.

The US plane maker also announced services orders and agreements valued up to \$2.1 billion, that included Atlas Air signing an agreement for 20 landing gear exchanges for its 747-8 fleet and EVA Airways signed an agreement for several key products including component services for its 787 fleet, and quick engine change solutions.

Airbus generated 431 commitments comprising of 60 A220-300s, 304 A320 Family aircraft, 42 A330neos and 25 A350 XWBs. Notably,

the 42 commitments for the new A330neo includes both the -800 and -900 models.

The leasing community also came out in full force. Airbus said Macquarie AirFinance Group Limited listed in Australia, has placed a firm order for 20 A320neo aircraft to add to its existing portfolio of 119 Airbus aircraft (110 A320 Family and nine A330). Airbus also announced the signature of a Memorandum of Understanding with a leading global lessor for 80 A320neo Family aircraft. The agreement was completed during the Farnborough Airshow.

The regional aircraft sector also saw a boost in orders with both Embraer and ATR making significant headway. ATR showcased a new -42-600 in the colours of new customer Silver Airways. Embraer and United Airlines announced that they signed a firm order for 25 E175 jets in a 70-seat configuration. The contract has a value of \$1.1 billion, based on current list prices, and will be included in Em-



Lenka Kralova, Sales Manager for Landing Gear Overhaul at Czech Airlines Technics



Programme updates at Embraer.
Photo: Keith Mwanlushi

braer's 2018 third-quarter backlog. Deliveries will begin in the second quarter of 2019. In total, Embraer generated an outstanding 300 orders during the show worth some \$15.3 billion including 200 E175s heading to Republic Airways.

Embraer also had a new E190 E2 on display as well as giving a media demo flight that mesmerised members of the press with stunning views of the English coast.

As always, the MRO and related supply chain also had a strong presence. Czech Airlines Technics used the event to present its main products, such as base maintenance for Airbus A320 Family, Boeing 737CG/NG and ATR42/72 aircraft, landing gear overhaul for Boeing 737's. "We will also offer our line maintenance services at Václav Havel Airport Prague, components repair and other services," declares Lenka Kralova, Sales Manager for Landing Gear Overhaul at Czech Airlines Technics. (CSAT).



Garry Snow, Vice President Global Business Development, KLX Aerospace Solutions.

FIA is an opportunity for KLX Aerospace Solutions to connect with important customer and supplier partners, as well as introduce a new approach to supply chain partnership. "For us, it's also an opportunity to reintroduce KLX to those who know us primarily as an aerospace hardware distributor and are not as aware of our extensive product line specialisations," says Garry Snow, Vice President Global Business Development, KLX Aerospace Solutions. These include chemicals, raw ma-

terials, lighting, tools and others as well as full service solutions to support airlines, MROs, and OEMs.

Nasmyth Group, comprising 13 precision engineering businesses with complementary capabilities also exhibited at FIA. Scott Hudson Director of Technologies at Nasmyth Group says the occasion is an outstanding opportunity to hold meetings with a wide range of customers and potential customers at the same time as exhibiting capabilities.

"Complete with interactive models on our stand to highlight the full range of those capabilities, we were demonstrating why Nasmyth Group is a leading supplier to aerospace OEMs across Europe, North America and Asia - manufacturing everything from airframe assemblies to engine modules, fuel system and instrumentation components for commercial airliners, business jets, military aircraft, helicopters and more," states Hudson.

In addition to exhibiting at the Farnborough Airshow, Nasmyth Group also was sponsor of the Futures Day on Friday 20th July. As part of its sponsorship, 20 apprentices from the Nasmyth Academy were present on the day to discuss STEM-based training and engineering career opportunities with students and teachers attending the event.

The Nasmyth Academy is a highly-successful training scheme through which apprentices join individual companies within the Group to gain precision engineering



Scott Neal, SVP Worldwide Sales, Gulfstream Aerospace Corp



Anca Mihalache – Head of Trading & Leasing at Vallair

qualifications and valuable hands-on experience. A brand-new Nasmyth Academy training centre opened in July this year at Nasmyth Bulwell, Nottinghamshire, providing bespoke educational facilities on-site.

