

MRO

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from around the world



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MRO

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Opinion

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Bombardier's testing times

It's been a pretty tough time at airplane maker Bombardier of late. Following the news that it will sell off its Q400 turboprop line, as many of us in the industry predicted, the Canadian firm just announce [and not surprisingly] a corresponding job cut of almost 500 jobs in Northern Ireland.

The company, whose headquarters are in Canada, said it needed to reduce costs and improve efficiency to help ensure its long-term competitiveness.

It's been reported that the firm announced this month that it was shelving 5,000 jobs across its global operations. At the time, it said 3,000 posts would be lost at its Canadian locations.

Around a quarter of the 4,000 workforce in Belfast work on the C-Series, manufacturing the wings, and unions have been warning of pressures on

other areas of Bombardier's work away from the C-Series. These are certainly uncertain times for the families of those affected.

Elsewhere though, Bombardier has said it will continue to expand its global customer support network adding a line maintenance station (LMS) located at Le Bourget Airport near Paris. The new facility is the seventh line maintenance station to be opened in the past 18 months to support some of its MRO related activities.

That is some good news but these are very testing times for Bombardier, their staff and families especially with the lead up to Christmas. We can only wish them the very best.

Keith Mwanalushi
Editor



Cooperation between airlines and MRO support in cases of AOG is crucial.
Photo: Keith Mwanalushi

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Magnetic MRO Painting team with airBaltic's A220-300 in special livery
Photo: Magnetic MRO

Magnetic MRO paints airBaltic's A220-300 in special livery

Magnetic MRO has painted Latvian airline airBaltic's A220-300 aircraft in a unique one-off livery, celebrating Latvia's 100th birthday. One of the first A220 aircraft painted outside of OEM, the special project was completed under secrecy in Magnetic MRO's Tallinn Paint Hangar in cooperation with airBaltic and coatings partner AkzoNobel. The special livery was unveiled at an official ceremony at Riga Airport on Friday, November 9, in the presence of the President of Latvia, Raimonds Vējonis, and the CEO of Air Baltic, Martin Gauss. The unique livery, depicting Latvia's flag colors on the fuselage was applied onto airBaltic's newest-generation aircraft, the A220-300. The one-month-old aircraft registered as YL-CSL will now fly across Europe and Asia, spreading the message of Latvia's 100th birthday.

Sky Aerospace Engineering completes test flight of first Ka-band Wi-Fi installation for Spirit Airlines' Airbus fleet

Orlando, Florida-based MRO Sky Aerospace Engineering (SAE) has completed a successful aircraft test flight after the modification of the first Spirit Airlines' A320 family-series aircraft. SAE has also completed the installation of the first Ka-band High Throughput Satellite (HTS) system fitted on A320 family aircraft; the system provides high-speed web browsing and streaming. Sky Aerospace Engineering entered into an agreement with Spirit Airlines, headquartered in Miramar, Florida, in August 2018. The agreement pro-

vides maintenance checks, repair and modifications of Spirit's fleet of Airbus 319, 320 and 321 aircraft at SAE's state-of-the-art hangar facility located in Orlando International Airport Florida. Additionally, SAE has accomplished the modification and installation of the Automatic Dependent Surveillance – Broadcast (ADS-B) system – the first of its kind within the A320 aircraft family – for Spirit Airlines, which will become mandatory by the Federal Aviation Administration (FAA) on January 1, 2020.

Singapore Component Solutions and Liebherr-Aerospace sign MRO cooperation agreement

Singapore Component Solutions (SCS), a joint venture between AFI KLM E&M and Sabena technics, dedicated to component support for ATR and Airbus A320 aircraft fleets, and Liebherr-Aerospace, a leading supplier of systems for the aviation industry, finalized the signature of a cooperation agreement at the MRO Asia-Pacific event. Under the terms of the agreement, Liebherr-Aerospace will assist and support SCS in developing industrial capabilities dedicated to the A320 heat exchangers manufactured by Liebherr. SCS will thus join the Liebherr worldwide network for heat exchanger maintenance. Through this partnership agreement, SCS will be qualified to carry out maintenance work on Liebherr-designed heat exchangers – more precisely from cleaning up to repairs, excluding renovation and reconstruction. In exchange, the Air France-KLM Group will make use of Liebherr services for work requiring the "recoring" (renovation, reconstruction) of defective heat

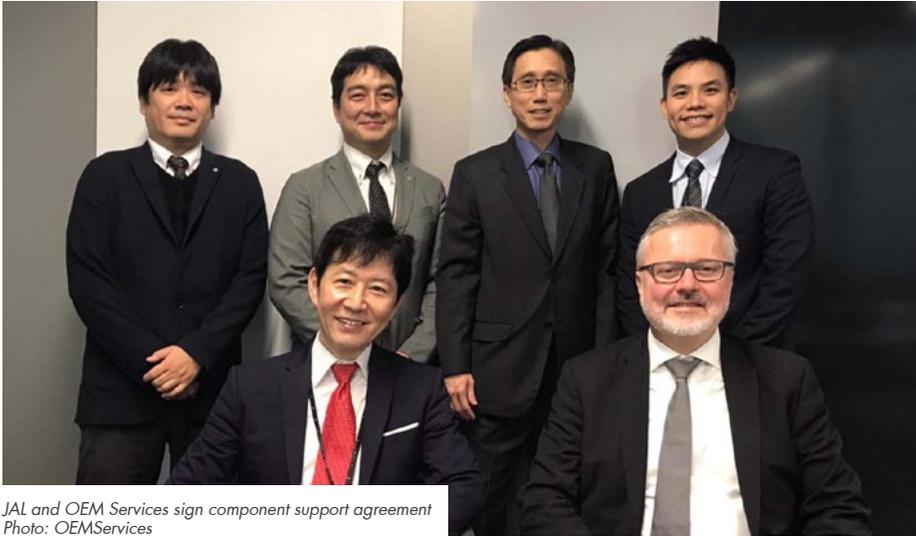
exchangers. In combining the know-how and expertise of a world leader in aircraft maintenance and those of a major OEM, AFI KLM E&M, via SCS, its joint venture with Sabena technics, and Liebherr are now able to offer high-level dedicated heat exchanger support solutions in terms of TAT and cost, for the benefit of their client airlines.

