

MRO

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opens new facility

MRO News
from around the world

People on the Move
latest appointments



AVI TRADER MRO

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Opinion

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Asset lease finances

The cover story in this edition of the publication touches on an increasingly important discussion on the digitisation of records management for aircraft transactions especially pertaining to the MRO side of things.

Bust also, an area we focused less on but equally crucial is how lessors and airlines can get the most precise and accurate control over asset leases and finances, and we received some interesting views from our panel of contributors. For instance, TRAX recognises the difficulties for lessors and lessees in providing accurate redeliveries of assets. As a result they developed a new aircraft lease return portal product. It is a web-based digital aircraft technical records solution which allows an operator to manage a single aircraft or entire fleet using the compliance and maintenance data retrieved from the TRAX system of record.

Given the high value of aircraft and complexity associated with the asset's leases and finances, high quality asset management is instrumental in preserving the value of aircraft through the lease term another opinion mentioned an expert at ACC Aerotask. Many lessors and airlines have invested in software systems or have developed their own in-house capability which enables them to capture and analyse numerous commercial and technical management elements.

Continuous technical management analysis, such as monitoring aircraft utilisation, assessing maintenance workscopes and regular inspections of the asset are vital components of asset management for aircraft owners.

Keith Mwanalushi
Editor

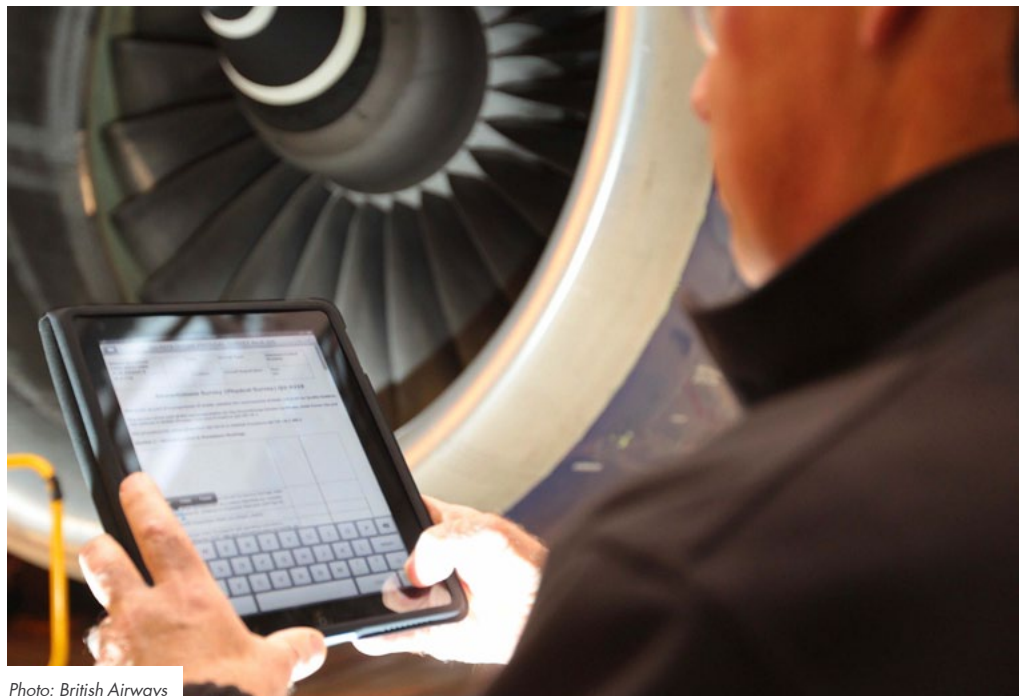


Photo: British Airways

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Magnetic MRO to refurbish and maintain Finnair's 12 ATR 72s
Photo: Magnetic MRO

Magnetic MRO produces record number of interior details for Finnair's ATR fleet

Magnetic MRO, a provider of total technical care for aircraft operators and lessors, and Finnair have signed a contract for complete paint work, full interior refurbishment and maintenance of all 12 of the airline's ATR 72's operated for Finnair by its partner company Norra. All 12 of the aircraft will receive full interior refurbishment, which includes the painting of overhead bins, attendant seats, galleys, bin doors, stairs and linings, to achieve a fresh look for the aircraft interior; complete refurbishment of the lavatories and installing new seats and carpets. For Magnetic MRO's interior team, this project involves producing the largest number of new in-house made details for an aircraft that the company has ever manufactured for a single interior project. This includes new kickstrips, stickers, latches and hinges for overhead bins, and other design elements.

Pratt & Whitney to open new PT6A and PW200 engine overhaul center in Brazil

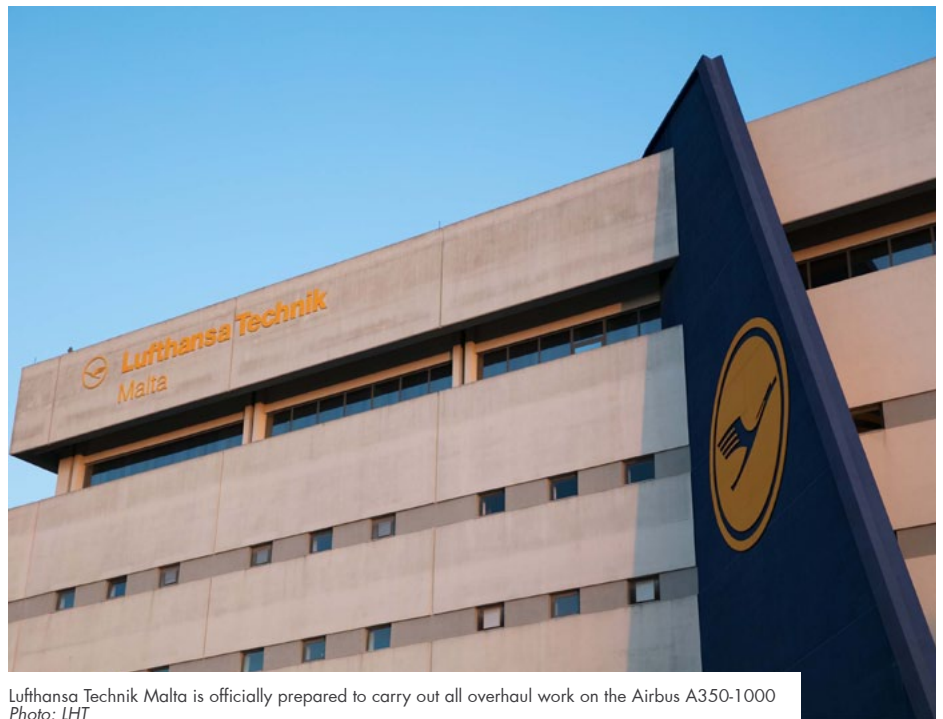
Pratt & Whitney has released that it is collaborating with Indústria de Aviação e Serviços (IAS) to open a new overhaul facility in Belo Horizonte, Brazil, for PT6A and PW200 engines. Pratt & Whitney has operated in Brazil for more than 75 years and remains the country's leading supplier of General Aviation engines. The company also powers a large number of the nation's aircraft for gov-

ernment, commercial and business use. This experience gives Pratt & Whitney's local team the unique insight and ability to personalize services and solutions to meet customers' needs. This new facility builds on an existing service network in the country including Sorocaba, a hot section inspection and parts distribution center. More recently, three sites joined the Pratt & Whitney designated maintenance facilities network in Brazil for the line maintenance and mobile repair of PT6A and helicopter engines. ABA Manutenção de Aer-

onaves in Barreiras serves the needs of agricultural operators, Rico Táxi Aéreo in Manaus serves PT6A general aviation operators and Helipark Manutenção in São Paulo services several Pratt & Whitney helicopter engines. The company expects the Belo Horizonte facility to be operational by the end of 2019.

Lufthansa Technik Malta receives approval for Airbus A350-1000 overhauls

Lufthansa Technik Malta is now officially prepared to carry out all overhaul work on the Airbus A350-1000. The company has received the requisite license from the German Federal Aviation Office (LBA). The recent certification amends the approval to perform overhaul work on the baseline A350-900, which had already been received in 2018. With immediate effect, Lufthansa Technik Malta is hence also permitted to work on the stretched version of the twin-engine wide-body. The necessary overhaul lines and docks were already adapted to the new subtype at the time of the earlier approval. Already in 2018, more than 50 employees of Lufthansa Technik Malta attained the necessary qualifications and practical knowledge to work on the A350-900. These skills are now also being used to perform overhauls on the larger type. A total of more than US\$3 million has been invested in the preparation for overhauls of both types, with the first three customers expected until the end of this year.



Lufthansa Technik Malta is officially prepared to carry out all overhaul work on the Airbus A350-1000
Photo: LHT



Photo: AirTeamImages Pegasus Airlines

Pegasus Airlines signs exclusive engine maintenance deal with SR Technics

MRO service provider SR Technics has entered into an exclusive CFM56-5B engine maintenance deal with Pegasus Airlines, the second-largest carrier in Turkey. With services scheduled to begin in September of this year, the agreement covers 22 engine shop visits and an SR Technics lease engine dedicated to Pegasus Airlines over a six-year contract term. All work will be performed at the SR Technics engine shop in Zurich. As a growing low-cost carrier in a competitive market, Pegasus Airlines was looking for an MRO provider that could supply engine core performance and overhaul services as well as support unscheduled engine removals. During the negotiations leading up to the agreement, SR Technics performed two shop visits. The efficiency and rapid turnaround of the work SR Technics performed, combined with the strong relations between key people at both companies, contributed to the decision to make SR Technics the carrier's exclusive CFM56-5B maintenance provider.

in Mongolia. Earlier this year, the airline signed an agreement to lease four E190s from CDB Aviation to expand its fleet size and route network. They started flying the first E190 from June 2019, with the other three scheduled to be delivered in 2020 and 2021.

Bii signs agreement with Chromalloy to repair/overhaul and inspect all CFM56-3 engine material

Specialist aircraft component support provider Bii.aero (Bii) has chosen Chromalloy to repair, overhaul and inspect all CFM56-3 engine material. Bii recently teamed with Dublin-based aircraft and engine leasing firm Rostrum Leasing to market a suite of engine piece parts resulting from the phased tear-down program of selected B737-300 Classics and CFM56 spare engines formerly operated by Southwest Airlines. The overhauls, repairs and inspections will primarily take place within Chromalloy facilities in the U.S. (Nevada

and Texas), Holland and Thailand. Chromalloy has a worldwide presence, spanning a customer base across commercial, cargo and military sectors. Bii aims to increase its intake of CFM56 material and Chromalloy's depth of experience across all engine types will be very beneficial to component support provider as it builds exposure to a wider customer base.

Airfoil repair specialist ASSB expands facility in Malaysia

Airfoil Services Sdn Bhd (ASSB), a 50/50 joint venture between MTU Aero Engines and Lufthansa Technik, has broken ground on its facility extension. This expansion grows facility space by 5,200 m² and will increase current repair capacity from 650,000 to 900,000 parts per year by 2020. This development underlines the shareholders' commitment to increasing its footprint and investing in Malaysia. ASSB has seen great success since the company was founded in 1991. It boasts over 80 customers worldwide and provides a comprehensive range of airfoil repair services for high-pressure compressor (HPC) and low-pressure turbine (LPT) airfoils – for wide-body and narrow-body engines such as the CF6-80C, GP7000 and the CFM56 and V2500 engine families. In the past two years alone, ASSB has seen 50% growth compared to 2016. The company is highly focused on research and development and has recently initiated several repair development projects for new-generation airfoils to increase its product portfolio in the near future. MTU and Lufthansa Technik entered into the joint venture with the aim of providing their customers with the best possible airfoil services in the industry. Alongside repair development and baseload volume, the partners contribute knowledge, training and improved quality standards to the location.