Anca Mihalache, Head of Trading and Leasing at Vallair notes that as demand for aircraft leasing continues to grow, Vallair is heavily focused on the development of its portfolio of leased assets as part of the company's wider growth strategy.

Vallair was showcasing its Airbus 321 P2F programme. Earlier this year, Vallair was announced as the launch customer of the A321-200 P2F with EFW/STA cargo programme in addition to an earlier launch announcement with A321 Precision in October 2017.

STS Aviation Group was highlighting various products and capabilities across its business units. STS Component Solutions was showcasing all the OEM product lines within the current portfolio. "The team will also be providing insight on the Zodiac Galley Smart Stock programmes, in addition to the various other VMI and kitting programmes and services that we can offer," says Tom Covella, Group President of STS Component Solutions.

STS was also showcasing the newest OEM partnerships including Aerocontrolex Ozone Ground Carts, Aeroshade and Parker Shaw Quick Disconnect Couplings. STS Air-Pro highlighted the current and new hose manufacture/ distribution capabilities in addition to the standard and customisable hose replacement kits. "Lastly we will be showcasing STS U Jet, the newest addition to STS Aviation Group, and their aircraft seat and interior service capabilities," Covella adds.

Lazard has a long history in the aerospace and defence sector and has advised on many of the highest profile transactions in the industry over the past decade. The recent sale of ASCO to Spirit represents Lazard's 26th commercial aerostructures and component manufacturing related transaction since 2010 and 52nd Aerospace and Defence related transaction (totalling over approximately \$90 billion in deal value) since 2013.

We are looking at an exceptional year for Mergers and Acquisitions (M&A) in aerospace – certainly the strongest year that Michael Richter, Managing Director, Head of Aerospace and Defence investment banking at Lazard, has experienced in his ten years at the firm.

How long will the super cycle last? Richter suggests the question is almost moot. Production rates will always be a driver of M&A, but evolving aerospace OEM strategies are influencing corporate decision makers.

To date industry-wide acquisition and development announced transactions have totalled US\$31 billion and are on pace to equal the total US\$70 billion of deal-making achieved in the sector in 2017. In commercial aerospace, all sectors are seeing interest from strategic and financial buyers, but two themes – lifecycle value capture and increasing

scale to generate operating efficiencies are among the more important trends in commercial M & A, as businesses grapple with changes in aircraft OEM strategies.

And with a proliferation of global companies participating, Farnborough Air Show provides a mecca for deal-making, Richter believes.

Pattonair, the global supply chain provider to the aerospace industry, has seen a very positive start to 2018 and it returned to FIA this year with a much larger exhibition space than 2016, featuring some new tech products designed to help its customers be more efficient and cost effective.

The Derby, UK, headquartered business, which supports OEMs and tier two and three suppliers, presented a variety of innovative and smart new services enabled by the latest technology.

Pattonair's expansion has focused recently on opening new entities and facilities across the globe, in line with customers' specific requirements. It has expanded its presence in Poland, Japan, India and in several new locations in the United States. "This geographic expansion reflects Pattonair's ambition to fulfil the role as supplier of choice to its target market across the globe," says Pattonair CEO Wayne Hollinshead. Pattonair is looking to add more geographic territories in the coming 12 months, as well as planning new developments with its customers," he notes.

"This is a very exciting time in the supply chain for aerospace. Our level of enquiries, pipeline of new business and our successful renewal rate is stronger than ever," Wayne added. He was in Farnborough with his leadership team including Dave Fawcett, Chief Commercial Officer, Group Business Development Director, Glenn Puddifoot, Commercial Director and Jim Smith, MRO Services Director.

Clearly, innovation was a key focus at FIA. A big focus Pattonair was sharing at the show is its drive toward the paperless supply chain. Here it has collaborated with Deloitte UK which is bringing its expertise in block chain technology to the business. Together, both organisations shared and demonstrated their latest joint thinking.