GKN Aerospace steps into wide-body MRO market

GKN Aerospace's Fokker Techniek business has successfully completed its first major Airbus A330 maintenance project. The aircraft was delivered to Air Europa at the beginning of November, marking another milestone in the company's long history as an aircraft MRO. Air Europa (Spain) has previously awarded heavy maintenance projects for its 737 narrow-body fleet to GKN Aerospace's Fokker Techniek business. Last year the company successfully performed a cabin modification package on another A330. The required training, tooling and equipment for wide-body maintenance have now all been obtained. Approvals and further commitments are secured to add this first wide-body aircraft type to the portfolio.

Cebu Pacific Air adds A321s to AFI KLM E&M components contract

Cebu Pacific Air has expanded its component support contract with Air France Industries KLM Engineering & Maintenance (AFI KLM E&M) to include seven A321ceo and 32 A321neo aircraft. This is on top of the component support agreement signed last year between Cebu Pacific and AFI KLM E&M covering its fleet of Airbus A320 aircraft. The array of services provided under the long-term contract includes component repairs from Europe and Singapore, as well as access to a local spares pool. The contract extension bolsters AFI KLM E&M's leadership position across the region, embodied in particular through its local joint venture with Sabena technics, Singapore Component Solutions (SCS), a component repair shop launched in September 2016. Operating out of Seletar international airport, with some 6,500 m² of repair facilities, SCS is one of the region's leading multi-product and multi-fleet players. SCS specializes in repairs for A320, A330, ATR and Fokker 100 fleets with a comprehensive offering for avionics, mechanical and pneumatic components, along with aerostructure, cabin and safety components.



JAL and OEM Services sign component support agreement
Photo: OEMServices

Japan Airlines awards OEMServices component support of its A350 fleet

OEMServices and Japan Airlines have signed a ten-year component support agreement for the airline's planned fleet of thirty-one A350 aircraft. With the support of major Original Equipment Manufacturers (OEM), OEMServices' Original Integrated Services will cover the component repair, global component availability and 24/7 component support for Japan Airlines' fleet of Airbus A350-900 and A350-1000 aircraft. Within the scope of this contract, OEMServices will be supporting Japan Airlines' 31 Airbus A350s currently on-order, backed by its unique long-term source of know-how of the aviation industry's supply chain. This agreement confirms OEMServices leading position on the A350 component after-sales support.

STG Aerospace awarded FAA certification for its Airbus liTeMood® cabin lighting solution

STG Aerospace, the pioneering aircraft cabin lighting specialist, is delighted to announce that its Airbus liTeMood® solution is now FAA certified for the Airbus A318, A319, A320 and A321. This complements the EASA certification that it was awarded in August of this year. Airbus liTeMood® is a dynamic and configurable full color, plug-and-play, programmable retrofit lighting system that provides a choice of over 16 million colors and can be used to create bespoke scenes – from the northern lights to sunrises and sunsets, to settings specifically designed to celebrate national holidays – in just minutes using a patented infrared wand. Designed to work with both classic and enhanced CIDS, the system can be installed in under six hours with no

changes required to the aircraft's wiring or control panels. Airbus liTeMood® also delivers a range of operational benefits, including an MTBF in excess of 55,000 operating hours, a weight saving of up to 20kg on an A320, and a reduction in power usage of 55% compared to incumbent systems.

GA Telesis signs repair management agreements with three Eurasian customers

GA Telesis, (GAT) has announced that the Company's Component Solutions Group (CSG) Istanbul customer support office has signed repair management agreements in the 3rd Quarter with three leading Eurasian-based airlines and MROs for repair management services utilizing GAT's iGEAR program. The aforementioned contracts will support a total of 80 Airbus and Boeing single-aisle and twin-aisle aircraft as well as Bombardier and Embraer regional jets. The multi-year agreements span an average of five years and will support up to 150,000 annual flight hours of operation.

AAR and Ameco sign long-term RB211 repair deal at MRO APAC

AAR, a global provider of aftermarket aviation services for commercial airlines, has signed a long-term contract with Ameco, an MRO expert in RB211 repair and disassembly, on Wednesday at MRO APAC. The deal positions AAR to provide long-term support to customers in the market for this Rolls-Royce engine. The agreement includes AAR's cooperation with Ameco to provide RB211 repair/exchange and leasing services, highlighting

AAR's flexibility for its customers in more than 100 countries around the world. "We are looking forward to a long and stable partnership with AAR," said Bin Teng, General Manager of Marketing and Sales, Ameco. "Our relationship will prove beneficial to both parties over the next 15 years."

GA Telesis grows MRO business

GA Telesis has reported a record third quarter for the Company. In the third quarter ending September 30, the group obtained both Chinese and Vietnamese regulatory approvals as well as deploying new product capabilities to support the A320, B737NG, and B777. In January, the MRO Services Group announced a long-term Repair and Overhaul License Agreement and Parts Supply Agreement with Honeywell. During this same time period, the Company added several new products to its existing agreement with Honeywell, which broadens the offerings to its customer base. Products include electro-mechanical, pneumatic and mechanical LRU's covering a variety of Airbus, Boeing, Bombardier and Embraer fleet applications. The Company plans to continue its OEM alignment strategy with other manufacturers that will allow it to provide repairs using OEM genuine parts and approved procedures at competitive rates.

Rolls-Royce introduces new engine change service

Rolls-Royce has introduced a new Trent XWB Engine Change Service, with Hong Kong Aircraft Engineering Company Limited (HAECO Hong Kong) as its launch partner. The service enables Rolls-Royce customers to access its OEM expertise and supplier network, with Rolls-Royce acting as a one-stop shop to organise labour, parts and/or tooling for any Trent XWB engine change event. Offered on a time and material basis, Rolls-Royce customers are able to request a quote for their engine change event requirements from its 24/7 Aircraft Availability Centre, be that a home base or remote site location. HAECO Hong Kong has been selected as the first service provider to support Rolls-Royce in delivering the Engine Change Service, providing established capabilities and a long-standing relationship with Rolls-Royce. Rolls-Royce plans to continue to develop the service over time by creating a global network of service support providers, full integration with the CareStore services, including Foundation Services, and expansion of the service coverage to initially the Trent 7000 engine family, and potentially across the full Trent engine family.