Hunnu Air signs Pool Program Agreement with Embraer

Embraer has signed a long-term Pool Program Agreement with Mongolian Hunnu Air to support a wide range of repairable components for the airline's recently leased fleet of E190. Hunnu Air is the first E190 operator in Mongolia and took delivery of its first E190 this year in May. The Pool Program Agreement includes full repair coverage for components and parts as well as the access to a large stock of components at Embraer's distribution center, which will support the start of the airline's E190 operation. Hunnu Air is one of the major airlines



Ground-breaking ceremony for ASSB's new expansion in Malaysia
Photo: ASSB



New trainees at Lufthansa Technik
Photo: LHT

Lufthansa Technik intensifies training efforts – 246 young trainees join the company

The Lufthansa Technik Group is substantially increasing its commitment to training young people in Germany: 246 new traditional and dual-study trainees have joined the company – an increase of 55% over the previous year. In view of the Group's positive economic development as well as the fact that many employees will soon reach retirement age, Lufthansa Technik has already decided to add a further 50 training slots in 2020. All told, Lufthansa Technik is now home to 616 young people on their way to professions in technical aircraft services, industrial engineering or aircraft logistics. Given the increasingly narrow market, the company has already started the application process for 2020 in an effort to reach young people who are personally and professionally suitable for the training slots on offer. In 2019, 135 young people will start their training in Hamburg, 78 in Frankfurt, 14 in Arnstadt, 14 in Alzey and five in Munich. Applicants were able to choose between 16 different professions and dual-study programs. Of the 246 new training and university slots, 186 are directly with Lufthansa Technik. Lufthansa Technik AERO Alzey, the Lufthansa Technik Group company that focuses on overhauling smaller jet and propeller engines and is still growing strongly, has taken on 13 new aircraft mechanic trainees with a specialty in engine technology and one dual-study trainee with a specialty in mechanical engineering. The company is thus once again expanding its capacity, bringing the total to 39 slots. Lufthansa Technik

Logistik Services (LTLS) has 28 new trainees for the future-oriented profession of warehouse logistics specialist as well as two people training to become specialists for forwarding and logistics services. With a total of 83 training slots, Lufthansa Technik Logistik Services has the largest training program in the Lufthansa Technik Group aside from its parent company. N3 Engine Overhaul Services, a 50:50 joint venture with Rolls-Royce in Arnstadt, Thuringia/Germany, is offering 12 aircraft mechanic trainees with a specialty in engine technology

and two warehouse logistics specialists an exciting start to their careers. With a total of 46 trainees, N3 also plays an important role as a training company. LEOS (Lufthansa Engineering and Operational Services) is giving two future mechatronics engineers the chance to join the leading provider of aircraft-related ground handling services. The percentage of women among this year's new trainees stands at just over 12%, which is more than two percentage points above the previous year, but still too low. Lufthansa Technik will therefore persist in its efforts to attract women in particular to technical careers with a promising future.

S7 Technics to increase Gazprom Avia's wheel repair work by 35%

Demand for aircraft wheel repair services by S7 Technics is accelerating. In July, the maintenance, repair and overhaul (MRO) specialist and Gazprom Avia, Russia's largest corporate airline, jointly signed a new wheel MRO contract to support the Boeing 737-700 and the Superjet 100 aircraft types. Repairs to Gazprom Avia's aircraft wheels will be performed by S7 Technics' specialists at its base at Moscow's Domodedovo airport and the provider's transport logistics group is to deliver components to the repair base and also back to the airline. For S7 Technics, Gazprom Avia has become one of its key customers for MRO services and aircraft components supply. Under the previous contract, the provider's specialists repaired 81 wheels, and according to the terms of the current contract, the amount of work will increase by 35%.



Wheels repair at S7 Technics' base at Moscow Domodedovo airport
Photo: S7 Technics



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Photo: EngineStands24 opens new hub in China

EngineStands24 opens hub in China

EngineStands24, a subsidiary of Magnetic MRO, a global provider of total technical care for aircraft operators and lessors, has opened a new hub in Guangzhou, China. The hub will be launched in cooperation with Magnetic MRO's shareholder, Chinese company Hangxin Aviation Services and will begin operating by offering its customers a selection of the most popular engine stand types, like the CFM56-5A/B, CFM56-7B and V2500. The variety will be increased to the most popular and requested wide-body engine stands in China and its neighboring countries. "China is a huge market with great potential," shares Daiva Žemaitė, the Head of EngineStands24. "In addition to that, we have a great sales force in China and all the local support we need by our mother company Hangxin." Žemaitė added that opening the new hub will support EngineStands24's main strategic goals, which are to grow geographically and increase the selection of engine stands. "Our new hub in China will enlarge our geographical presence which will be a really great advantage to our customers, especially those who have world-wide operations." The plan is to offer a wider service than just the lease of engine stands – engine stand pool management and efficient cost control are two of the company's other main targets. The Guangzhou hub will be EngineStands24's fourth hub after Dubai, Amsterdam and Tallinn.

Liebherr-Aerospace delivers 5,000th heat exchanger unit

Only 30 months after Liebherr-Aerospace entered the heat exchanger maintenance mar-

ket in 2016 with the opening of a dedicated Center of Excellence in Saline, Michigan (USA), the company was able to celebrate the delivery of its 5,000th heat exchanger unit, a milestone that attests the success of this repair activity. With the decision to establish capabilities on this Liebherr product line of heat transfer components and to create a global center of excellence for aftermarket support, Liebherr-Aerospace excels on the cleaning, repair and re-core of heat exchangers. Repairs activity, which had previously been performed by various third parties, is migrating back into the Liebherr aftermarket network and is being received from a diverse customer base throughout the European, Asian, Middle East and Americas regions. With initial capabilities on the Airbus A320 family, Bombardier

CRJ family and the A380, the heat exchanger staff are working diligently to add capabilities for other Liebherr equipment installed on the Airbus A330 family, Airbus A220, Boeing 747-8, and Falcon 7X business jet. By utilizing OEM parts and procedures, non-contact metrology, custom-built cleaning and non-destructive testing setups, wire-EDM (Electrical Discharge Machining) cutting, adapted fixturing, and exploring more time savings techniques such as CMT (Cold Metal Transfer) robotic welding, Liebherr-Aerospace is continuing to be more efficient while maintaining superior OEM quality.

MTU Maintenance signs CF6-80C2 and GE90-110B contracts with Atlas Air Worldwide subsidiaries

MTU Maintenance and long-term partner Atlas Air, a subsidiary of Atlas Air Worldwide Holdings, have signed a seven-year extension of their CF6-80C2 contract. The contract builds on over 15 years collaboration between the two companies and includes maintenance, repair and overhaul coverage of over 200 engines powering Atlas Air's B747 and B767 fleets, as well as engine trend monitoring. It incorporates numerous elements of MTU Maintenance's SAVEPlus offering, one of the MTUPlus intelligent solutions and a product dedicated to reducing cost through smart strategies for mature engines. Additionally, MTU Maintenance is the exclusive service partner for Atlas Air Worldwide subsidiary Southern Air's entire fleet of B777 cargo airplanes powered by GE90-110B engines. The agreement runs for 12 years and includes full support, including lease engines.



Atlas Air and MTU Maintenance sign extension of CF6-80C2 contract
Photo: MTU Maintenance



HAECO PJS expands service offering for UAE operators
Photo: HAECO

HAECO Private Jet Solutions expands service offerings for UAE operators

HAECO Xiamen has obtained an extension to its Approved Maintenance Organisation (AMO) certificate from the United Arab Emirates (UAE) General Civil Aviation Authority (GCAA), covering both airframe and line maintenance. This enables HAECO Private Jet Solutions (HAECO PJS), the Group's private jet cabin completion specialist, to provide airframe maintenance as part of its comprehensive, one-stop cabin completion solutions for UAE-registered aircraft at its facility in Xiamen. HAECO PJS has already worked with a number of Saudi Arabian operators, and provides dedicated customer support in the Middle East from Dubai. The award of GCAA approval adds to the division's value proposition as a service provider supporting customers from the Middle East region. As the first and only Airbus-approved and Boeing-licensed cabin completion center in Asia Pacific, HAECO PJS is committed to providing customers with a tailored solution encompassing early-stage conceptual and industrial design, design engineering, certification, strategic procurement, workshop support, installation, maintenance, and after-sales support.

Three Alcoa-operated locations receive certifications from Aluminium Stewardship Initiative

Alcoa Corporation, a global leader in bauxite, alumina and aluminum, has released that the Aluminium Stewardship Initiative (ASI) has certified three Alcoa-operated locations, one in each of the Company's three business units. The ASI certifications are valid for three years and include the Juruti bauxite mine in Brazil, the Alumar alumina refinery near São Luís, Brazil, and the aluminum smelter in San

Ciprián, Spain. ASI is a global sustainability certification program for the aluminum industry, representing both upstream producers and downstream manufacturers who use the metal in their products. The certification process includes independent, third-party reviewers to verify responsible production, sourcing and stewardship as part of ASI's standards.

Vortex Aviation receives ISO 9001:2015 and AS9110-2016 certificate

Vortex Aviation has announced receipt of its ISO 9001:2015 and AS9110C certificate at its Fort Lauderdale, Florida location. The assessment was performed in accordance with the Aerospace Quality Management System (AQMS) Standard AS9104/1:2012A as part of Vortex's initiative to provide superior quality and customer service. This certification demonstrates a systemic approach to continuous internal review of its business processes with

periodic third party validation. Vortex has established a strategy to obtain ISO certification at all of its locations around the world.

C&L Aviation Group provides ADS-B solution for Berry Aviation Fleet of EMB-120 aircraft

C&L Aviation Services (C&L), a C&L Aviation Group company, has been awarded the contract to provide the ADS-B solution for Berry Aviation's fleet of EMB-120 aircraft. The program will see C&L provide the Garmin solution to comply with the FAA Automatic Dependent Surveillance-Broadcast-Out (ADS/B-Out) mandate requiring compliance before January 1, 2020. C&L's Production Planning Manager Chad Jones, along with a team from ARM International, completed the successful prototype installation in April 2019, with the other nine aircraft being scheduled for completion by the end of July. Kits are currently being assembled at C&L's facility on Bangor, ME in preparation for the installations.

GA Telesis MRO Services Group signs long-term landing gear MRO agreement with China Express Airlines

GA Telesis, a leader in integrated aviation services, has reported the execution of a new long-term agreement with China Express to overhaul landing gear, valued at US\$27 million. The agreement has a five-year term and covers the repair and overhaul of the entire fleet of CRJ900 landing gears. The agreement encompasses coverage of 35 aircraft over five years and includes a leasing component that was created and provided by the Inventory Leasing Group from within the GA Telesis Ecosystem™.



China Express and GA Telesis MRO Services Group sign new contract
Photo: AirTeamImages

Robinson opens dedicated overhaul/repair facility

Robinson Helicopter Company has expanded its FAA/EASA-approved Repair Station by opening a stand-alone 37,000 ft² facility dedicated to repairs and overhauls. Completed in approximately 18 months, the facility was designed to streamline the repair, inspection and overhaul process. As the size of the Robinson fleet (12,000+) grows, the demand for quick repair of parts and component overhauls increases each year. To maximize efficiency, Robinson has organized the new space around the flow of parts. "The goal is to ensure parts are easily accounted for throughout each process and each process is done quickly and efficiently," stated John Hernandez, Robinson's Repair Station Manager. Dedicated areas for disassembly and storage of blades, engines and components, along with a large media blasting room, a clean room for hydraulic disassembly and ultrasonic cleaning, are all situated in close proximity. In addition to the steady flow of repair and overhauled parts, Robinson performs helicopter repairs and overhauls in-house. The new



New facility has ample space to handle repairs, inspections, and overhauls
Photo: Robinson Helicopter

facility is set-up to efficiently tear down, clean and inspect components, engines and complete aircraft. Once aircraft are disassembled,

cleaned and inspected they are brought to the main facility for reassembly, painting, flight testing, and delivery.



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Croatia Airlines' Airbus A319
Photo: Croatia Airlines/A. Grubelic

Croatia Airlines renews contracts with Lufthansa Technik

Croatia Airlines has extended two long-standing contracts with Lufthansa Technik. The extended agreements cover the Airbus A320-family fleet of the state-owned airline of Croatia, which currently operates six aircraft of this type. An existing Total Component Support (TCS®) contract was extended by seven years. At the same time, the contract covering auxiliary power unit (APU) services was extended by five years. Croatia Airlines will also become a user of Lufthansa Technik's digital platform AVIATAR. Lufthansa Technik has been a maintenance partner to Croatia Airlines since 1992 when the MRO provider started to support the Boeing 737 fleet of Croatia Airlines with an integrated Total Technical Support (TTS®) contract. In 1997, when Croatia Airlines' included its first Airbus A320 in its fleet, Lufthansa Technik was also chosen as a provider of TTS®. In addition, Croatia Airlines' Bombardier Q400 turboprops have been under Total Component Support (TCS®) since 2008.

StandardAero and Robertson Fuel Systems deliver two AS350 Crash-resistant Fuel Tanks to Oklahoma City Police Department

StandardAero and Robertson Fuel Systems have delivered two of their AS350/EC130 crash-resistant fuel tanks (CRFT) to Hangar One Avionics, which will soon be installed on the Oklahoma City Police Department's (OKCPD) AS350 B3e (H125) helicopters. The OKCPD received budget approval in May 2018 to purchase crashworthy fuel systems

for their two AS350 helicopters and conducted a thorough review of the available retrofit options to determine the best solution to meet their requirements. The StandardAero/Robertson AS350/EC130 CRFT is fully compliant to the latest FAA FAR Part 27.952 fuel system crash resistance requirements, including with underbelly equipment installed. In March 2017, the StandardAero/Robertson team successfully conducted a 50-foot drop test of the CRFT in an airframe structure, including cargo swing attachment, solidifying its ability to withstand significant impact without leakage.