Every product and solution in the Pattonair portfolio was loaded on the new Patton App, shared on ipads on their stand - a solution Pattonair has been working closely on with one of its leading customers, Rolls-Royce.

Mihalache says Vallair is part of aviation innovation by being the launch customer of the A321 P2F conversion. "We are also developing an analytics team to develop cutting edge data visualisations of our market reports and our sales and procurement frequency, reach and yield."

Innovation is the key to strategic growth and maintaining a competitive edge in the marketplace, agrees Covella. "We are constantly looking at adding new technologies into our OEM product portfolio," he says adding that these technological advancements



Tom Covella, Group President of STS Component Solutions



It was a busy ram at FIA.
Photo: Keith Mwanlushi

could provide the company not only with new products and capabilities, but also with ways to further enhance existing business processes and systems.

"Our goal for every major conference and airshow is to explore these new technologies and search for new products and services that will further enhance our current service offerings and provide greater value to our customers," Covella states.

Substantial and ongoing investment in facilities and equipment, as well as quality control systems and people, ensures that Nasmyth remains at the forefront of manufacturing technology, reckons Hudson. "We are able to offer complete end-to-end solutions working with our extensive global supply chain to offer quality services to each of our customers. Unrivalled capabilities, available from our complementary precision engineering and metal treatment companies, enable us to provide solutions for a range of often highly complex projects," he says.

GKN Aerospace also announced the creation of a new aero engine component repair (MRO) and research facility in the state of Johor in Southern Malaysia. The facility will open in 2019 and will service engine fan blades and fan discs for commercial aircraft. The facility will provide additional capacity to GKN Aerospace's existing facility in San Diego, California to meet growing demand in the Asia Pacific region.

The move further strengthens GKN Aerospace's operational footprint in Asia, bringing it closer to customers in the region. The expansion is an important part of GKN Aerospace's long-term growth strategy and global operating model.

FIA 18 certainly saw several issues and developments discussed. Snow says KLX was keenly focused on frameworks for how the supply chain aligns its activities and strategy with the customers' needs, specifically

around data analytics, progressive IT systems, planning and collaboration strategies and innovative 4PL supply chain and inventory management models. KLX also debuted some of its own new initiatives in this regard at FIA.

Vallair is focused on mature assets so Mihalache and her team will watch future developments in terms of new technologies and fuel economy with keen interest. "We shape our business to capitalise on airlines' short and longer-term leasing requirements, so we are balancing all of these factors and ensuring operators of all sizes and geographies have the aircraft they need to run a successful and profitable business," she says.

There are various industry developments that were interesting to see at this year's show and looking ahead. Covella highlights that obviously, M&A activity and how these integrations impact the market will be very interesting to explore.

"Airbus and Bombardier aligning themselves in the market, and now Boeing and Embraer, represent some interesting new partnerships and synergies to be integrated."

UTC and SAFRAN have also impacted the M&A sector with their continued growth. Covella adds: "Additionally, we are looking at the ADSB deadlines, how they will impact the market, and is the market really ready to accomplish this? Lastly, we are still seeing a large spend on interior modifications and connectivity within the market and ways the airlines are continually looking to expand the customer experience. These are all trends and developments that STS has closely followed and aligned our business units to further support."



The G500 will join the Qatar Executive fleet.
Photo: Qatar Executive

Business. As usual.

Scott Neal, Senior Vice President, Worldwide Sales, Gulfstream Aerospace Corp tells AviTrader MRO about the company's presence at the Farnborough Airshow.

The FAI 2018 was a good opportunity to experience what Gulfstream offers – technology, innovation, cabin comfort and flexibility, all through the lens of the company's diverse customer base.

Our static display will include the super-midsize G280, all-new G500 and our flagship, the G650ER. The Gulfstream Special Missions booth will showcase several programmes and capabilities, including modifications for the U.S. Navy's Telemetry Range Support Aircraft (TRSA), innovations for next-generation aeromedical evacuation platforms and the latest in special missions' aircraft design, engineering and technology.

Qatar Executive, the private jet charter division of Qatar Airways Group, unveiled its brand-new executive jet, the Gulfstream G500, on the opening day of the show.