Boeing-Safran JV Auxiliary Power Units get regulatory go-ahead

In a joint announcement from Chicago and Paris, Boeing and Safran have confirmed that the 50:50 joint venture to produce Auxiliary Power Units (APUs) has received regulatory approval. This will enable the two companies to commence with designing, building and servicing aircraft APUs -onboard engines that are primarily used to start the main engines and power aircraft systems while on the ground and, if necessary, in flight. The initial team will perform design work in San Diego, California. Commenting on the news, Philippe Petitcolin, CEO of Safran, confirmed that "Safran is proud to launch this joint venture with Boeing in order to offer state-of-the-art APUs and enhance customer value. Together, we are committed to delivering innovative, highly technological and cost-competitive solutions to global customers. We are confident this joint team will provide first-class products and services within the best integrated industrial organization," Safran currently supplies a wide range of components to Boeing commercial and defense programs, including as a partner to produce CFM's LEAP-1B engine for the 737 MAX (through CFM International, a 50/50 JV between Safran Aircraft Engines and GE). Boeing and Safran also are partners in MATIS, a joint venture in Morocco producing wiring products for several airframe and engine companies. It has also been announced that Etienne Boisseau will become the Chief Executive Officer of the joint venture.

Magellan awarded CA\$140 million contract extension with Airbus

Magellan Aerospace Corporation (Magellan) has secured a six-year agreement with Airbus for a contract extension for the manufacture of A350 XWB centre wing box and keel beam detail parts. It is estimated that revenue generated from this work package will exceed CDN\$140 million (US\$106 million) over the term of the contract. The package consists of a number of large structural, machined components, and will be manufactured by Magellan in the United Kingdom and supplied to the Airbus assembly facility in Nantes, France.

Rolls-Royce signs engine and service agreement with China Eastern

Rolls-Royce has signed a Trent XWB engine and long-term TotalCare® service agree-

ment with China Eastern Airlines involving the airline's 20 Airbus A350-900 aircraft. The agreement, worth over CNY10 billion (over US\$ 1.1bn), is expected to be one of the largest deals announced at the first China International Import Expo (CIIE) taking place in Shanghai from 5-10 November, 2018. China Eastern ordered 20 Airbus A350 XWB aircraft in 2016 to strengthen its wide-body fleet for international routes and to meet the needs of the fast-growing Chinese aviation market. This latest announcement follows a Letter of Intent (LOI) signed in 2017. Rolls-Royce Trent 700 engines already power all of China Eastern Airlines' 59 Airbus A330 aircraft in service.

Satair and Regent Aerospace sign long-term co-operative agreement for aircraft cabin upgrades and refurbishments

Satair and Regent Aerospace Corporation of Valencia, California, USA, have signed a multi-year, global co-operative agreement at the MRO Asia-Pacific exhibition in Singapore, for the MRO solution and supply of aircraft cabin repairs, refurbishment, modifications, reconfigurations and upgrades for Satair's integrated approach to offer additional MRO services and solutions for airlines, lessors and MROs worldwide. This is the first time that Satair has entered into an agreement of this kind with an aircraft cabin/OEM supplier. As a global center of excellence on commercial aircraft cabin interiors, Regent will help Satair to offer additional services and solutions for the airlines, lessors and MROs across the globe who want geographical and total solutions for their fleets. The agreement offers new avenues of opportunities for both companies to expand cabin interior market share by building new

revenue streams while in the process satisfying growing customer demand.

Malaysia Airlines Berhad and Revima sign an A330 enhanced landing gear support agreement

Malaysia Airlines Berhad (MAB) has entered into a maintenance agreement with Revima for the support of the airline's A330 enhanced landing gears. Through this agreement, Revima will provide repair and overhaul services for 19 of MAB's A330 aircraft. Services cover landing gears and related components from 2019 to 2024, with an exchange solution. The overhauls will be carried out at Revima's main facility located in Normandy, France. Revima will also provide engineering and onsite support to MAB.

UTC Aerospace Systems and Lufthansa Technik sign component service agreement

UTC Aerospace Systems and Lufthansa Technik have signed a life of program component service agreement for maintenance of Geared Turbofan (GTF) engine accessories, integrated and supplied by UTC Aerospace Systems for the A320neo. Under this agreement, Lufthansa Technik will develop repair capabilities for certain UTC Aerospace Systems' GTF engine accessories. UTC Aerospace Systems will provide GTF engine accessory parts and certain repair services to Lufthansa Technik. By cooperating in repair development and sharing maintenance practices, both companies will be able to offer improved aftermarket services aimed at reduced operating costs.



PW 1100 engine
Photo: LHT

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Contract signing GKN Aerospace, COMAC and AVIC International
Photo: GKN Aerospace

GKN Aerospace, COMAC and AVIC to jointly manufacture advanced aerostuctures

At the Zhuhai Air Show, GKN Aerospace, COMAC subsidiary SAMC (Shanghai Aircraft Manufacturing Company), and AVIC International (Aviation Industry Corporation of China) have today signed a Framework Agreement to establish a joint venture for aerostuctures manufacturing in China. This Framework Agreement enshrines the progress made by the parties since signing an MOU in September 2017 and represents a significant milestone in their co-operation together. The joint venture is scheduled to begin production Q4 2021 in a new state-of-the-art facility. Locations are currently being evaluated. The joint venture will manufacture products for the civil aerospace market. This development puts the partners at the heart of the Asian aerospace market which is a key growth market for the future. The new joint venture will open up new business opportunities for GKN Aerospace's industry-leading aerostuctures' business and its partners. GKN Aerospace and its partners will, as a result of the joint venture, be able to offer its customers technologically advanced aerostuctures, both metallic and composite, that have a proven record in the global market. After the start-up period the scope of the joint venture will be extended to include design and development capability. The expansion to Asia is an important part of GKN Aerospace's long-term growth strategy and global operating model. This summer GKN Aerospace announced to open a new wiring systems plant in Pune, India and in October GKN Aerospace officially opened a new aero-engine repair and research plant in Johor, Malaysia. GKN Aerospace now operates seven facilities in Asia, delivering wiring systems, transparencies and services in China, India, Malaysia, Singapore, Thailand and Turkey. With this Chinese joint venture, GKN Aerospace's business will have its first aero-

structures venture in the Asian-Pacific region. The establishment of the joint venture is subject to the fulfilment of certain conditions including, but not limited to, approvals by the relevant authorities.