Héroux-Devtek and Longueuil facility employees ratify new three-year collective agreement

Landing gear manufacturer Héroux-Devtek has released that the unionized employees at its Longueuil, Québec, facility have voted in favor of the early renewal of a three-year collective agreement, which now extends through April 30, 2023. The renewal concerns approximately 210 employees who are members of Unifor, Local Section 1956.

S7 Technics finds new method to produce plastic components

S7 Technics, Russia's maintenance, repair and overhaul (MRO) services provider has begun to manufacture plastic products using vacuum thermoforming. The new method will allow the company to considerably expand the range of items it is able to produce for aircraft interiors. S7 Technics' specialists at Novosibirsk's Tolmachevo airport have been producing plastic components since 2015

using pressure casting techniques. Now, production of serial parts using the new vacuum thermoforming method has been established. The technology of vacuum thermoforming involves heating of a plastic sheet, which is stretched over a mold in a vacuum. After this, the molded part is allowed to cool down, then pushed out of the mold using excessive air pressure. The design of new plastic products' manufacturing came from the Design Bureau of S7 Technics' Novosibirsk base. All materials used in the process passed the necessary fire tests carried out the company's own laboratory, the activity of which is certified by the national accreditation body in the ILAC-MRA system (International Laboratory Accreditation Cooperation).

West Star Aviation approved for winglet installation on Citation Sovereign

West Star Aviation will offer Winglet Technology's winglet installation for the Citation Sovereign model. Current certified installation of the Transitional winglet for the Sovereign model can be completed at the Grand Junction facility, one of four West Star full-service Textron Aviation Approved Service Center locations, where West Star has already installed two sets to date. "We are dedicated to building on specialized capabilities for the Citation airframe and this addition enhances the wide array of services available for the convenience and satisfaction of our Sovereign customers," stated Dave Krogman, General Manager, Grand Junction.



Completed winglet installation on Citation Sovereign
Photo: West Star Aviation

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- A310-200/300
- A320 Family
- A320neo
- A330
- A340-200/300



Hop!
Photo: AirTeamImages

HOP! extends relationship with Spairliners for component support

Spairliners GmbH and HOP!, a subsidiary airline of the AIR FRANCE Group, have extended their business relationship by signing a long-term contract for the comprehensive component support of HOP!'s E-Jet fleet. HOP! currently operates a fleet of 15 Embraer E170s and 11 Embraer E190s. During the next two years HOP! will add an additional six brand-new E190s to its fleet and will then operate 32 E-Jet aircraft. This contract includes a dedicated on-site stock for HOP!'s exclusive use in Paris - Charles de Gaulle, improved logistic processes and a customized and automated IT-interface. Spairliners will provide its Component Services from its pool location in Paris.

Columbia Manufacturing on track for record year in MRO business

Columbia Manufacturing, a privately held manufacturer and supplier of precision metal components for domestic and international turbine engines, has announced that its Maintenance, Repair and Overhaul (MRO) business is on track to achieve record revenues for fiscal 2019. Year-over-year growth is expected to be at least 30%. Columbia Manufacturing's FAA- and EASA-certified repair operation offers a comprehensive range of in-house turbine engine and repair solutions to its customers both domestically and internationally. Based on deliveries during the first half of 2019, its current backlog and expected new business, the company expects that 2019 will be the highest-grossing revenue year for the MRO business since it was founded in 1980.

IAG Engine Center USA receives FAA PW4000 engine series certification

The Federal Aviation Administration has approved IAG Engine Center USA's Pratt & Whitney 4000 engine series certification. Strategically located near the Miami International Airport, IAG Engine Center USA will be providing engine MRO repair services ranging from hospital repairs to full overhauls for the PW4000 series of engines. The recent IAG Engine Center Europe CFM56-5B certification paired with the IAG Engine Center USA PW4000 certification demonstrates each company's continued growth in the breadth of IAG Aero Group's commercial aircraft engine services. IAG Engine Center USA is an IAG Aero Group company and a world-class engine service provider with industry-leading MRO capabilities to provide customized solutions across an array of aircraft engines. The company's flexible suite services PW4000-, CFM56-, CF6-, and JT9D-model engines supported by its Miami, Florida location and its sister company, IAG Engine Center Europe, in Rome, Italy.

Willis Lease signs ConstantAccess™ agreement with major European Airline

Willis Lease Finance has entered into an agreement to provide ConstantAccess™ Platinum to a major European operator for a fleet consisting of 40 engines. The agreement will provide guaranteed availability of spare engines for both planned, and unplanned removals. "We are finding a greater number of airlines, both legacy operators as well as low-cost carriers, are opting to contract with us to provide them with spare engine coverage on a 'just-in-time basis' rather than maintaining a portfolio of underutilized assets" – commented Austin C. Willis, SVP of Corporate Development of Willis Lease. Willis Lease Finance leases large and regional spare commercial aircraft engines, auxiliary power units and aircraft to airlines, aircraft engine manufacturers and maintenance, repair and overhaul providers in 120 countries

Boeing becomes sole provider of aftermarket parts for new Tecnam P2012 Traveller

Boeing has signed a multiyear agreement with Tecnam to be the sole provider of aftermarket spare parts and distribution services for the P2012 Traveller, Tecnam's first commuter airline aircraft. Boeing will assume distribution responsibilities, including forecasting, ordering and delivering all original equipment manufacturer (OEM) genuine replacement parts for the P2012 Traveller through its Aviall distribution network. The P2012 has completed European Aviation Safety Agency (EASA) certification and Federal Aviation Association (FAA) certification and is ready to be delivered to Tecnam's launch customer, Boston-based regional airline Cape Air. Tecnam currently utilizes Boeing's navigation and charting data through an existing agreement with Jeppesen.



Tecnam P2012 in Cape Air livery
Photo: Tecnam



Photo: Heston MRO

Heston MRO launches Component Services

Heston MRO, an independent MRO organization in Australasia, has launched Component and Material services. As part of its updated strategy to evolve into a Total Technical Care partner for airlines and leasing companies, Heston MRO has established a dedicated Components Unit, backed by first investments in stock and future capabilities. The newly established Components Unit will firstly focus on trading, repair, exchanges, and leasing of components for local customers in Australasian and the South West Pacific region. The service is supported with initial investments into own stock of B737 New Generation components and materials, with planned rapid expansion into A320 and other aircraft platforms. With extensive experience and a global partner network at Heston MRO owners' level, the company has the flexibility to promptly scale up the services based on customer needs. Having started with trading, exchanges and leasing of components, Heston MRO plans to invest into in-house capabilities for the most frequently removed items within twelve months. This will complement component trading business and will form the base for packaged solutions of flat-rate exchanges, fixed-price repairs, and Power-by-the-Hour (PBH) services for regional customers. With 20 years of operating history and airside presence in Sydney, Melbourne, Brisbane, Perth, Adelaide and other airports in Australasia, Heston MRO is the largest independent MRO organization in the region. Besides Line Maintenance and recently launched Components Services, this year the company is adding certification for En-

gine On-Wing technical capabilities. The resulting Total Technical Care services will be offered to airlines, leasing companies and OEMs in the Australasian and South West Pacific region.

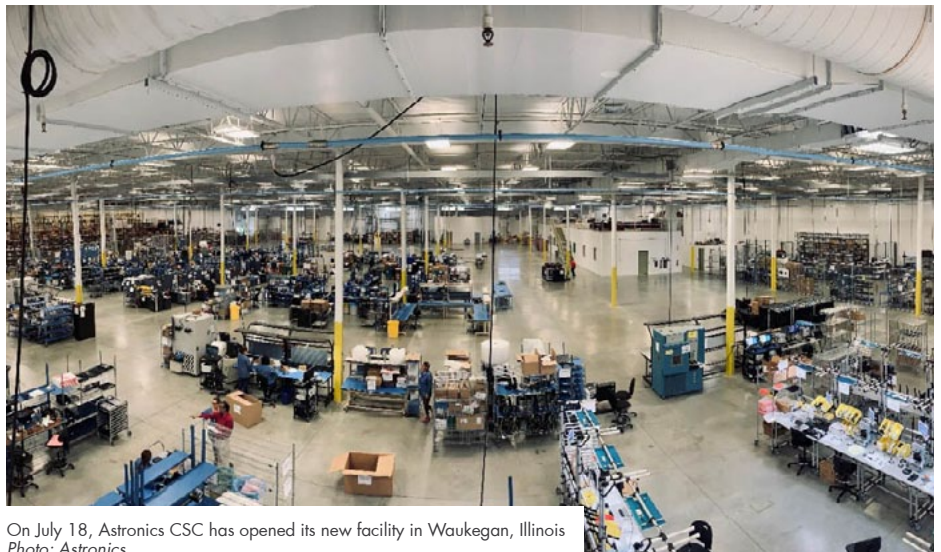
StandardAero and Sierra Nevada Corporation extend relationship

StandardAero has extended its long-running relationship with aerospace and defense company Sierra Nevada Corporation (SNC) with the signing of a five-year agreement covering maintenance, repair and overhaul (MRO) support for the Pratt & Whitney PT6A and PW100 turboprop engines. StandardAero will support SNC from its Designated Overhaul Facility (DOF) in Summerside,

PE, Canada, and its other global locations. SNC is a world leader in command, control, computers, communications and intelligence, surveillance and reconnaissance (C4ISR) solutions, with experience on over 200 different types of manned and unmanned platforms including the Beechcraft King Air and Cessna Caravan. SNC has also partnered with Embraer to offer the A-29 Super Tucano for U.S. Department of Defense and international requirements. In addition, SNC provides aircraft design, modification and support services for a range of platforms, including the Dornier 328, supported via its subsidiary 328 Support Services GmbH.

Astronics CSC opens new manufacturing facility in Waukegan, Illinois

Astronics Corporation, a provider of advanced technologies for global aerospace, defense, and other mission critical industries, has reported that its wholly owned subsidiary, Astronics Connectivity Systems and Certifications (CSC), has moved its operations to a new office and manufacturing facility in Waukegan, Illinois. The new facility enables the expansion of manufacturing capacity and certification services. The facility officially opened on July 18, 2019. Waukegan is located approximately 20 miles north of Astronics CSC's Lake Zurich Design Center. Both locations are linked by close proximity to I-94, a major interstate highway. Astronics CSC serves as one of the global market leaders for inflight entertainment and connectivity (IFEC) solutions for aircraft, specializing in connectivity hardware, integration engineering, and certification services.



On July 18, Astronics CSC has opened its new facility in Waukegan, Illinois
Photo: Astronics



Photo: FL Technics is implementing VR modules for training

FL Technics implementing next-generation mechanics training using VR

FL Technics, a global provider of integrated aircraft maintenance, repair and overhaul services, which is part of Avia Solutions Group, has begun implementing VR modules for the basic training of aviation mechanics. The company has presented its first VR module, which covers the opening of the reverse thrust engine of a Boeing 737NG, and is set to expand its list of modules in the coming months to cover the full scope of maintenance training. Zilvinas Lapinskas, CEO at FL Technics, explains what inspired this innovative approach to training: "Our main goal is to reduce the time it takes new mechanics to enroll in the company. Globally the industry struggles with the three-month-long enrollment process needed for aviation mechanics. So that's why we are pushing to shorten that process as much as we can, and we aim to try to get it down to three weeks. Once we've reached that target, we'll be looking into the possibilities of taking our training product to market." The VR module itself has been designed to be as intuitive as possible, with the trainee mechanic proceeding through the series of tasks necessary for the opening of the engine. This starts with the mechanic selecting the right tools, then opening the covers, opening the reverse, inserting the safety lock and so on. The trainee can also select whether or not they require any simulation guidance. All efforts have been made to make the simulator as accurate and realistic as possible, even down to the fact that it will record any financial loss that may have been incurred as a result of the trainee's performance. Ramunas Paskevicius, Head of IT and Innovations at FL Technics, who is heading up the companies VR initiative, is convinced of the value that such training will provide: "We are currently testing the modules in-house and this will give us a better idea of how they fit into the busi-

ness. As the general demand for professional mechanics in the aviation industry is constantly growing, we are hoping to make the [training] process shorter and prepare mechanics as fast as possible with no loss in quality. I am sure that our VR modules will help us to achieve all our goals."