The G500 jet will be one of the fastest and most technologically advanced aircraft in the Qatar Executive fleet when it enters service later this year. The G500 cabin will also set new industry benchmarks as one of the quietest in the industry, as well as having the best cabin altitude pressure, allowing for unparalleled passenger comfort.

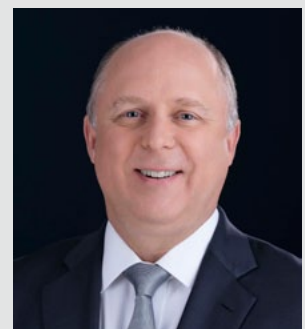
The all-new G500 aircraft will officially join Qatar Executive's fleet by the end of this year, and will mark the beginning of an agreement that was initiated in October 2014, between Qatar Airways and Gulfstream Aerospace Corp.

Clearly, innovation will be a key focus at FIA. How are new technologies affecting your working practices and new product/service development?

Thanks in large part to the support of our parent company, General Dynamics, Gulfstream has a large Research and Development division devoted to innovation. Our newest aircraft, the G500 and G600, are ushering in the latest technologies in business-jet travel, with the first active-control sidesticks in the industry and the most extensive use of touchscreens in the flight deck. In the cabins of the G500 and G600, we implemented the technologies developed for the G650 and G650ER that help Gulfstream deliver the most comfortable cabins in the industry. These aircraft cabins feature 100% fresh air replenished every two minutes, the lowest cabin altitude and the quietest cabins in the industry. All of these technological developments were pioneered with customer feedback and will be on display at Farnborough.

What kind of industry developments/issues are you hoping will be addressed or highlighted at this year's event?

The benefit of business aviation is a key issue at every industry event. We believe that the use of Gulfstream aircraft by businesses, individuals, governments and militaries results in great improvements in safety, productivity and flexibility. The Farnborough International Airshow allows us to showcase these benefits both in civil use and through our special missions' platforms. Gulfstream aircraft are ideal for special missions' configurations thanks to their high-performance standards, abilities to fly farther faster and reach higher altitudes, and their reliability and maintainability.



Scott Neal, SVP Worldwide Sales, Gulfstream Aerospace Corp

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Other News



Baines Simmons COMAC training.
Photo: Baines Simmons

Baines Simmons, part of the Consulting & Training Division of global aviation services group **Air Partner**, has delivered Part 21 training in Shanghai to the **Commercial Aircraft Corporation of China (COMAC)**, as it evaluates the European Aviation Safety Agency (EASA) regulatory framework. Baines Simmons was contracted to provide a Part 21 course (Airworthiness and Environmental Certification), which involved two days of Design Organisations Approval (DOA) training and one day of Compliance

Verification Engineer (CVE) training. This was then concluded by a day-long Q&A session with 25 senior executives, exploring the intent, benefits and challenges of being a Design Organisation Approval Holder (DOAH). Duane Kritzing, Principal Consultant at Baines Simmons, said: "It was a privilege to be invited to facilitate this very interactive and challenging workshop on the intent of the EASA regulations and the logic of the regulatory framework. It is a really exciting time for COMAC and I look forward to following its progress as it moves closer to entering the C919 into commercial service."

StandardAero, in partnership with California-based **MRO ACI Jet**, has certified another **Honeywell** JetWave™ Ka-band satellite communication system, completing a Supplemental Type Certificate (STC) for installations on Bombardier Global Express, Global 5000 and Global 6000 aircraft. Honeywell's JetWave system is a popular offering in the world of in-flight connectivity, utilizing Ka-band technology to replicate the speed and performance that consumers are accustomed to in their homes. StandardAero's STC provides for installation of the Honeywell JetWave hardware, under a Honeywell Ka radome, along with a Honeywell CNX-900 router. StandardAero partnered with ACI Jet in San Luis Obispo, CA, to complete the installation.