LHT signs first comprehensive Cyclean Engine Wash contract with SIAEC, LHT Shenzhen now approved service provider for COMAC

Lufthansa Technik AG has signed its first comprehensive Cyclean® Engine Wash contract with SIA Engineering Company Limited (SIAEC) at the MRO Asia-Pacific in Singapore on November 7. The long-term cooperation is set to last for five years. With this contract, SIAEC will now clean the engine types of its major customers under Singapore Airlines Group with Cyclean® Engine Wash at Singapore-Changi Airport with. This includes the Rolls-Royce Trent 700, 800, 900, 1000 and XWB engines, the Pratt & Whitney PW4000 and General Electric GE90-115 for Singapore Airlines and Scoot Tigerair. Cyclean® Engine Wash is performed as part of maintenance work, in transit between two flights or overnight. It shortens conventional engine washing time by up to 80 percent and enables unrestricted execution not only in the hangar but everywhere at the airport. Cyclean® Engine Wash can be applied to all current engine types of the leading manufacturers General Electric, Rolls-Royce, Pratt & Whitney, CFMI and IAE. Since its market launch in 2007, more than 70 airline customers worldwide have decided on Cyclean® Engine Wash up to today.

Furthermore, Chinese aircraft manufacturer COMAC (Commercial Aircraft Corporation of China) has officially approved Lufthansa Technik Shenzhen as their first MRO service provider in China for ARJ21 engine nacelles and components. Prior to the approval, the

Lufthansa Technik subsidiary had successfully performed an on-site audit in December 2017. Located in the Chinese province of Guangdong, Lufthansa Technik Shenzhen had added the COMAC ARJ21 regional jet to its service portfolio in 2016. Since then, the company has carried out modifications to several shipsets of the regional jet's engine fan cowls and thrust reversers. Lufthansa Technik Shenzhen is authorized by Middle River Aircraft Systems (MRAS), a subsidiary of General Electric, to carry out maintenance, repair and overhaul for ARJ21 engine nacelles.

Japan Air Commuter renews Power-by-the-Hour Service with C&L Aerospace

C&L Aerospace (C&L), a C&L Aviation Group company, has renewed an agreement with Japan Air Commuter (JAC) to provide power-by-the-hour services for its fleet of Saab 340 aircraft. The multi-year contract includes rotatable inventory, landing gear and more, and will cover JAC's fleet of Saab 340 aircraft. This agreement is a continuation of an original agreement, signed between the two companies in 2016. C&L, headquartered in the USA, is one of the largest Saab 340 MROs in the world and is a dominant player in Saab 340 after-market support. Its comprehensive and proven Saab 340 support continues to make it an ideal partner for JAC.



AEI continues B737-400SF program success with order from Automatic

Aeronautical Engineers (AEI) has signed a contract with Automatic to provide the company with another B737-400SF freighter. At the beginning of this year, AEI celebrated delivering its 100th B737-400SF freighter conversion and orders for the conversion platform remain strong.

The Automatic B737-400 (MSN 25853) commenced modification yesterday and will be re-delivered in early March 2019. The completed B737-400SF will be operated by UK-based Titan Airways and represents the airline's second 400-series freighter. Commercial Jet's Dothan, Alabama facility is handling the modification touch-labor and maintenance requirements for the aircraft.



MTU Maintenance Zhuhai and Hainan Airlines sign contract for V2500 MRO services
Photo: MTU

MTU Maintenance signs multiple contracts at Zhuhai Airshow

MTU Maintenance Zhuhai signed a number of agreements at the Zhuhai Airshow in China. The first was a five-year agreement with long-standing customer Hainan Airlines for V2500 MRO services. Hainan Airlines and MTU Maintenance Zhuhai have worked together on CFM56 engines for well over ten years and are now expanding their cooperation to include the V2500 engines powering the airline's A320 fleet.

Furthermore, MTU Maintenance Zhuhai committed to supporting China Southern Air Leasing Company with V2500 teardown and material management services. Cooperation was also intensified with joint venture partner China Southern Airlines, with commitments to providing training for China Southern maintenance and engineering staff regarding on-site repairs. This benefits both parties equally: it enables China Southern to improve its competencies in this area, and MTU Maintenance Zhuhai gains additional flexibility to serve other customers with on-site and AOG support. Beyond the agreements signed on November 7, contracts were signed with both Vietnam Airlines for V2500 engines and VietJet Air for their CFM56-5B engines earlier in the year. These are MTU Maintenance Zhuhai's first contracts in Vietnam and a significant milestone in becoming the market leader in Asia. In total, the above mentioned contracts are estimated to have a value of over US\$500 million.

GA Telesis signs new iGEAR agreement with major European airline

GA Telesis (GAT) has reported that a major European airline has entered into an exclusive multi-year agreement to receive rotatable

component flight-hour support through GAT's Intelligent Global Engine and Airframe Replenishment (iGEAR) program for its fleet of wide-body aircraft. Launched in 2016 and managed by GAT's Component Solutions Group (CSG), iGEAR programs provide airlines and operators with access to a global distribution network for rotatable inventory and include 24/7/365 Live AOG support. The agreement will cover ten aircraft supported via GAT's UK-based operations and customer support and distribution center. This agreement will support the airline for five years with a multi-million-dollar dedicated pool inventory supporting a span of 125,000 flight hours. In addition to rotatable inventory support, they will also have access to GAT's comprehensive in-house component and composite repair capabilities provided by GA Telesis MRO Services business units that will contribute to delivering cost reduction and streamlining the airline's supply chain.