ST Engineering's Aerospace arm passes new milestone in aircraft interiors and seats business with STC

ST Engineering's Aerospace sector has reached a new milestone in its aircraft interior business by successfully attaining a Supplemental Type Certificate (STC) from the European Aviation Safety Agency (EASA) for

a cabin interior modification and refurbishment program that involves the installation of its in-house-designed economy class seat, SPACELite I. The program was carried out on an A320 aircraft for a Cambodian airline, and is the first time that ST Engineering has retrofitted a cabin using seats of its proprietary design. At just under 11kg, SPACELite I is among the lightest in its class. Apart from helping airlines to save on fuel and operating cost, SPACELite I also incorporates features – such as an innovative articulating seat pan that allows for large shin clearance and lumbar cushion using suspension fabric for back support – to provide maximum space and comfort for passengers. The design won the G Mark stamp of approval by Japan's prestigious Good Design Award in 2018 and is certified to EASA Technical Standard Order including the latest Head Injury criterion.

MTU Maintenance signs V2500 contract with JetBlue Airways

MTU Maintenance and long-term partner JetBlue Airways have signed an exclusive 13-year contract for the airline's V2500 pre-select fleet. The contract covers maintenance, repair and overhaul for the engines from 2020 to 2033. This contract takes MTU Maintenance's total contract wins to US\$4.5 billion for the first seven months of 2019. JetBlue Airways, New York's Hometown Airline™, is a low-cost carrier that operates 1,000 flights daily and serves more than 100 destinations across the U.S., Latin America and the Caribbean with plans to start flying to Europe in 2021.



V2600 engine in MTU MRO shop
Photo: MTU



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AVIAA adds UK regional FBO group Global Trek Aviation to supplier network

AVIAA, an independent global group purchasing organization specializing in business aviation, has added privately owned Global Trek Aviation to its network. Global Trek Aviation, headquartered in Prestwick, Scotland, opened jet handling facilities on the south side of Cardiff Airport two months ago, investing in a brand-new facility featuring a dedicated passenger lounge, private offices, crew briefing centre and flight operations facilities, plus an integrated security suite. The new FBO mirrors its award-winning handling facility at Belfast International Airport, which has been operational for five years.



Global Trek Aviation at Belfast International Airport
Photo: AVIAA

Finance News



Photo: LCI helicopter

LCI closes US\$135 million asset-backed Helicopter facility

Lease Corporation International (LCI), a leading helicopter lessor and the aviation division of the Libra Group, has successfully closed a new asset-backed helicopter facility in excess of US\$135 million with a syndicate of five banks led by CIT Group Inc. as agent. The new facility, which has been agreed with CIT, National Westminster Bank Plc, National Australia Bank Limited, Barclays Bank PLC and The Huntington National Bank, will be used to support the continuing development and expansion of LCI's fleet. LCI has also agreed to similar financing facilities this year with CaixaBank and Close Brothers Aviation and Marine. This brings the total amount of helicopter debt financing that LCI has raised since January 2018 to more than US\$280 million.

ST Engineering posts higher revenue and profits in second quarter 2019

Singapore Technologies Engineering (ST Engineering) has reported that it registered higher revenue and profits for its second quarter ended 30 June, 2019 (2Q2019) compared to the same period a year ago. Quarterly revenue grew 8% y-o-y to SG\$1.78 billion from SG\$1.65 billion, and profit before tax (PBT) rose 13% to SG\$169.7 million from SG\$150.4 million. Profit attributable to shareholders (Net Profit) was up 18% to SG\$138.2 million from SG\$117.5 million. Newly acquired MRAS was consolidated from April 18, as part of its aerospace sector's Engineering & Material Services business group. At the business sectors, revenue for the aerospace sector was up 17% y-o-y to SG\$836 million from SG\$713 million, with MRAS as the main contributor, partly offset by the absence of engine sales and Jet Airways revenue. Despite contribution from MRAS, its Net Profit was 4% lower y-o-y at SG\$64.2 million from SG\$66.6 million, mainly due to the absence of prior year's profits arising from the divestment of an associated company and opportunistic engine sales. Revenue for the Electronics sector was SG\$495 million, down 3% from SG\$512 million a year ago and Net Profit was 5% lower y-o-y at SG\$44.3 million from SG\$46.7 million, largely due to timing in revenue recognition for projects and higher selling and distribution expenses as a result of increased sales activities to support international expansion. (US\$1.00 = SG\$1.39 at time of publication.)

Embraer reports 2nd quarter results

Embraer has delivered 26 commercial and 25 executive (19 light and 6 large) jets during 2Q19, compared to 28 commercial jets and 20 executive (15 light and 5 large) jets in 2Q18; The Com-

pany's firm order backlog at the end of 2Q19 was US\$16.9 billion, up from the US\$16.0 billion reported at the end of 1Q19. Embraer achieved book-to-bills of above 1x in each of its major business units during the quarter, led by sales performance in the Executive Jets segment; EBIT and EBITDA in 2Q19 were US\$26.6 million and US\$67.0 million, respectively, yielding EBIT margin of 1.9% and EBITDA margin of 4.9%. In the first six months of 2019 the Company's EBIT was US\$11.4 million (EBIT margin of 0.5%) and EBITDA was US\$97.9 million (EBITDA margin of 4.4%); 2Q19 net income attributable to Embraer shareholders and Earnings per ADS were US\$7.2 million and US\$ 0.04, respectively. Adjusted net loss (excluding deferred income tax and social contribution) for 2Q19 was US\$(13.9) million, with Adjusted loss per ADS of US\$(0.08). Embraer reported adjusted net loss in 2Q18 of US\$ (0.4) million, for an adjusted loss per ADS of US\$(0.002) in the quarter; Embraer reported 2Q19 Free cash flow of US\$ 1.5 million, versus free cash flow of US\$43.3 million reported in 2Q18. The Company expects free cash flow generation to improve in the second half of the year given higher expected aircraft deliveries and cash inflows related to Defense & Security contracts; The Company finished the quarter with total cash of US\$2,478.8 million and total debt of US\$3,569.1 million, yielding a net debt position of US\$1,090.3 million at the end of 2Q19; The Company reaffirms all aspects of its 2019 financial and deliveries guidance

Héroux-Devtek reports strong first-quarter results

Landing gear manufacturer Héroux-Devtek, has reported strong financial results for the first quarter ended June 30, 2019. Consolidated sales grew 67.2% to CA\$143.4 million, up from CA\$85.8 million in the same period last year. CA\$44.6 million of this increase was driven by the CESA and Beaver acquisitions while the growth of Héroux-Devtek legacy sales contributed 15.2% or CA\$13.1 million. Commercial sales grew 47.4% to CA\$67.4 million, up from CA\$45.8 million in the same period last year. The strong increase was driven by the CESA and Beaver acquisitions and growing legacy sales from the ramp-up of the Boeing 777/777x programs. Defense sales grew 89.9% to CA\$76.0 million, up from CA\$40.0 million in the same period last year. This strong increase was driven by the CESA and Beaver acquisitions, growing Héroux-Devtek legacy sales mainly from the ramp-up of the F-35 program and higher after-market sales. Gross profit increased to CA\$24.2 million, or 16.9% of sales, up from CA\$13.1 million, or 15.2% of sales last year. The increase is attributable to the impact of the Beaver and CESA acquisitions and positive foreign exchange rate fluctuations, partially offset by higher manufacturing costs at our Longueuil facility. Operating income increased to CA\$10.4 million, or 7.2% of sales, up from CA\$4.9 million, or 5.7% of sales last year. This quarter's operating income included CA\$0.6 million of non-recurring items, up from CA\$0.4 million of non-recurring items in the same period last year. These non-recurring items are mainly acquisition-related costs. Adjusted EBITDA, which excludes these non-recurring items, stood at CA\$21.5 million, or 15.0% of sales, compared with CA\$12.2 million, or 14.3% of sales, one year ago. Net income for the first quarter of fiscal 2020 stood at CA\$6.4 million up from CA\$3.6 million in the corresponding period of last fiscal year. Excluding non-recurring items net of taxes, adjusted net income reached CA\$7.0 million up from CA\$3.8 million last year. (US\$1.00 = CA\$1.32 at time of publication.)

Willis Lease Finance posts quarterly pre-tax profit of US\$21.8 million

Willis Lease Finance has reported pre-tax profit of US\$21.8 million and total revenues of US\$95.8 million in the second quarter of 2019. The Company's second-quarter 2019 pre-tax results were driven by continued revenue growth in its core leasing business and spare parts sales as well as gains associated with the active management of its portfolio. Aggregate lease rent and maintenance reserve revenues were US\$71.5 million for the second quarter of 2019. Total revenue increased by 21.7% to US\$95.8 million in the second quarter of 2019 compared to US\$78.7 million in the same quarter of 2018. Lease rent revenue was US\$45.0 million in the second quarter of 2019; 4.5% growth from US\$43.1 million in the same quarter of 2018. Quarterly maintenance reserve revenue increased by US\$4.4 million, or 20.1%, to US\$26.5 million in the second quarter of 2019, compared to US\$22.0 million in the same quarter of 2018. Spare parts and equipment sales increased by 25.2% to US\$14.6 million in the second quarter of 2019, compared to US\$11.7 million in the same quarter of 2018. Other revenue increased by US\$2.7 million to US\$4.6 million in the second quarter of 2019, compared to US\$1.9 million in the same quarter of 2018, primarily reflecting performance fees earned managing engines on behalf of a third party. Earnings before tax were US\$21.8 million in the second quarter of 2019, compared to US\$11.6 million in the same quarter of 2018 and were US\$49.6 million year to date, compared to US\$21.2 million in the first half of 2018.

AeroCentury reports second-quarter net loss of US\$78,000

AeroCentury, an independent aircraft leasing company, has reported a second-quarter 2019 net loss of US\$78,000, compared to a net loss of US\$81,000 for the second quarter of 2018. Second-quarter 2019 results reflect the combined operations of AeroCentury and its subsidiary, JetFleet Holding, which was acquired by the Company on October 1, 2018. In the first six months of 2019, the Company reported a net loss of US\$1.4 million, compared to net income of US\$236,200, in the first six months of 2018. The results for the second quarter included a US\$160,000 impairment provision, based on appraised value, for one older turboprop aircraft that is held for sale, but is on a short-term operating lease. The results for the second quarter of 2019 included a US\$171,000 loss related to the reclassification of an asset held for lease to a finance lease receivable as a result of a lease amendment under which the customer agreed to buy the aircraft at lease expiration in November 2019. The second quarter included US\$579,000 of maintenance reserves revenue resulting from payments received from a lessee that returned three leased aircraft to the Company in 2017.

Astronics Corporation reports financial results for the second quarter ended 2019.

Astronics Corporation posts second-quarter US\$6.7 million net income, down 52%. Consolidated sales were down 9.4%, or US\$19.5 million, including sales of the semiconductor business which was divested in the first quarter of 2019. Excluding the divestiture, adjusted consolidated sales were up 5.4%, or US\$9.7 million, demonstrating growth in both the Aerospace and Test Systems segments. Consoli-

dated operating income decreased to US\$10.6 million, or 5.6% of sales, compared with US\$20.1 million, or 9.6% of sales in the prior-year period. Adjusted consolidated income from operations, excluding the operations of the divested semiconductor test business, was US\$8.5 million, or 4.6% of adjusted consolidated sales, compared with US\$9.9 million, or 5.6% of adjusted consolidated sales, in the prior-year period. Net income was US\$6.7 million compared with US\$14.0 million in the prior year.

Spirit AeroSystems posts solid second-quarter results

Spirit's second-quarter 2019 revenue was US\$2.0 billion, up from the same period of 2018. This increase was primarily driven by higher production volumes on the Boeing 777 and 787 programs, favorable model mix on the Boeing 737 program, and higher revenue recognized on the Boeing 787 program. Second-quarter net income was US\$168 million, up from US\$145 in the second-quarter 2018. Spirit's backlog at the end of the second quarter of 2019 was approximately US\$46 billion with work packages on all commercial platforms in the Boeing and Airbus backlog. Operating income for the second quarter of 2019 was US\$226 million, up compared to US\$218 million in the same period of 2018. Cash from operations in the second quarter of 2019 was US\$230 million, compared to US\$231 million in the same quarter last year. Adjusted free cash flow in the second quarter of 2019 was US\$193 million, up compared to US\$171 million in the same period of 2018.

Bombardier reports second-quarter 2019 results

Bombardier's revenues for the second quarter were US\$4.3 billion. Adjusted EBITDA and adjusted EBIT for the quarter were US\$312 million and US\$206 million respectively, mainly driven by a 7.0% adjusted EBIT margin at Business Aircraft while Transportation recorded a 5.1% adjusted EBIT margin. Transportation's lower margin reflects additional cost pressure mainly on its large, complex legacy projects. On a reported basis, EBIT of US\$371 million is largely driven by the gain of US\$219 million on the sale of the Q Series program. Free cash flow usage was US\$429 million for the quarter and US\$1.5 billion year to date, in line with the Company's expectations for the first half of 2019.