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Excess Baggage –

Why your MRO supply chain has too much inventory

Inventory management is a key issue for aircraft operators.
Photo: Lufthansa Technik

By Samuel Engel and Hal Chrisman, ICF Aviation

Most airlines today are stocking nearly two million dollars of spare parts per aircraft. A number of airlines carry over \$4 million of inventory per aircraft. In almost every case, that is too much.

ICF estimates that there is over \$50 billion of spare parts inventory in the MRO supply chain. A situation that is costing the industry well over \$10 billion annually, with consequences extending far beyond just the substantial value of tied-up capital. As Lean practitioners have demonstrated for decades, excess inventory is a form of waste that hides inefficiencies and generates its own management costs – including regulatory paperwork, securing additional storage space, inconsistent component yield and accounting write-downs. Additionally, obsolete inventory substantially exacerbates these issues and swells upkeep costs.

Even under power-by-the-hour contracts and exchange programmes, in which an airline doesn't think it is paying for the stock, unnecessary inventory drives hidden costs to the airline and, ultimately, higher PBH rates. Inventory is an important driver of PBH rates and the PBH supplier is more likely to be focused on avoiding the onerous penalties associated with not meeting contract guarantees than they are to be focused on minimising the inventory holdings (and thus the PBH rate).

There are a number of reasons traditional parts stock models result in oversupply. All of them can be overcome with today's optimisation tools. The most important issues — and therefore opportunities — lie in connecting inventory models with the practicalities of how aircraft maintenance is actually planned and performed. ICF has experienced a few of the most sophisticated inventory optimisation tools that improve fill rates of parts when and where needed in the high 90th percentile, multiples above traditional models.

Most traditional inventory models were developed to support manufacturing processes in which there is a predictable relationship between production and supply: one car always needs four wheels, four brake rotors and one steering wheel. Stocking for aircraft maintenance, on the other hand, has many more unknowns, such as: what will fail, when will it go, where will the aircraft be, what other parts will be necessary to resolve it? All of these questions add uncertainty to the stock equation, which in turn causes overbuying behaviors that swell inventory levels.

Historically, many airlines and MROs have addressed this problem by stocking using historical consumption data, taking shipping, turn times, and the MEL into consideration, and using the manufacturer's Recommended Spare Parts List. What these methods overlook is just how much we know about the future that can narrow some of the uncertainty. An airline knows, for example, where the aircraft will fly, where different maintenance capabilities are located, the failure rates and cost of each component, the statistical distribution of those failures, what maintenance events are going to be due and what defects are likely to accompany these checks – itself a function of the aircraft's age and usage. A stock model based on an accurate view of the future is always going to be sharper than one based on the past.

It's just as important for an airline to have inventory in the right place as it is to have enough overall. The same forward view that informs demand for parts can also illuminate where the parts need to be. For an airline with multiple maintenance bases, the question is not only where aircraft will rest overnight, but also which base has the necessary skills and tooling to perform repairs. The specific aircraft types being flown on each route in an airline's network also affect what parts will be needed and more importantly, where they will be needed. Getting this part of the



There is over \$50 billion of spare parts inventory in the MRO supply chain.
Photo: AFI KLM E&M

puzzle right helps avoid the all-too-common experience of parts arriving at a base for a repair just after the aircraft with the defect has departed.

What's more, a shortage in one location can have wildly different impact on the airline than a shortage in another. At a hub airport, you might have spare aircraft available, alternatives to rebook passengers and ground staff available above and below the wing. At a remote outstation, on the other hand, an AOG could mean stranding passengers overnight and an expensive air freight bill for the parts.

Another simplification of many traditional stock models is that they treat each part as if it had independent demand. For example, the models will set a 90% fill rate for a flap actuator. However, in practice, maintenance planners and techs know that the actuator is no use without the proper fasteners and associated hardware. There's no sense having multiple flap actuators on-hand if you can't complete a repair. Inventory plan-

ning therefore needs to take account of Bills of Materials and related pieces.

Finally, inventory planning frequently has historically been more of a technical function than a financial one. And technical staff or line station managers were generally measured on dispatch reliability, not inventory costs. They always consider more inventory to be a good thing. Typically, an airline will aim for a certain dispatch reliability rate, back into the necessary fill rate and then engage Finance in some sort of negotiation. Investment cost becomes an output – one where the incentives and objectives of one party to the negotiation are diametrically opposed to those of another.