AJW awarded new PBH contract with Azul Airlines

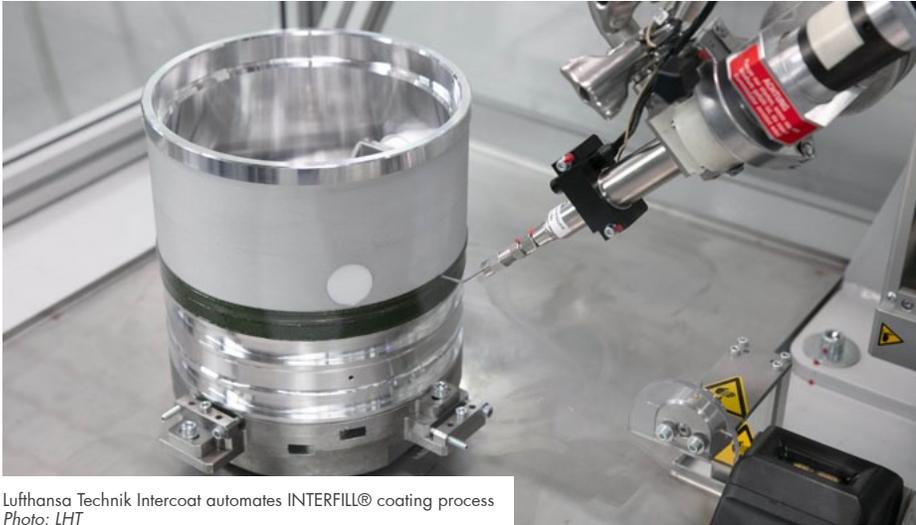
AJW Group has secured a new Power-by-the-Hour (PBH) support contract with the Brazilian cargo unit of Azul Airlines, Azul Cargo Express. The multi-year contract, which marks an extension of AJW's relationship with Azul, will see the business use its industry-leading expertise to manage the complete supply, repair and overhaul of rotatable components for the operator's B737CL freighter aircraft. Headquartered in São Paulo, Brazil, Azul Cargo Express was founded in 2009 and now operates express cargo transportation from over 200 stores across the country, serving more than 100 airports. In recent years, the business has expanded its offering to serve international markets including the United States, Portugal, Argentina, Uruguay and France.

MTU Maintenance signs CFM56 engine MRO contract with Regent Airways

MTU Maintenance has signed a CFM56-7 engine MRO contract with new customer Regent Airways. The seven-year contract covers the maintenance repair and overhaul of the engines powering the airline's six Boeing 737 aircraft, as well as spare engine leasing and reliable on-site support. Regent Airways is a privately-owned Bangladeshi airline. Based at Dhaka Hazrat Shahjalal international airport, the company started commercial operations in 2010 and flies national and international routes to destinations including India, Malaysia, Nepal, Oman, Qatar, Saudi Arabia, Singapore and Thailand.



CFM56-7B engine
Photo: MTU



Lufthansa Technik Intercoat automates INTERFILL® coating process
Photo: LHT

Lufthansa Technik Intercoat automates INTERFILL® coating process

Lufthansa Technik Intercoat, a subsidiary of Lufthansa Technik AG, has commissioned the world's first partly automated system for coating components with INTERFILL®. As a result, the components can now be coated in a single working step. The entire new system concept was developed in-house at Lufthansa Technik Intercoat. Lufthansa Technik Intercoat specializes in the repair of components using an advanced epoxy coating process. For this purpose, the company from Kaltenkirchen, Germany, developed a material called INTERFILL® that is based on epoxy resin. The material gives components from the aviation, rail and automotive industries a new life cycle and improves their operational characteristics. Until recently, the advanced epoxy coating process was completely manual, but now a part of the coating process can be automated. The component is fastened to a rotating device in a working booth. A robotic arm then applies INTERFILL® to the component surface through a fine nozzle. A special applicator ensures that the ideal dose is applied with an even-layer thickness. The improved application method prevents air pockets from forming, which reduces the amount of corrective work that may otherwise be necessary. The innovative system provides consistent, high-quality results and saves a considerable amount of time.

GAMECO expands scope of Airbus managed inventory agreement with Satair

At the Zhuhai Airshow, GAMECO (Guangzhou Aircraft Maintenance Engineering

Co.) signed an extension with Satair to its long-term agreement for the Airbus Managed Inventory (AMI) service. The agreement extends the contract scope to include further frequently moving expendable parts underlining the flexibility inherent in the AMI service offering. Both parties are ready to contribute their efforts in advancing win-win cooperation for sustainable development. When announced at the Zhuhai Airshow in November 2016, GAMECO was the first customer in China for Satair's AMI solution. After reformation, the two parties have jointly promoted data sharing and system integration. In the form of automatic replenishment to provide GAMECO with efficient aviation materials support management services, Airbus has carried out real-time monitoring of AMI project inventory. GAMECO has ensured effectiveness of work-out by capturing material consumption information in real-time and automatically triggering replenishment orders within the agreed inventory levels. Today GAMECO provides comprehensive and guaranteed aircraft maintenance services for more than 200 Airbus aircraft that operate in China.

MEKCO Group enters into elite partnership with SATTO

MEKCO Group, a provider of aircraft cabin connectivity and repair innovations, has entered into an elite partnership with SATTO®, a global leader in composite and plastic interior repair solutions. This partnership brings the first FAA/EASA-approved SATTO repair center to the United States and will do business under the name SATTO Repair Center, USA. SATTO Repair Center, USA will begin providing services to customers beginning in the fourth quar-

ter 2018. SATTO Solutions, a product line under the SATTO brand, was established in 2013 to provide engineered Rapid Repair System processes that enable long-lasting repairs to aircraft cabin interior plastics and composites. Many of these unique solutions take less than 30 minutes to cure with no heat required, and repaired parts can tolerate twisting and bending far beyond normal usage. The Rapid Repair System is fully compliant with REACH, MSDS requirements, and has received approvals for burn, flammability, tensile, smoke and toxicity tests. The partnership allows MEKCO Group to expand their capabilities to repair and modify aircraft interiors and composites using the SATTO Solutions, Rapid Repair Systems on a wide range of cabin repairs, including: Cracked or crushed composite skin, skin blistering, delaminating due to water ingress, impact damage, pulled inserts, and chipped or scratched composite skin.