Business Aircraft revenues increased by 6% year-over-year to US\$1.4 billion on 35 deliveries, including two Global 7500 aircraft. Adjusted EBITDA for the quarter was stable year-over-year at US\$146 million, even as production ramps up on the Global 7500. The adjusted EBIT margin of 7.0% during the quarter is lower against the same quarter last year, mainly as a result of higher amortization associated with Global 7500 deliveries. EBIT margin for the quarter was 6.1%.

Commercial Aircraft: on May 31, 2019, the Corporation completed the previously announced sale of the Q Series aircraft program assets, including aftermarket operations and assets, to De Havilland Aircraft of Canada Limited (formerly Longview Aircraft Company of Canada Limited), a wholly owned subsidiary of Longview Aviation Capital Corp., for gross proceeds of US\$298 million. During the quarter, the Corporation entered into a definitive agreement with Mitsubishi Heavy Industries (MHI) for the sale of its regional jet program for a cash consideration of US\$550 million payable upon closing, and the assumption by MHI of liabilities related to credit and residual value guarantees and lease subsidies amounting to

approximately US\$200 million. The transaction is currently expected to close during the first half of 2020 and remains subject to regulatory approvals and customary closing conditions. Revenues reached US\$516 million during the quarter on increased deliveries, including six Q400 deliveries prior to completion of the Q Series aircraft program sale and 11 CRJ. Year-over-year revenue decrease is due to C Series deliveries included in the comparable for the first half of 2018. Adjusted EBIT of US\$12 million includes US\$21 million contribution from commercial aircraft programs, offset by a US\$9 million share of net loss in ACLP. EBIT for the quarter of US\$226 million is largely driven by the US\$219 million gain on the sale of the Q Series aircraft program to Longview.

Airbus doubles operating profit in first half of 2019

Airbus has reported that commercial aircraft orders totaled 213 (H1 2018: 261 aircraft) with net orders of 88 aircraft (H1 2018: 206 aircraft). The order book stood at 7,276 commercial aircraft as of June 30, 2019. Net helicopter orders of 123 units (H1 2018: 143 units) included 23 NH90s for Spain and 11 H145s in the second quarter. Airbus Defence and Space's order intake by value totaled €4.2 billion, with second-quarter bookings including the A400M Global Support Step 2 contract with OCCAR and next-generation geostationary Ka-band communications satellites. Consolidated revenues increased to €30.9 billion (H1 2018: € 25.0 billion), mainly reflecting higher commercial aircraft deliveries and favorable foreign exchange. At Airbus, a total of 389 commercial aircraft were delivered (H1 2018: 303 aircraft), comprising 21 A220s, 294 A320 Family, 17 A330s, 53 A350s and 4 A380s. Airbus Helicopters delivered 143 units (H1 2018: 141 units) with stable revenues driven by program phasing compensated by growth in services. Higher revenues at Airbus Defence and Space were supported by Military Aircraft activities. Consolidated EBIT Adjusted – an alternative performance measure and key indicator capturing the underlying business margin by excluding material charges or profits caused by movements in provisions related to programs, restructurings or foreign exchange impacts as well as capital gains/losses from the disposal and acquisition of businesses – more than doubled to €2,529 million (H1 2018: €1,162 million), driven by commercial aircraft activities at Airbus. Airbus' EBIT Adjusted increased to €2,338 million (H1 2018: €867 million), mainly reflecting the A320 ramp-up and NEO premium, further progress on the A350 financial performance and an improvement in foreign exchange rates in the second quarter. (€1.00 = US\$1.12 at time of publication.)

SIA Engineering Group posts profit of SG\$41.6 million for first quarter 2019-2020

For the first quarter of FY2019-20, SIAEC Group posted a revenue of SG\$258.1 million, comparable year-on-year. Revenue from the airframe and line maintenance segment was SG\$2.3 million higher. This was partially offset by a SG\$1.9 million decrease in revenue from the engine and component segment. Expenditure at SG\$240.4 million was lower by SG\$7.1 million or 2.9%, mainly due to a reduction in material costs. As a result, operating profit increased SG\$7.5 million or 73.5% to SG\$17.7 million. Share of profits of associated and joint venture companies was SG\$26.0 million, SG\$6.4 million or 19.8% lower year-on-year, with the engine and component segment turning in a profit of SG\$26.7 million and the airframe and line

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maintenance segment incurring a loss of SG\$0.7 million. Contributions from the engine and component segment decreased SG\$6.1 million, mainly due to higher expenses incurred by an engine center as it gears up for new engine capabilities, while contributions from the airframe and line maintenance segment decreased by SG\$0.3 million. Profit attributable to owners of the parent was SG\$41.6 million for the quarter ended 30 June 2019, an increase of SG\$1.1 million or 2.7%. (US\$1.00 = SG\$1.37 at time of publication.)

MTU Aero Engines raises earnings and cash flow forecast at half-year

At half-year, MTU Aero Engines AG has raised its forecast for 2019. The company is now projecting an adjusted EBIT margin in the region of 16%. The original forecast had been 15.5 % (2018: 14.7 %). "The increase in the earnings outlook mainly reflects two factors: One is that our MTU Maintenance Zhuhai site in China developed somewhat more positively than anticipated. In addition, changes in the product mix also had a positive effect," said Reiner Winkler, CEO of MTU Aero Engines AG. Net income adjusted is expected to increase in line with EBIT adjusted (EBIT adjusted, 2018: €671.4 million, net income adjusted, 2018: €479.1 million). The cash conversion rate – that is, the ratio of free cash flow to net income adjusted – is expected to lie between 65 and 70% in 2019. MTU's previous forecast specified a target range between 55 and 65% (2018: 42%). In the first six months of 2019, MTU generated revenues of €2,243.0 million, which is 4% higher than in the first six months of 2018 (1-6/2018: €2,148.6 million). Adjusted for one-time effects arising from internal changes in contracting and invoicing processes, the growth in revenues expressed in euros would have amounted to around 12%. The group's operating profit increased by 9% from €334.6 million to €365.2 million. The EBIT margin rose from 15.6% to 16.3%. Net income increased by 10 % to €261.0 million (1-6/2018: €237.0 million). MTU has maintained its forecast for an increase in revenues to around €4.7 billion (2018: €4.6 billion), based on the expectation that the commercial series production business will grow organically by a percentage in the low teens, and that spare parts sales will increase by a percentage in the mid-to-high single digits. Revenues in the military engine business are expected to increase by around 10%. A high single-digit percentage organic growth rate is expected in the commercial maintenance business. The area in which MTU recorded the highest revenue growth in the first six months of 2019 was the commercial engine business, where revenues increased by 13 % from €687.0 million to €773.0 million. The major part of these revenues was attributable to the V2500 engine for the classic A320 family and the PW1100G-JM for the A320neo. (€1.00 = US\$1.11 at time of publication.)

Boeing reports biggest ever second-quarter loss of close to US\$3 billion

The Boeing Company has reported second-quarter revenue of US\$15.8 billion, a GAAP net loss of (US\$2.9) billion, a loss per share of (US\$5.21) and a core loss per share (non-GAAP) of (US\$5.82), reflecting the previously announced 737 MAX charge (which reduced revenue by US\$5.6 billion and earnings by US\$8.74 per share) as well as lower 737 deliveries, partially offset by higher defense and services volume. Boeing recorded operating cash flow of (US\$0.6) billion and paid US\$1.2 billion in dividends. The pre-

viously issued 2019 financial guidance does not reflect 737 MAX impacts. Due to the uncertainty of the timing and conditions surrounding return to service of the 737 MAX fleet, new guidance will be issued at a future date. Boeing is working very closely with the FAA on the process they have laid out to certify the 737 MAX software update and safely return the MAX to service. Disciplined development and testing are underway and Boeing said it will submit the final software package to the FAA once it has satisfied all of its certification requirements. Regulatory authorities will determine the process for certifying the MAX software and training updates as well as the timing for lifting the grounding order. Boeing also reported that the 777X program is progressing well through pre-flight testing. While the company is still targeting late 2020 for first delivery of the 777X, there is significant risk to this schedule given engine challenges, which are delaying first flight until early 2020. Commercial Airplanes backlog remains healthy with more than 5,500 airplanes valued at US\$390 billion.

Lockheed Martin reports second-quarter 2019 net income of US\$1.4 billion

Lockheed Martin has reported second-quarter 2019 net sales of US\$14.4 billion, compared to US\$13.4 billion in the second quarter of 2018. Net earnings in the second quarter of 2019 were US\$1.4 billion, or US\$5.00 per share, compared to US\$1.2 billion, or US\$4.05 per share, after severance charges of US\$96 million, in the second quarter of 2018. Cash from operations in the second quarter of 2019 was US\$1.7 billion, compared to cash used for operations of US\$(72) million after pension contributions of US\$2.0 billion in the second quarter of 2018. Aeronautics' net sales in the second quarter of 2019 increased to US\$229 million, or 4%, compared to the same period in 2018. The increase was primarily attributable to higher net sales of approximately US\$205 million for the F-35 program due to increased volume on production, development and sustainment contracts. Aeronautics' operating profit in the second quarter of 2019 increased \$20 million, or 3 percent, compared to the same period in 2018. Operating profit increased approximately \$15 million for the F-35 program due to increased recurring volume on higher margin production contracts, partially offset by lower risk retirements on production and sustainment contracts. Adjustments not related to volume, including net profit booking rate adjustments and other matters, were \$25 million lower in the second quarter of 2019 compared to the same period in 2018.

Safran acquires French start-up Neelogy

Safran Electrical & Power has acquired Neelogy, a French start-up that has developed a disruptive technology for electrical current sensors that are tailored to the needs of the more electrified aircraft, as well as hybrid and totally electric propulsion. Since 2006, Neelogy has been developing and marketing DC and AC current measurement sensors of unrivaled precision, which completely eliminate remanence thanks to their exceptional magnetic properties. In particular, the patented Neel Effect® sensor technology makes it possible to measure high-intensity direct currents over a wide range of intensities without overheating. Extremely compact, lightweight and capable of withstanding harsh operating conditions, the sensors meet the growing needs of aeronautics in terms of electrical power management: high power, energy storage and network monitoring

Aviation Inventory Resources acquires assets of AIM Aircraft Spares

Aviation Inventory Resources (AIR) has acquired the assets of AIM Aircraft Spares, the Peachtree City, Georgia-based distributor of AIM Altitude products. Concurrent with this acquisition AIM Altitude UK has appointed AIR exclusive distributor for the Americas for all AIM Altitude products. The AIM Aircraft Spares operation will be integrated into AIR's worldwide headquarters in Alvarado, Texas, near the Dallas/Fort Worth International Airport (DFW). "We're very pleased to be working with AIM Altitude," said Morgan Whitehead, Vice President of Operations for AIR. "We look forward to taking over on the good job the AIM Aircraft Spares team has done through the years and will be working hard to support AIM Altitude's customers within the Americas by increasing stock levels and offering our world-class customer support."

Farsound Aviation acquired by private equity company AGIC Capital

Farsound Aviation has been acquired by AGIC Capital, a leading European-Asian private equity company focused on industrial and medical technology investments in Europe. Farsound Aviation will now have new resources and capabilities to continue developing and growing its supply chain solutions capability, and with the support of AGIC, exploit further opportunities particularly in Asia. Farsound Aviation will continue to focus on developing existing and new customer and supplier relationships, and the added capital investment from a large private equity backer will only enhance that drive.

Information Technology



Photo: thyssenkrupp Aerospace

thyssenkrupp Materials Services is continuing its digitalization offensive with the introduction of a flexible IT infrastructure for smart, agile management of all processes along the supply chain. Material deliveries, customer purchase orders, order execution, transportation logistics – the digital accelerator DESCa can process and forward millions of datasets in seconds. And it's customers who benefit the most: With DESCa, Materials Services is shortening order lead times, optimizing warehousing logistics and paving the way for new supply chain services. So, the system truly lives up to its name: DESCa stands for Digital Extended Supply Chain Accelerator. DESCa is an important element of thyssenkrupp Materials Services' strategy. Under its "Materials as a Service" approach the Western world's biggest materials distributor guarantees its cus-

tomers access to global supply markets combined with in-house process expertise in the form of tailored supply chain solutions. So, in addition to its core materials distribution business, Materials Services is systematically expanding its portfolio of services. DESCa is based on SAP HANA. Unlike conventional ERP systems, DESCa allows flexible integration of data from various internal and external sources. For example, order information can be compared with processing data from Materials Services-connected machinery – in the future also in real time and via an app. This is a particularly attractive option for sectors that place high demands on a flexible supply chain such as the aerospace industry. That's why DESCa was first put through its practical paces at selected branches of **thyssenkrupp Aerospace** in North America. "Smart data integration is the key to greater efficiency and customer service. Our new ERP system creates the technological platform for this," says Patrick Marous, CEO of thyssenkrupp Aerospace. "We're playing a pioneering role as one of the first major users in the aerospace industry to switch to the latest SAP environment. The first phase showed that DESCa helps us significantly strengthen our core capabilities in smart supply chain management." Visualizations display the relevant data at a glance. "DESCa has a dashboard that shows us what we have to do in the next few hours and helps us systematically align our management model to the future," adds Marous. DESCa is the engine of the digitalization offensive at Materials Services: The data gathered from all areas of the supply chain in the new ERP system are fed to "alfred", the in-house artificial intelligence solution launched by the materials distributor at the beginning of 2019. DESCa also communicates with "toi", the company's IIoT platform that connects all its machinery worldwide.