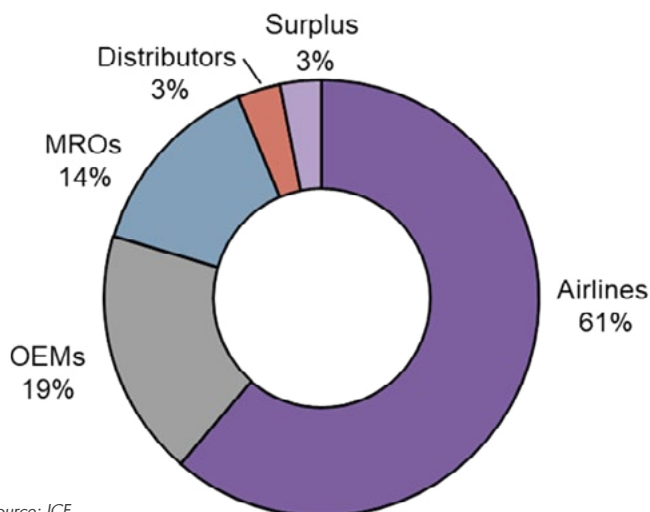
In ICF's experience, there is power in reversing the equation: for a given level of investment, what is the optimal inventory mix to deliver the highest level of service? That is, which parts deliver the greatest fill rate improvement for their cost? And which parts deliver the greatest reduction in AOG expenditure (time and money) for their cost?

Even with the most advanced inventory model, execution remains a challenge. Making the model work requires all of the pieces to work together like clockwork. Success requires the proper organisational structure, aligned incentives, and logical, integrated business processes – all in addition to a robust analytical model.

Inventory management may not appear as valuable as other core operations, but like so many aspects of aviation, the rewards for doing it well are high. For instance, reducing inventory holdings by \$100 million will reduce the inventory holding costs to the operator by more than \$20 million annually. But, in addition to the obvious holding cost savings, getting the right inventory in the right locations will reduce AOGs, minimise aircraft and engine repair turn-around-times, limit the number of MELs, and by doing all of this, customer satisfaction is improved dramatically. The positive impact of optimising inventory holdings will reach into the "far corners" of an airline's operations – and the cost savings from optimisation can be significant.

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By Segment



Source: ICF

surplus remarketing



SOLUTION

You ensure that safe aircraft depart on time. You have the right part, at the right time, at the right location.
Over time parts become surplus for various reasons.

We turn dust gathering inventory fast into liquidity.
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Has airline profitability peaked?



Demand for mid-sized wide-body freighter conversions like the 767-300 is strong.
Photo: LATAM

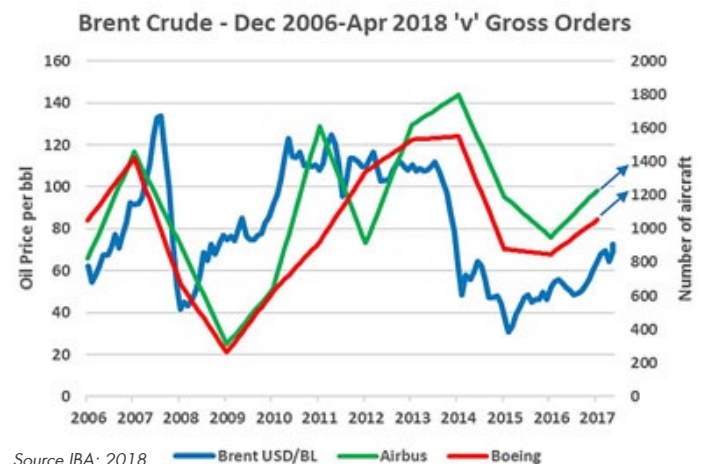
With the Farnborough Air Show upon us, aviation consultancy **IBA**, analyses current trends and issues its predictions for the remainder of 2018 as part of its general market update.