Revima sets up a new Landing Gear MRO facility in Thailand

Revima, the independent MRO solutions provider specialized in APUs, engine parts and landing gears, reaffirms its increased presence in the Asia Pacific Region. With the aim of continuously improving customer service and proximity, Revima will open a new state-of-the-art landing gear overhaul facility in Thailand in 2020. The facility will initially focus on Airbus A320 and Boeing 737 family landing gears and serve as a Revima customer service center for the Asia Pacific region. It will be strategically located within the Eastern Economic Corridor (EEC) in Amata City Chonburi's Free Zone, a world-class industrial park south of Bangkok, close to main highway connections, the international airport, major seaport and U-Tapao Airport, a growing maintenance hub currently being developed. It will be equipped with the latest state-of-the-art machines and will include all necessary special processes for full in-house repair & overhaul landing gear operations. Revima's Thailand facility will be "digitally connected", from its machines to its technical documentation, warehouses, monitoring and customer communication systems. It will also be environmentally friendly, with zero rejection waste water systems and state-of-the-art fire detection and suppression technology.

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Opening of StandardAero's new expansion in Miami
Photo: StandardAero

StandardAero dedicates 30,000 ft² expansion at company's existing Miami component repair facility

StandardAero Component Services has dedicated the company's 30,000 ft² expansion of its component repair facility, located in Miami, Florida. The additional working space and capital improvements includes the installation of a state-of-the-art clean line, an additional vacuum furnace as well as water jet cleaning capabilities. As a result, the facility will be the largest provider of aerospace and aerospace-derivative combustor overhauls in North America. The Miami location expansion complements StandardAero's recent new building expansion at its Cincinnati facility and the company is still proceeding with another 30,000 ft² expansion at its Hillsboro, Ohio facility, which is expected to be completed by the end of this year. StandardAero Component Services offers a full range of repair and overhaul capabilities using special processes developed and/or implemented at its facilities to solve unique and complex problems. These can range from advanced repair technologies through procedural, compliance and quality assurance processes. Some of its major process capabilities include cleaning, NDT and inspection; thermal spray and coating; plating; welding/brazing and heat treatment; painting, stripping and surface prep; manual and CNC machining; and extensive composite capabilities.

Airborne Maintenance & Engineering Services receives FAA approval for ground-breaking repair process

Airborne Maintenance & Engineering Services, a wholly owned subsidiary of Air Transport Services Group, has received FAA approval of repair specifications for selected aircraft parts using the Supersonic Particle Deposition (SPD) process commonly known as "cold

spray." "This ground-breaking approval is the first step in making the cold spray process commercially available for use in aircraft repairs," said Greg Smith, Director of Engineering, Manufacturing and Repair at Airborne, "and it opens opportunities to seek approval for repairs of aircraft parts that are not currently repairable. Developing these emerging technologies is one of the values that we are providing our customers to meet their requirements in cost savings and reducing overall operational waste." The SPD process involves using a supersonic jet of expanded gas to spray metal powder onto a solid surface with sufficient energy to cause bonding with the surface. The material builds up and repairs the metal part or surface without creating a heat-affected zone.

Liebherr-Aerospace enlarges footprint in China

Liebherr-Aerospace is continuing to expand its presence in China. The company is growing and strengthens further its support to COMAC and to the customers of the Chinese aircraft manufacturer by different measurements at its liaison and customer service center in Shanghai. The Chinese aviation industry is developing rapidly and so are the activities of Liebherr-Aerospace locally in the People's Republic. In line with the Liebherr philosophy of promoting organic growth, the company is committed to a long-term, reliable cooperation with its customers and partners in China. The liaison and customer service center of Liebherr-Aerospace in Shanghai with a total floor area of 3,700 m² offers services in maintenance, repair and overhaul. These include, for example, the maintenance of bleed air and air conditioning systems including air cycle machines. In addition, the center also offers the dynamic testing of components for air conditioning and pneumatic systems (ATA 21, 36) for Airbus single-aisle and long-

range aircraft, Bombardier and Embraer aircraft and COMAC's ARJ21-700. Moreover, Liebherr-Aerospace China can also service flight control and hydraulic components (ATA 27, 29). Recently, new capabilities for the repair of ARJ21 components were added. Furthermore, the technical support, engineering and flight test support teams were expanded and provide enhanced support for the operation of the ARJ21 as well supporting the C919 flight test program. The continuous growth of Liebherr-Aerospace in China can also be seen in the positive development of the joint venture of Liebherr-Aerospace Lindenberg GmbH (Germany) and LAMC (AVIC Landing Gear Advanced Manufacturing Corporation), called Liebherr LAMC Aviation (Changsha) Co., Ltd. which was founded in 2012 to develop and manufacture landing gear systems for the Chinese aerospace industry and the international market. The number of Chinese suppliers is to be gradually increased so that the joint venture can continue to remain internationally competitive with an increasingly independent location. A further important part in Liebherr's strategy in China is the cooperation between Nanjing Engineering Institute of Aircraft Systems (NEIAS) and Liebherr-Aerospace Toulouse SAS (France) with the aim of designing and producing components for the C919 air management system.

C&L Aviation Group receives STC certification for Saab 340 ADS-B In/Out solution

C&L Aviation Services (C&L), a C&L Aviation Group company, has received STC approval by the FAA for its Saab 340 A&B ADS-B solution. The STC certifies the installation of dual Garmin GTX-3000 transponders and uses either the Garmin GDL-88 SBAS/WAAS GPS or Universal Avionics SBAS/WAAS FMS GPS's including the UNS-1Ew, UNS-1Espw, UNS-1Lw and UNS-1Fw FMS systems to comply with the FAA Automatic Dependent Surveillance-Broadcast-Out (ADS/B-Out) mandate requiring compliance before January 1, 2020. C&L completed the installation and the required FAA in-flight testing in early October. There are many customers that have been eagerly waiting for this certification in order to place their orders. EASA certification will follow shortly. In addition, the Garmin Flight Stream 110/210 provides wireless ADS-B-In capability from the GDL-88 to provide subscription-free Flight Information Service-Broadcast (FIS-B) Weather and Traffic Information Service-Broadcast (TIS-B) traffic on compatible displays or PEDs. This STC can also be used for transponder/GPS pairing in other Part 23 and Part 25 aircraft.