With recent approval from **EASA**, **TP Aerospace** has become a frontrunner in MRO digitalization as they ditch paperwork and implement paperless processes throughout their inhouse MRO shops. The new system enables digital sign-off of work orders, digital tasks lists, as well as increased efficiency through time optimization and reduced risk of human errors. Finally, it brings improvements to

quality controls and safety protocols. The initial phase of the paperless project began in 2018 along with the launch of the Green Sunrise strategy – an ambitious growth plan for increasing proximity to airline customers worldwide and provide the best possible wheel and brake support, wherever in the world their aircraft may be. A result of the Green Sunrise is a continuously increasing network of in-house MRO facilities and, thus, it has become vital to develop a stronger data foundation to sustain the growth and ensure that all MRO facilities within the TP Aerospace network continues to meet and exceed the highest standards in the market. TP Aerospace has managed to use their current ERP system, developed by Component Control, to customize the Paperless System for the company's specific needs and MRO workshops, making all processes involved in raising, completing and signing off a work order electronic. The new system can process work orders from the introduction of a unit, through the maintenance procedures, and to the end of the final inspection where ARC can be signed off electronically. The Paperless System is a direct data entry method where no paper is needed on any work processes. It will replace the old barcode scanning system, where barcoding was needed on all tools and hardcopy work orders. With the new system, the number of procedures to be completed are linked to digital protocols. This provides a stronger quality control and reduces the risk of mistakes.



ATR 72-500 Precision Air
Photo: AirTeamImages

Seabury Solutions, a subsidiary of New York-based **Seabury Capital Group LLC**, providing Information Technology solutions for the aviation industry, has added a new airline customer in Africa, **Precision Air**, for its solution to enhance the maintenance management of the carrier's expanding fleet. The Tanzania-based airline, operating scheduled flights out of its main hub in Dar es Salaam, is the latest customer to join the ever-growing base of the company's airline customers based on the African continent. Opting to deploy Seabury Solutions' comprehensive maintenance solution, the carrier deemed Alkym as best suited to meet the requirements for managing the maintenance of its fleet. Precision Air opted for 17 out of 18 of the modules contained within Alkym, along with 20 concurrent users. The project is set to commence the second week of July, beginning with a two-week workshop to understand the entire requirements of the airline and map out the process.

IFS, the global enterprise applications company, has released that **Rolls-Royce** has chosen IFS Maintainix™ for exchanging engine data with airlines operating Rolls-Royce Trent engines, including the Trent 1000, Trent XWB and Trent 7000. With a long list of world-leading airlines operating with its engines, the IFS Maintainix solution will help Rolls-Royce and its customers share data. The IFS Maintainix Aviation Analytics capability enables the automated provision of field data, which ensures that Rolls-Royce receives timely and accurate information. IFS Maintainix then acts as a gateway to automatically push maintenance program changes from Rolls-Royce back to the airline operator. As a result, life-limited engine part maintenance deadlines can be updated based on actual operating conditions and life consumed by each engine in use. Rolls-Royce helps transport thousands of air passengers and tons of cargo across the world on a daily basis, and maximizing the safety, efficiency and insights gained on each trip is paramount. With the support of IFS Maintainix and its Aviation Analytics capability, Rolls-Royce is able to offer a systematic method of exchanging and accurately updating airline engine life data to optimize the interval between engines being removed and sent for overhaul. This will provide new streams of data for Rolls-Royce to analyze the performance of fleets with Trent engines and refine the aftermarket offerings it can provide its customers, from service-based contracts to analytics insights and more.

TransNusa, the Indonesian regional airline, has become the latest operator to go live with **Rusada's** ENVISION. TransNusa, formed in 2005, operates domestic services across Indonesia using a fleet of ATR's and BAe 146's. It recently added its eighth ATR to the fleet (seven of which are ATR 72's) and will operate ten of the aircraft by the end of the year. TransNusa signed up for ENVISION in May and is now live with the system after just two months. They become Rusada's fourth new regional airline customer this year, demonstrating ENVISION's effectiveness with this type of operation. ENVISION software provides key management information and operational process control for aircraft operators, maintenance and repair organizations (MROs), original equipment manufacturers (OEMs) and aviation service organizations.

AAR subsidiary **Airinmar** has signed a three-year agreement with **Smartwings**, a Czech airline, to provide component Value Engineering Services for maximum cost savings. In May, Airinmar began applying its Value Engineering expertise and in-house support systems to identify and deliver opportunities to reduce the cost of maintenance on a wide range of aircraft equipment, including landing gear, nacelles, avionics, hydro-mechanical, actuation, interior components and more. Airinmar's Value Engineering Services analyzes all costs associated with the repair process, including price quotes from suppliers and service vendors, labor, flight-hour agreements, and power-by-the-hour (PBH) pricing and warranties. Based on the data analyses and findings, Airinmar identifies potential cost reductions, as well as process improvements.

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Managing transactions

Each redelivery scenario is never the same.
Photo: British Airways

Aircraft transactions can be a complex undertaking. **AviTrader MRO** looks at best practice for managing records and processes.

Aircraft records are identified as the most challenging element of the redelivery process. Brian Fasano, Sr. Director of Maintenance Programmes and Reliability at STS Engineering Solutions quickly points that digitisation is extremely important when managing aircraft records. He says the ability to easily manage, categorise, and optimise on all the data associated with an aircraft transaction is critical to performing the transactions as quickly and accurately as possible.

"STS Aviation Group utilises the latest technologies for scanning and indexing data which positively affects the revenue streams for not only the MRO but the aircraft's former and future owner's as well as any other suppliers, OEMs, or stakeholders taking part in the transaction."

The MRO sector has often been accused of being slow to adopt digitisation of processes, but Fasano believes the industry is currently in its adolescence. "While there are available tools on the market currently being used, the source data is fairly flat". He indicates that STS Aviation Group is currently in the process of utilising structured "meta data" that will be able to manage the records like a true digitised database.



Brian Fasano, Sr. Director of Maintenance Programmes and Reliability at STS Engineering Solutions.

Florida-based Beach Aviation Group has gone completely digital – "We, and the industry, as a whole, have taken tremendous strides to digitise transactions, and the benefits of doing so have been great," Pam Corrie, CFO and Owner of Beach Aviation states.

Yet, Corries feels there are still many challenges to digitisation. "Concerns with safety are always a forefront issue. Also, different nations have different rules about records and the acceptance of digital techniques like electronic signatures. This is an area of struggle due to the global nature of the industry. The upfront cost of switching to digital platforms are an issue to some aviation professionals, but Beach Aviation Group has discovered from past performance, the return from doing so typically justifies such costs."

At TRAX, the aircraft fleet management software specialists, digitisation greatly streamlines the process by providing accurate and easily accessible data, eliminating the need to scan documents, and facilitates the extraction of printed reports.

Miguel Sosa, VP Software Development at TRAX says ERP / MRO systems, such as TRAX eMRO, have full data digitisation for all components that allows for the level of detailed history needed for lease return agreements. "For example, life limited parts have full back-to-birth traceability records and compliance information resides in the eMRO system.

"Having a completely digitised integrated engineering, maintenance, financials, logistics and records system can potentially replace the need for outsourced or in-house dedicated aircraft or engine redelivery teams by allowing existing technical records teams to quickly and easily prepare a lease return package," states Sosa.

Sosa observes that airlines and MROs are increasingly digitising their transactions, yet many lag behind in 100% digitisation. "It is still not unusual for TRAX to work with an operator to implement the eMRO system and still encounter the use of Excel spreadsheets and documentation outside of the maintenance system of record they are replacing."

Another challenge Sosa highlights is the lack of standardisation for digital data exchange in the aviation industry. "There are organisa-



Digitised records can predict maintenance events in real time.
Photo: SAS

tions that are taking initiatives to foster industry-wide standards, such as ATA e-Business Forum and others, and TRAX participates in these working sessions."

Valentin Ivanov, Senior Airworthiness Engineer at Magnetic MRO says the role of digitisation in aircraft transition projects has been increasing gradually over recent years. "Based on our company experience in being involved in various aircraft transaction projects – it is obvious that the industry shows a clear demand for properly structured and accessibly manageable aircraft technical record keeping and management digital systems," Ivanov mentions.

Clearly, operators can derive numerous benefits from a digitised system. To begin with, complete digitisation allows operators ease of access to documentation that may otherwise require physically sifting through warehouses of paper records, albeit categorised, comments Ahmed Zafar - Manager, Asset Management at ACC Aerotask.

Moreover, he says the digitised records allow operators to keep track of and monitor the maintenance status, and consequently, maintenance events, in real time hence offering the operator more efficient control over managing asset airworthiness and an easier way to prove compliance. "In transactions, inspection and travel costs can be significantly reduced if the acquiring party is provided access to digitised records. In our experience, the time and cost benefits outweigh the drawbacks of the somewhat onerous digitisation process."

Zafar explains that the digitisation of records increases predictive maintenance, enabling operators to pinpoint aircraft availability and better manage any unplanned shop visits or AOG events. "Another important

contribution of digitisation towards predictive maintenance is that it allows early detection of component malfunction and enables to conveniently time for repair, consequently optimising the cost of parts stock inventories and repairing components."

From an engine transaction perspective, Remko Bruinsma, the Senior Technical Asset Manager at MTU Maintenance Lease Services notes that while the digitisation in records management is an important next step for the industry, currently the larger difficulty is more in the standardisation of documentation, from back-to-birth LLP documentation to export certificates of airworthiness etc.

When it comes to digitising transactions Bruinsma comments that the industry is making progress in this field, MTU Maintenance Lease Services uses industry leading software to manage both its own assets and those of customers.

Nonetheless, he feels the industry perception of digital records is often merely a scanned version of a paper document. "The challenge going forward is to standardise digital formats in the industry."

Industry groups like the ATA Aircraft Transfer Records Working Group is developing electronic data exchange standards associated with return and re-delivery of aircraft within the ATA Spec 2500.

"Furthermore, challenges still exist with mature engines for which the historical trace is not complete. Industry requirements in relation to back-to-birth traceability and recorded use of non-OEM approved repairs and parts are strict. This is likely to remain a challenge going forward," Bruinsma continues.

There can often be complexities when it comes to end of lease transactions, many such cases



Valentin Ivanov, Senior Airworthiness Engineer at Magnetic MRO



Ahmed Zafar, Manager, Asset Management, ACC Aerotask



The exchange of aircraft maintenance data digitally is increasing.
Photo: Airbus

have been documented. Fasano from STS says the accuracy, completeness, and organisation of the records are absolutely required for a clean and unencumbered transaction. "It therefore takes the dedication of the airline to gather the information over the ownership term, the lessor to define clearly the data that must be kept (and potentially the format) and finally the MRO provider to perform the work required while ensuring the compliance is accurately recorded and reported back to both airline and lessor. STS Aviation Group utilises various teams with differing skill sets to ensure all of these requirements are met with a cost-effective solution."

Each redelivery scenario is never the same and the major skills needed for success in this phase of the lease comes mainly from experience, states Corrie. "Each aircraft, airline, lessor and MRO have its own positives and negatives and each time there are different people, places and issues. Beach Aviation Group has the employees who have the experience to deal with each of the priorities noted in order to obtain maximum results."

Preliminary inspection of records and maintenance is of the utmost importance to allow time to respond to adverse findings. Corrie explains that defining a work scope as early as possible and revising as needed prepares the airline, lessor and MRO for a successful redelivery phase. "During the redelivery phase the main priorities that should and will be of focus are the performance of the aircraft redelivery check, the preparation of the aircraft records and a review of major component return conditions such as the engines, APU and landing gears. Identifying problem areas, possible compliance and performance issues, and performing a commercial evaluation of options to resolve any or all of these issues."