Macroeconomic outlook, OEM activity, aircraft orders, fuel and lease rates are some of the key themes that IBA addresses in this month's report. The main topics that stand out are predicted Farnborough Air Show orders as well as mid-market aircraft trends, and operator profitability.

Has airline profitability peaked? According to IBA, there are mixed signals at play - positive metrics including traffic growth, vibrant new markets, and a buoyant SLB market seem to indicate that strong net profitability will continue. However, with the gathering clouds of creeping fuel prices, rising interest rates, wage inflation and increasingly price sensitive passengers, a different picture begins to emerge. Mid-2018 fuel prices are \$15 higher per barrel than IATA predicted, a 40% increase year on year.

Base airfares and yields have generally stabilised since the sustained decline seen in recent years. Stronger economic conditions, leading to higher passenger demand have been offset by increased competition thereby causing base fares to be held back. IBA suggests that airline costs are expected to rise which would result in an upward trend in yields.

With the use of its airline scoring system, IBA has identified several airlines that are operating with negative margins and may find the times ahead particularly difficult. IBA predicts that if costs continue to rise, more airlines may begin to feel the squeeze later in the year.



IBA's mid-market analysis indicates that there is a gap in the market in terms of pricing range and payload, however it is not clear if the gap is as large as some have estimated. Further analysis



Rising costs will favour the fuel-efficient new generation of narrow bodies.
Photo: Boeing

is required and IBA will continue to conduct research around the market potential for a New Midsized Aircraft (NMA).

With regards to the narrow-body market, IBA expects values to remain strong for new types as demand continues to strengthen. Rising costs will favour the fuel-efficient new generation of neo and MAX aircraft, and with deliveries of new generation narrow-bodies expected to rise, an increase in retirements is also expected along with a surge in conversion demand.

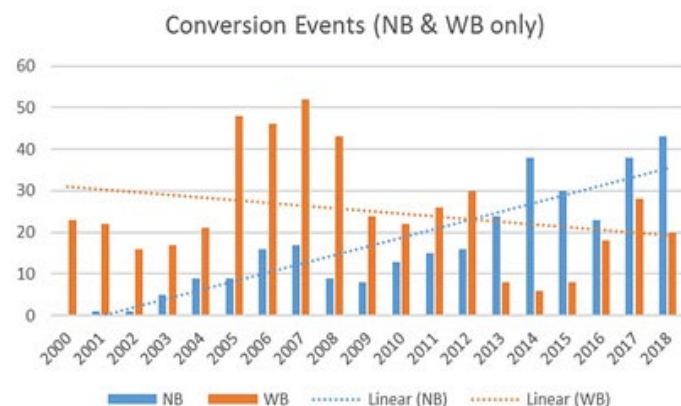
As for wide-bodies, demand for mid-sized wide-body freighter

conversions is strong, particularly for the Boeing 767-300ERs, which we continue to see going through the P2F process in significant numbers. Adding some future competition to this market, the first A330-300 aircraft have now been converted to freighters for DHL and the first converted A330-200 is in testing and will subsequently enter service with Egyptair.

The Boeing 787-8 backlog continues to dwindle despite the recent orders from American Airlines. Transactions and deliveries are down and some operators have shown a desire to leave the smaller variant behind. The A380 programme benefitted from a further order from Emirates earlier this year; some transitions are apparent but teardowns have also been announced. Elsewhere, the Boeing 787-9 and Airbus A350-900 aircraft are performing well whilst mature wide-body values and lease rates are decreasing.

IBA.iQ, IBA's data platform, forecasts over 60 Airbus A330ceo lease ends each year over the next three years while A330-200 lease ends are expected to peak in 2020, potentially pushing pricing to levels attractive for P2F conversion. IBA.iQ also forecasts a peak in Boeing 777-300ER deliveries in 2019.

Farnborough will likely see strong orders for new technology during the show. IBA will continue to monitor orders as part of its Farnborough Air Show coverage.