Leonardo and Kangde Investment Group of China agree to partner on the COMAC CR929 long-range airliner
Photo: Leonardo

Leonardo and Kangde Investment Group of China agree guiding principles to partner on the new COMAC CR929 long-range airliner

Leonardo has signed a Memorandum of Understanding (MoU) with Kangde Investment Group of China within the framework of COMAC CR929 long-range airliner program, aiming at further growth of its presence in the country. Leonardo will leverage competences and intellectual property developed in Italy, while Kangde will provide the financial coverage for the program. Following the finalization of the agreement, the two partners will establish a joint venture named Kangde Marco Polo Aerostructures Jiangsu Co. Ltd., which will be responsible for the development, production and assembly of composite materials components for the CR929 aircraft. This will allow Leonardo to take further advantage of its proprietary technologies and capabilities for the development of a new long-range airliner. China is expected to have requirements for more than 1,500 new wide-body aircraft in the next twenty years. Leonardo is also looking at the development of the Chinese space industry and potential opportunities to collaborate in this growing market. Kangde Investment Group celebrated the laying of the foundation stone of the new facility in Zhangjiagang city, in the Chinese province of Jiangsu, on October 26, where the carbon fiber fuselage sections for the new CR929 long-range airliner will be built. The CR929 program was launched by COMAC, together with the Russian Company UAC, in 2017 with the aim of developing a long-range wide-body aircraft. Leonardo signed a preliminary agreement with COMAC, a public Chinese company in charge of civil aircraft programs in the country, in 2015 to start collaboration on the development and production of sections of the fuselage made of composite materials.

AFI KLM E&M signs multiple new contracts, receives EASA approval to overhaul LEAP-1B type engines

AFI KLM E&M has won the call for tenders launched by Air Corsica for C-Checks on two of its Airbus A320s. The aircraft will be overhauled in Casablanca by Aerotechnic Industries (ATI), a 50/50 joint venture between AFI KLM E&M and Royal Air Maroc. The two checks will take place in the first quarter of 2019 and will include implementation of a Service Bulletin (SB), and cabin maintenance and engineering services.

AFI KLM E&M's specialized EPCOR subsidiary delivering MRO solutions for pneumatic components and auxiliary power units (APUs) and NEOS have officially signed a maintenance agreement at the MRO Europe trade show in Amsterdam, covering the APUs of the Italian carrier's fleet of Boeing 787s. The contract covers repairs for the APUs equipping NEOS' 787s, two of which it currently operates, with two others awaiting delivery. EPCOR is a world-leading specialist in APU maintenance and has developed extensive know-how on a wide range of products, including latest-generation systems such as the APS5000. For this type of APU, EPCOR has dual technical and operational expertise as a provider of MRO solutions backed by an airline operating the 787, and has already convinced a number of airlines worldwide, who are reassured by this guarantee of quality and understanding of operational requirements.

At the MRO Europe trade show in Amsterdam, Corsair and AFI KLM E&M have signed an extension of their A330 component support contract, binding the two companies for several more years. The scope of the services provided is unchanged, ranging from component repairs to provision of a Main Base Kit and pool access. The two groups have cooperated for many years in the aircraft

maintenance sphere, for both Corsair's Boeing 747s and Airbus A330s, and have built up a genuine partnership. The trust created is again reflected in the extension of the A330 component support contract, for which AFI KLM E&M was able to propose an economically competitive offer to the French airline.

AFI KLM E&M has obtained approval from the European Aviation Safety Agency (EASA) for the overhaul of LEAP-1B type engines. With this latest milestone in its LEAP product industrialization program, AFI KLM E&M is henceforth authorized to offer a complete array of engine support services to customers that operate Boeing 737 MAX fleets, from inspection to modification, repairs, and overhauls.

AFI KLM E&M operationally launched this new product in spring this year after obtaining approvals from the EASA and the Federal Aviation Administration (FAA) for engine line maintenance (on-wing and on-site) for LEAP-1A and LEAP-1B engines. Today the industrialization program continues to be ramped up, and thanks to bilateral agreements between the EASA and the FAA, AFI KLM E&M will receive approval from the U.S. authorities in the coming weeks and will thus be able to extend coverage for its 737 MAX engine support services worldwide. In parallel, the Group is pursuing its development programs that will enable it to offer the same array of all-round services for the LEAP-1A engines equipping the Airbus A320neo.

Furthermore, KLM UK Engineering, an AFI KLM E&M subsidiary, has added the Boeing 737 MAX to its EASA Part 147 approval. A European leader in the regional jets and narrow-body aircraft market, and having an internationally acknowledged expertise on the Boeing 737, Embraer 170/190, BAe146/Avro RJ, Fokker 70/100 and Airbus A320 Family, KLM UK Engineering is delighted with this latest addition. Ray Flower, Head of Technical Training, said: "KLM UK Engineering is delighted to have gained the approval for the Boeing 737 MAX. This was the natural progression for us, after delivering Boeing 737 training for over 15 years on the Classic, followed by the Next Generation. With significant demand for both type and practical training for this product we look forward to offering solutions for 2019 onwards". The Company's training facility recently relocated to the International Aviation Academy Norwich, which is adjacent to the main base maintenance operation. This facility has been purpose built to accommodate aviation engineering training, with a live Boeing 737 aircraft, fully equipped workshops and state-of-the-art classrooms, to create a great learning environment.



Boeing Sheffield preview
Photo: Boeing

Boeing opens first European manufacturing site – Sheffield, U.K.

Boeing has opened its first component factory in Europe, at Sheffield in the U.K. The premises will be used for the manufacture of actuation system components for the Boeing 737 and 767 jets from raw materials sourced in the U.K. Parts by the thousand will be produced each month, then shipped to Boeing's Portland, Oregon facilities back in the U.S. Actuation systems move the flaps at the back of the wing to provide extra lift at low speeds during takeoff and landing. Sheffield will be responsible for manufacturing over 100 different high-tech actuation components of the 737 and 767 wing trailing edge, Boeing having invested some £40 million (US\$51.2 million) in the 62,000-square-meter facility. There is a total of 52 employees, including experienced mechanics, engineers and more than 20 apprentices working in the current Boeing Sheffield team. "We appreciate all the community support for Boeing's new advanced manufacturing factory in the U.K. This is a fabulous example of how we are engaging global talent to provide greater value to our customers," said Jenette Ramos, Boeing Senior Vice President, Manufacturing, Supply Chain and Operations. "In Boeing Sheffield, we are building on longstanding relationships and the region's manufacturing expertise to enhance our production system and continue to connect, protect, explore and inspire aerospace innovation." Greg Clark, U.K. Secretary of State for Business, Energy and Industrial Strategy said: "Boeing choosing the heart of South Yorkshire as its first European home is testament to our capabilities, talent pool and strong manufacturing supply chains which are vital to job creation and creating value for local economies. We are leading the world in UK aerospace manufacturing and through our modern Industrial Strategy, we, along with industry have committed to invest £3.9 billion (US\$5 billion) in aerospace."