One of the biggest concerns for both lessors and lessees is the time involved in processing a lease return, Sosa points out. As a result of this, he says on time redelivery deadlines are not always met. "A key component of this issue is an underestimation on the part of the lessee of the effort involved, or simultaneously a delayed response time from the lessor. Late engagement in the process can further delay what can already take up to 15 months to accomplish. It is in response to precisely this central issue in aircraft lease transactions that TRAX developed the aircraft lease return portal application."

Another key concern for lessors and lessees is keeping costs down as Sosa suggests. "It is not uncommon to have overspends for as much as a million dollars or more through the cycle of redelivery. A common example is not accounting for the leasing borescope inspection as part of the contract, which then becomes an additional cost. Other

unscheduled repairs can run into difficulties when trying to schedule at MROs that have long lead times."

Sosa says lessees can minimise cost overruns by easily pulling periodic monitoring reports during the lease period, "which is aided when you have digitised data that ensures accurate financial reporting to the lessor."

lessors and airlines need to get the most precise and accurate control over asset leases and finances. Given the high value of aircraft and complexity associated with the asset's leases and finances, high quality asset management is instrumental in preserving the value of aircraft through the lease term.

According to Zafar from ACC Aerotask, active asset management is necessary from the conception stage. He says lessors should conduct extensive credit-related due diligence for all potential lessees. "This is especially true if the lessor is dealing with older aircraft as the credit risk is usually higher, especially in a high oil price environment. Also, the jurisdiction risk should be taken in consideration particularly in emerging markets as there might be difficulties in repossessing the aircraft."

"Many lessors and airlines have invested in software systems or have developed their own in-house capability which enables them to capture and analyse numerous commercial and technical management elements," Zafar adds.

For engines, Lease returns are indeed complex, affirms Bruinsma from MTU. He says this stems from the fact that there are multiple elements to be considered during a transition: contractual agreements and obligations, costs, planning, timing, and regulatory requirements. "The potential scope for difficulties is simply huge. Furthermore, three principle stakeholders are involved in a transition: the lessor, the current lessee and the next lessee. All parties want to achieve a smooth transition in a cost-effective way – one that does not leave them exposed afterwards. But they all have different needs. The lessor wants to protect the residual value of the asset, the current lessee wants to fly as long as possible and minimise cost and the next lessee does not want to be burdened with costs arising from previous usage."



Remko Bruinsma, Senior Technical Asset Manager, MTU Maintenance Lease Services B.V.

Currently, there is great demand for spare engines, and assets are moving fast. Therefore, market insight and understanding are key to success. This is where MTU Maintenance benefits from its unique background as lessor, asset owner and independent MRO provider. "We take great care during lease transitions to optimise timing and project management for customers through TAMS. This can range from physical inspections and checks to fleet management, performance analysis, AD/SB evaluation, maintenance reserves claim management and so on and, of course, MRO oversight through shop visits. Additionally, we can perform asset valuations and investment appraisals, training and brokering," Bruinsma ends.

The MIS that airlines need



ADSoftware team discussing product innovations.
All photos: ADSoftware

When it comes to Maintenance Information Systems (MIS), airlines have a large number of options available, from software offering bare functionalities to multimillion-dollar ERPs that promise to cover all IT needs. ADSoftware is offering an alternative with a simple and robust solution that aims at supporting airline MRO, airworthiness and supply chain operations efficiently.

20 years expertise

20 years ago, when the company was founded in the French Alps, the situation was quite different. Airlines could either spend millions to acquire a solution - often too complex for them - or they could rely on the ingenuity of their IT department to create a home-built solution. ADSoftware offered an alternative by providing exactly what they needed, a software to run their maintenance and their supply chain with the user in mind.

Aviation experts

The AD in ADSoftware stands for Aviation Dedicated. From the start the software was built with the operators in mind and with a deep



A customer using ADSoftware to support its ATR aircraft.

knowledge of its day-to-day challenges and constraints. The development team involves the customer from the project's inception up to the test phase. If a feature doesn't make everyone's life easier, it is scrapped.

A system focused on airworthiness, MRO and supply chain

The entire solution offered by ADSoftware revolves around these three critical activities, the software unites them through one single database which allows the information to flow seemingly between the three departments. Airworthiness is maintained by performing the required maintenance actions that require the support of the supply chain. At all times each department knows what needs to be done to support the other two.

... and a team focused on the customer

With a worldwide support and aviation engineers available at any time ADSoftware boasts one of the best support response time and customer relationship in the industry. From contract signature to its



Frederic Ulrich, CEO, Sebastien Dunoyer, Development Director and Ingrid Gerphagnon, Training Instructor.

execution the operator knows he's not dealing with a traditional software provider: ADSoftware sends a team of aircraft data experts to support the data migration into the system, a crucial task that ensures the success of the project.

From rising star to supporting ATR

In 20 years ADSoftware has grown its customer base steadily. It has now 60 customers in 37 countries. Over 1200 aircraft are managed by the solution. Its largest customer has a fleet of 120 aircraft. One of the key successes of the company is its partnership with ATR. The aircraft manufacturer elected to work with ADSoftware after a lengthy and thorough selection process.

The grand reveal



Managing Director Richard Gardiner (L) and Commercial Director Bryan Croft.
Photo: Steven Tiller

All roads led to Leigh-on-Sea in Essex, England this August at the Rotable Repairs' relocation event for their new wheel and brake facility close to London Southend Airport.

During the open day on August 2, Rotable Repairs senior management and staff were on hand to show customers, colleagues and industry journalists the recent improvements, investment in equipment and new processes within the new and improved 49,000 sq. ft wheel and brake workshop.

The day was a hive of activity with facility tours, entertainment, refreshments and networking opportunities throughout. Additionally, an evening social event took place at a local sea-side venue providing drinks and dinner for guests and staff.

The company is now set to take triple its capacity, strategically planned, the wheel and brake facility now houses a flowed and intuitive production line, new spring testers, wheel greasers, nitrogen system, inflation cages, automatic wheel inflation and new spray shop/oven eight times the size of their original. This equipment complements the company's existing build up rigs and torque loader which all adds to the workshop's ability to process volume.

The dispatch department at the new facility ships a volume of 7000 wheels and brakes around the world every year. Although most of the products are shipped to the UK and mainland Europe, many others are in Africa, the Middle East and the USA. As per customer demands the majority of this is in ATA300 compliant packaging consisting of wheel covers and specialist packing crates. The experience and commitment to detail are such that 99% of deliveries are sent out in exceptional condition and without incident, the company reports.

As well as using international shipping agents for road and air deliveries Rotable Repairs have a fleet of their own vehicles.

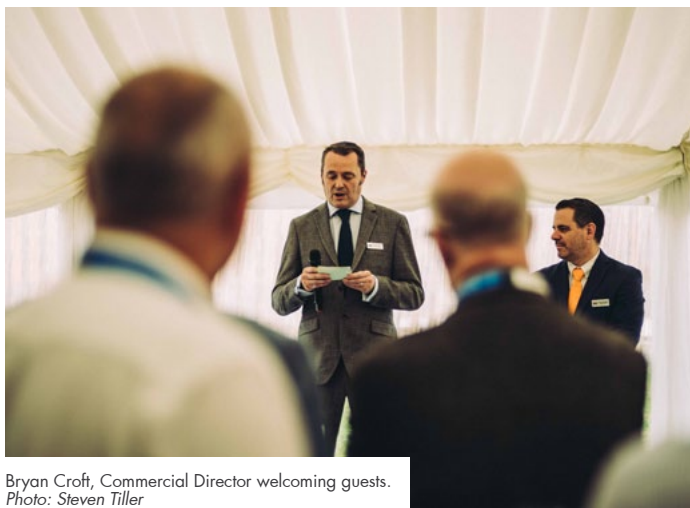
The company has invested in several parts of the business in every department but none more than the wheel bay. In the months leading up to the move Rotable Repairs purchased a Bauer build up rig, and a computer controlled torque loader, prior to this, it required one engineer to build and one to assist, taking 40 minutes to build a 737 main wheel, the Bauer Rig and Torque loader now completes the process in ten minutes with one technician. They will be adding another build-up rig as the torque loader is designed to move between two stations. This means they can have a 737 crown on one rig and an A320 on the other. The company has also purchased two automatic greasing machines, meaning manually greasing bearings is now a thing of the past.

Headquartered in Los Angeles, Desser Holdings is the parent company for Rotable Repairs.

Speaking to the crowd of guests Bryan Croft, Commercial Director at Rotable Repairs said Desser Holdings had given the company the means to expand and take on the new building. He thanked the loyal customer base, many of whom attended the event as well as the hard work and dedication of staff. "The business now has enormous potential. We have great relationships with the OEMs, the customers and even our competitors. We see this building as the beginning of something big," said Croft.



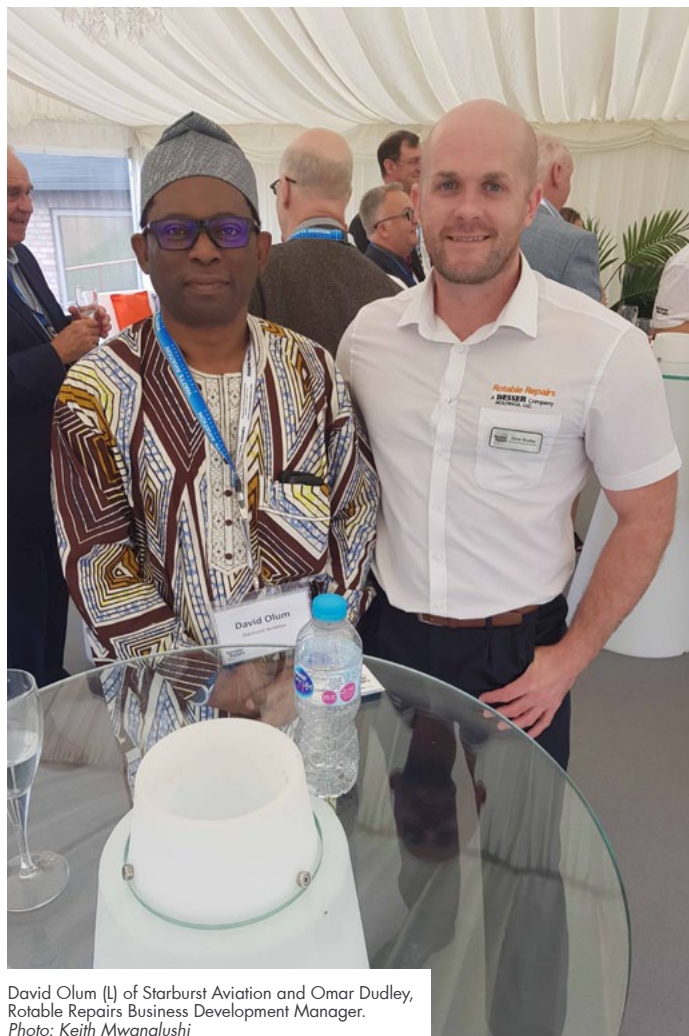
Tour of the new facility.
Photo: Steven Tiller



Bryan Croft, Commercial Director welcoming guests.
Photo: Steven Tiller

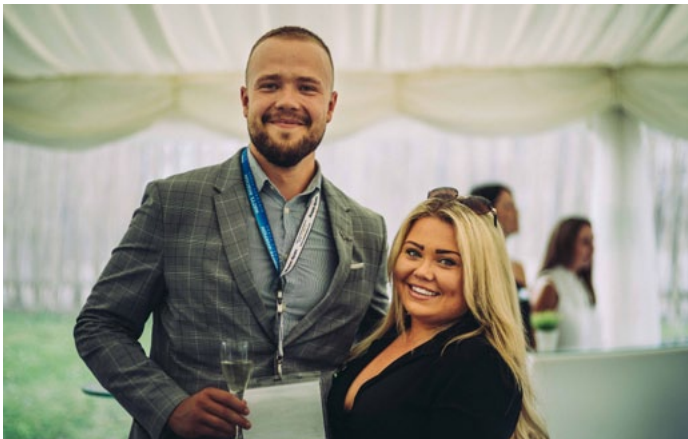
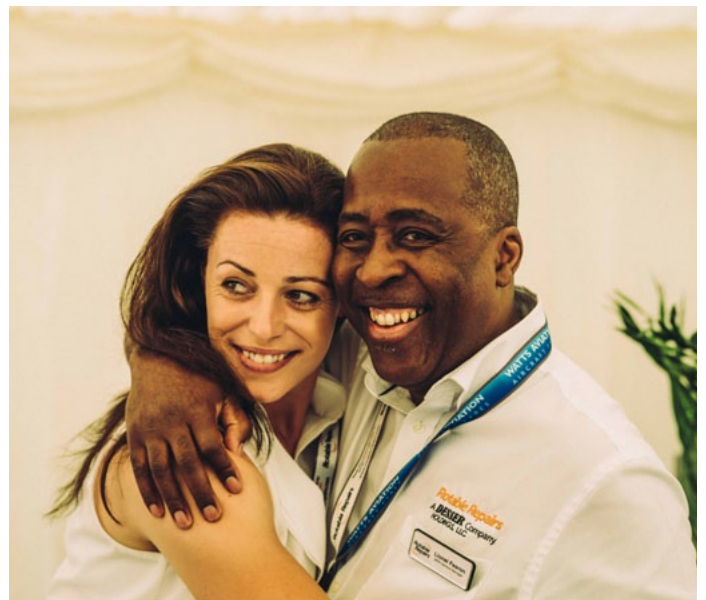


Tour of the new facility.
Photo: Steven Tiller



David Olum (l) of Starburst Aviation and Omar Dudley, Rotable Repairs Business Development Manager.
Photo: Keith Mwanalushi

Ambiance at Rotable Repairs Open Day, 2019.
Photos: Steven Tiller



Propelling MRO into the future with digitalisation

By: Allan Bachan, VP, ICF Aviation

The MRO industry currently faces a multitude of challenges from rising costs to supply chain inefficiencies and a shortage of technical manpower. At the core of issues facing the industry is a culture of hesitation toward technological advancement -- even though technology holds a key to tackling those very challenges. As a result, MRO has fallen behind every other sector of aviation in the adoption of digital solutions. The good news: it's not too late to catch up.