Source IBA: 2018

Source: IBA



Fabrice Dumas

The French Group, Sabena technics, has appointed **Fabrice Dumas** as the new Managing Director of its Nîmes site (France). He will be part of the Group's Executive Committee. Fabrice Dumas, a graduate from ISEP, began his career in 1989 as an engineer and brings along over 15 years of management experience. He has held a number of high-ranking positions in the aviation industry such as President and General Director of EADS SECA during the merger with Vector Aerospace, and CEO of Indusmeca. Before joining Sabena technics, Fabrice Dumas served as CEO of Novae Aerospace Industry where he contributed to developing the company for over two years.



Scott Sweeney

West Star Aviation has appointed **Scott Sweeney** as the General Manager of its East Alton, (ALN) facility. He will be responsible for overseeing all operations at ALN including maintenance, interior, avionics, paint, installations, parts and components, and AOG/MRT. Sweeney is taking over for **Eric Kujawa**, who has been promoted to Vice President of Falcon Product Development at West Star Aviation. Most recently Sweeney held the title of Vice President of

Operations at Constant Aviation before accepting the role of General Manager at West Star's East Alton (ALN) facility.



Jaap Beijer

On July 1, 2018, **Jaap Beijer** was appointed General Manager of MTU Maintenance Zhuhai. The company is a 50/50 joint venture between MTU Aero Engines, Germany's leading aero engine manufacturer and China Southern Air Holding Company, China's largest airline group. Beijer joins the MTU subsidiary from his role as Senior Vice President Aftermarket IAE AG, following **Frank Bodenhage**, who will be taking on a new role within

the MTU Maintenance organization as a senior vice president in Hannover, supporting the expansion of MTU's global footprint.

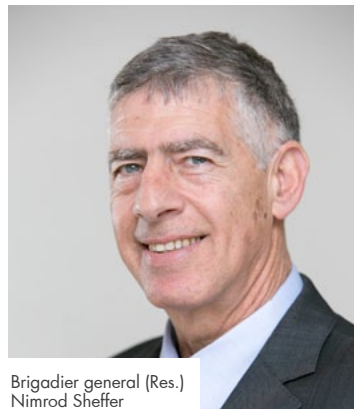
As member of the Executive Committee and reporting directly to Safran Nacelles CEO **Cédric Goubet**, **Pierre Cottenceau** joins Safran Nacelles to take the responsibility of the Engineering division. In 2011 Cottenceau joined Safran Aircraft Engines as chief engineer for the LEAP-1B engine. In September 2016, he was appointed head of the design office in charge of controls and externals, and then in July 2017 he became director of the Propulsion System design office, which includes the External Systems division and the Propulsion System Integration division.



Frederic Denise

GA Telesis has appointed **Frederic Denise** as its SVP, Strategy and Corporate Development. Denise will collaborate with GA Telesis's CEO, division presidents and staff executives on further developing the GA Telesis Ecosystem. In addition, Denise is responsible for the growth of global business strategy, partner and customer relationships, mergers and acquisitions, after-market solutions for OEMs, and participating in customer engagement opportunities.

Previously, as Vice President and General Manager, Zodiac Cabin OEM, Denise directed oversight and management of key locations which produce interiors for Airbus, Boeing and Bombardier.

Brigadier general (Res.)
Nimrod Sheffer

The board of Israel Aerospace Industries (IAI), chaired by **Harel Locker**, has approved the recommendation of IAI's search committee and has named **Brigadier General (Res.) Nimrod Sheffer**, IAI's VP of Strategy and R&D, as IAI's new CEO. Sheffer will replace **Joseph Weiss**, who is stepping down after reaching the statutory retirement age. The nomination is now pending the approval of the State Companies Authority and the Defense and Finance

ministers.

Jean-Marc Domergue has been named CFM International's Vice President of Contracts, replacing **Sharyn Cones**. Cones, who had held the role since March 2015, has chosen to focus more time on raising her young family and will remain on the CFM Contracts team on a part-time basis. In his new role, Domergue is responsible for the negotiation and administration of CFM International contracts with aircraft manufacturers, as well as administering contracts with airline customers for both new engines and for MRO support through CFM Services.