Hesitation is a natural response to the myriad obstacles associated with advancing maintenance and repair into the digital age. After all, technological implementation is no easy feat. Despite the promising possibilities that digital solutions offer MRO, adoption would require operators to face the daunting task of identifying and incorporating the right technology across massive, multifaceted organisations. Progress would require them to overcome hurdles such as changing processes, training hundreds of workers on new systems, establishing compatibility with other technology applications, and ensuring that software vendors can deliver broad, complex technical support.

Navigating these concerns requires a strategic formula for success that also includes borrowing tactics from other sectors, both inside and outside of the aviation space. On the execution side, the introduction of technologies including drones, artificial intelligence (AI) and virtual reality (VR) has streamlined operations and improved efficiency across numerous industries. On the control and compliance side, aviation assets like aircraft and engines have long moved away from solely 'hard-time' and 'soft-time.' 'On-condition', condition-monitored' and 'health monitored' are the new standards. It's time for adjustments and increased adoption by the MRO community.

Applying new technology to aviation MRO

Aviation MRO needs more aggressive technological transformation. This encompasses core functions that involve touching the asset, such as inspections and repairs. For instance, aircraft mechanics can spend less time troubleshooting by enhancing productivity with prescriptive fixes and the assistance of VR. This may involve experienced specialists talking mechanics through repairs remotely. Meanwhile, more aircraft inspections could be accelerated and automated using robots and drones, which may capture images and map out damages to the structure of an aircraft without needing a person physically present. Note how this evolution also changes the emerging nature and range of the skills and personnel to support aircraft maintenance.

Just as important, technology also improves operations and processes for those who do not directly work on the aircraft. Supporting functions like maintenance planning, supply chain and record keeping can immensely benefit from digitalisation as well. Machine learning, AI and business analytics solutions could significantly speed up management and control activities. For example, predictive maintenance would render it possible - through simulation - to proactively anticipate what preventative work should be done to facilitate 100 percent mission reli-

ability for an aircraft to travel certain routes over a future period. This will allow MRO professionals to accurately plan for and execute maintenance activity before any problems arise.

Borrowing inspiration from outside of MRO

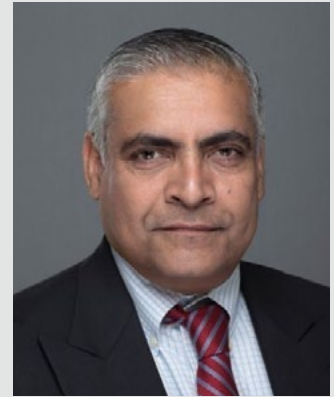
The rate of innovation is exceeding the rate of adoption in aviation technical operations. Original equipment manufacturers (OEM), like Boeing and Airbus, are already tapping new solutions -- including integrating internet of things (IoT) technology into aircraft and engines -- to make major upgrades. Industry leader buy-in to the technology renders it essential that the MRO space adapts in response.

For instance, every new aircraft is being outfitted with more sensors that read the performance of its components, functioning in a similar fashion to wearable smart devices that may encourage exercise. If something goes wrong in-flight, the plane may communicate the issue to support resources on the ground. As operations of more aircraft become expectant for this kind of technology, the traditional ways of resolving problems will less apply. Instead, a repair team may need to run data intensive diagnostics before it can determine what is needed for the fix -- if they are constrained in doing so, the problem may go unaddressed for a prolonged period. Overall, it is anticipated that less time will be spent physically executing the fix. Rather, more time will be in analysing parameters and data to define the fix. We will be well served to automate such analysis.

Given the lagging digital adoption rates in MRO and the advancements in manufacturing processes, OEMs should consider leveraging their influence, holding hands with the operators if necessary, in order to facilitate greater technological momentum in the aftermarket. In addition to adopting innovations from aviation OEMs, MRO leaders can also gain valuable insight from observing technological advancements in industries entirely outside the aviation realm. For example, some particularly well-proven methods are engaged in the energy and automotive sectors with respect to maintenance execution where robotics and touch free applications have been widely adopted. VR, robotics and paperless records are also well-established in the health sector -- which, like aviation, is a highly regulated space.

Taking actionable steps forward

In order to make concrete strides toward a technology-driven future, organisations need to first and foremost understand that uncertainty is inevitable. Some level of this must always be



Allan Bachan, VP, ICF Aviation

tolerated, as all risks can never be fully eliminated from any evolving tech project. That said, there are ways to minimise it as MRO embraces digitalisation. More specifically, running well controlled beta programmes is an effective tactic for moving the meter forward toward scaling systems fully while keeping failure within controlled limits.

After moving past any risk-related hesitation, it's crucial to establish a good change management strategy that strikes the ideal balance between advancement and realistic project scope. Organisations must bear in mind there will always be exciting, new tech on the horizon. However, the primary goal should be to keep an eye on achievable progress without getting distracted by the "next big thing."

The most impactful way to continuously push this forward progress is by employing a "brick-by-brick" approach. This means always having at least one active project driving technological change, which in turn keeps the organisation focused on the long-term. This method removes intimidation from the process of digital transformation. While looking at the full spectrum of possibilities makes the idea of introducing innovation overwhelming, selecting a specific solution to implement step by step all at once makes the undertaking feel manageable.

Looking ahead

Aircraft MRO is primed for a technological revolution. Traditional systems still in wide use are limiting productivity and efficiency gains. While they effectively served the needs of the past, they simply won't serve the needs of the future. In today's increasingly digital world, keeping up with the pace of innovation is no longer an option for MRO leaders; it's a necessity. Ultimately, adopting digital solutions will not only save money in the long term; it will lay the solid foundation necessary to propel aviation into the future. Change is overdue, and it's time for MRO leaders to commit to a firm digital path forward.



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John Hardy

Avant Aerospace has promoted **John Hardy** to Director, based at their East Alton, IL (ALN) facility while overseeing all Avant locations. Hardy has been with West Star Aviation for 13 years, formerly serving as Director of Avionics, Accessories, NDT, and Aircraft Services. He graduated from SIU-Carbondale and has over 30 years of aviation experience with previous positions held at Standard Aero Springfield. In this new position, Hardy will report to Avant's Senior VP of Parts and Components, **Pete McKernan**, and will be responsible for Sales, Marketing, and Inventory Sourcing.

CAVU Aerospace has hired industry veteran, **William "Bull" Johnson**. With over 30 years' experience in the aviation and aerospace industry, focused on both line and heavy aircraft maintenance, Johnson is an aviation professional with experience in air carrier, repair station and military environments on various types of rotary and fixed wing platforms. Prior to joining CAVU, he completed twenty-two years with AAR in various positions. Most recently, he was assigned to the AAR Expeditionary Services/Airlift, a DoD-contracted Part 135 OCONUS intra-theater airlift provider. Johnson will assume the role of General Manager of CAVU Aerospace's 145 Certificated Repair Station in Roswell, New Mexico.

Werner Aero Services has announced that **Teimuraz (Temur) Muzashvili** has joined its team. He will focus on overseeing and expanding Werner's current business in CIS countries. Muzashvili joins Werner Aero Services with over nine years' experience in the airline industry as a power plant manager. His arrival reinforces Werner Aero Services' commitment to increase its presence and services in EMEA and CIS with a local solution and expand the APU, engine nacelle, and component business in the region.

Zahira Bouaouda
Photo: Jawhar Kodadi/
Safran

Zahira Bouaouda has been appointed President of MATIS Aerospace, a 50/50 joint venture between Safran Electrical & Power and Boeing, specializing in electrical wiring interconnection systems. She thus became the first woman to manage an aerospace company in Morocco. Zahira Bouaouda began her career in 1997 as an auditor with Dorlian & Associés and then MCA & Associés. She joined KPMG Morocco in 2001 as a Senior Manager and joined MATIS Aerospace in 2006 as Finance Director, before becoming Operations Director in 2017.



Mike Ward

Mike Ward has joined DAS/Flite as Vice President of Sales, Parts and Component Repair. **Eli DaSilva** will assume a Director of Business Development role and report to Mr. Ward, along with the sales team. Ward brings over 25 years of aviation experience to the team. He most recently worked for Spirit Aero-Systems in Wichita, Kansas, as the Senior General Manager for its Aftermarket MRO operation. He has spent the majority of his career in the VIP interior modifications business for wide body head of state aircraft. Ward also formerly served as Director/GM for Hawker Beechcraft Services and Textron Aviation Services' MRO service center in Houston, Texas.

Jeanette Pinard has joined the Stifel Aviation business as Managing Director. She will be responsible for transaction diligence and documentation in the company's growing engine ownership and leasing business, including transaction management and execution relating to the acquisi-

tion, financing and disposition of engine and aircraft portfolios. Pinard brings a unique combination of legal and commercial expertise, along with a strong command of the nuances of managing global aviation assets. Prior to joining Stifel, Pinard held various roles at GECAS for over 23 years, including as Associate General Counsel establishing GECAS' China platform for aircraft before being promoted to SVP & General Counsel at GECAS Engine Leasing and later adding GECAS Materials to her responsibilities. Pinard was one of the founding executives critically instrumental in building GECAS' engine leasing business.



David Brigante

David Brigante has been nominated SVP Programs and Customer Services of ATR, starting August 1, 2019. He will be reporting to CEO, **Stefano Bortoli**. Brigante will be succeeding **Tom Anderson**, who will leave ATR at the end of July 2019. After several years within the ATR team in different and significant roles, Anderson has decided to take a new direction in his professional career. Brigante, who joined ATR in 2015 from Leonardo, brings a strong aeronautical experience and a deep understanding of ATR today, as well as of what is needed for the future. He will continue his current role as SVP Procurement and Supply Chain ad interim until a successor is appointed. Simultaneously, in order to optimize customer attention and satisfaction, with a growing fleet of ATR aircraft worldwide, Operations becomes an independent new function reporting directly to the CEO under the management of Raphael Dubus who will also become a member of the Executive Committee, effective September 1, 2019. This was previously integrated as a department in the Programs and Customer Services directorate.



Mike Da Silva

Baines Simmons, part of the Consulting & Training division of global aviation services group Air Partner, has appointed **Mike Da Silva** as consultant. He will report directly to **Mike Wallace**, Head of Operations. De Silva is a practitioner and manager in Initial Airworthiness, Certification, Test and Evaluation, and Safety Management Systems (SMS), covering both military and civil environments. Having successfully achieved design and flight test approvals and implemented an SMS, he has practical experience in understanding the requirements and expectations of regulators and can advise clients on the best course of action to achieve success in gaining approvals.



Daniel Adamski

Kellstrom Aerospace has appointed **Daniel Adamski** as Executive Vice President of Distributions. Having over 25 years of experience in the aviation industry with a focus on OEM Partnerships, Adamski joins Kellstrom Aerospace from PAS Technologies where he served as Vice President Business Development Americas.

Aero Norway, the independent engine MRO provider and trusted partner for customers operating CFM56-3, CFM56-5B and -7B engines, has appointed **Klaus-Peter Leinauer** as the new Director of Sales & Marketing. He will support Aero Norway's growth strategy and focus on best-in-class service for its expanding global customer base. Leinauer joins Aero Norway with more than twenty years' experience in the engine MRO industry having worked at SR Technics for seven years with responsibility for sales in Europe, Russia and the CIS. His appointment will spearhead a program of continuous improvement within the knowledgeable sales team, facilitating efficiency and enhancing working relationships.