Lufthansa Technik Puerto Rico receives approval for Airbus A320neo maintenance

Lufthansa Technik Puerto Rico, a wholly owned subsidiary of Lufthansa Technik AG, has re-

ceived Federal Aviation Administration (FAA) approval to carry out maintenance work on the Airbus A320neo. For Lufthansa Technik Puerto Rico, based at Rafael Hernandez Airport Aguadilla in Puerto Rico, this approval marks a significant milestone, since it underlines the company's position as a center of excellence for the Airbus A320 family. An investment of some US\$2.8 million was required for the training, tools and the material necessary for the maintenance of the new aircraft type.

ST Engineering to expand US aerospace MRO presence with new facilities

As part of capacity expansion for its aircraft maintenance, repair and overhaul (MRO) business in the U.S., Singapore Technologies Engineering Ltd. (ST Engineering), the global technology, defense and engineering group, is pursuing the development of a 655,000 ft² airframe MRO complex at Pensacola International Airport in Pensacola, Florida. The development cost for the MRO complex is estimated at US\$210 million of which ST Engineering will invest US\$35 million, with the rest to be funded by the City of Pensacola, Escambia County, Triumph Gulf Coast, Inc., the State of Florida, as well as several other state and federal organizations. A Memorandum of Understanding (MOU) for the new facility was signed on October 27, with the City of Pensacola represented by its Mayor, Ashton Hayward. The Mayor, along with Escambia County Commissioner Jeff Bergosh and FloridaWest Economic Development Alliance CEO Scott Luth were in Singapore for the signing ceremony. Under the MOU, ST Engineering and the City of Pensacola will develop the MRO complex over four years after the formalization of definitive agreements. The design-to-build complex, adjacent to ST Engineering's newly opened 173,500 ft² MRO facility, will consist of three state-of-the-art wide body aircraft hangars and an administration building. When completed, it will contribute about 1.5 million labor hours in annual capacity, bringing ST Engineering's total annual capacity of its Pensacola MRO facility – to be called the Pensacola Aerospace Campus – to 2.1 million labor hours. Since

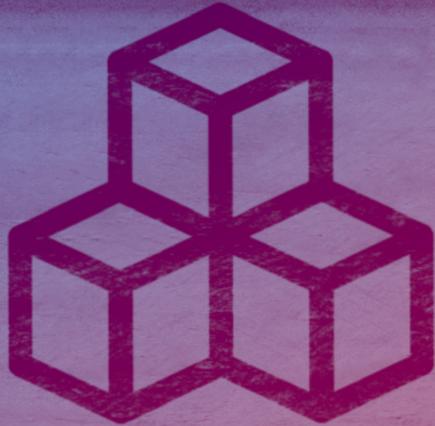
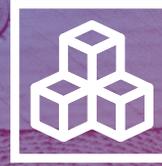
opening in June 2018, the current facility has already redelivered 25 aircraft.

AeroVision International signs ERJ parts support agreement with Contour Airlines

AeroVision International has signed a long-term component spares and exchange agreement with Tennessee-based Contour Airlines. The parts support agreement provides Contour with access to an extensive inventory of components used to support its growing fleet of ERJ 135 & 145 aircraft. Parts will be forward-positioned at Contour maintenance facilities in Tennessee, Georgia, Arizona, California, West Virginia, and supplied from AeroVision's main Logistics Center in Muskegon, Michigan. "AeroVision is customizing service solutions for Contour Airlines to meet their specific operational, financial and maintenance requirements," said Pete Gibson, Vice President of Sales & Marketing for AeroVision. "We are excited to be chosen as a key partner for Contour."

Lufthansa Technik Malta receives Airbus A350 base maintenance approval

Lufthansa Technik Malta is officially ready to perform all work required for the Base Maintenance of the Airbus A350-900, as the company has been licensed by the German Federal Aviation Office (LBA). The granting of the Base Maintenance Approval certificate by the LBA marks the successful end of an intense period of preparation, in which employees were trained, processes were established, and infrastructure was adapted. Lufthansa Technik Malta kicked off this extensive program in November 2016. The first Airbus A350 is expected to arrive for base maintenance services at Lufthansa Technik Malta in spring 2019. Lufthansa Technik's CEO Marcus Motschenbacher said: "More than 50 employees of Lufthansa Technik Malta spent just over three months in personal preparation acquiring the necessary qualifications and practical training to enable them to work on the A350. Two out of six base maintenance lines at the facility have been outfitted to accommodate the A350-900 with an investment of over €3.2 million (US\$3.65 million) to cover the first C-Checks. A substantial investment in new tooling has included the purchase of more than 280 different tools including engine removal tooling." Extensive docking modifications have also been undertaken in Hangar 1, extending the current capabilities of the mezzanine, wing and tail docks. Investment in a new electrical installation was also made due to the A350's dedicated hydraulic rigs.



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AerFin, Nordam expand strategic services agreement
Photo: AerFin

AerFin and NORDAM expand strategic services agreement to include nacelle consignment for Airbus A320 engines

AerFin and NORDAM have announced an expanded strategic-services agreement to include consignment, exchange and lease-management of spare nacelles for V2500-A5 and CFM56-5B engines used on Airbus A320 aircraft belonging to A320-series operators in Europe. Under the agreement, NORDAM airline customers may access AerFin-owned components and related operational support from its main rotatable-distribution base near Gatwick Airport in London. The spares allow aircraft to remain in service while NORDAM repairs their thrust reversers and nacelles, preventing potentially costly 'aircraft-on-ground' downtime during maintenance. "By furthering our cooperation with AerFin, we're controlling inventory costs and improving access to flight-ready, certified components and assemblies," said T. Hastings Siegfried, Chief Operating Officer for NORDAM's global repair and MRO group. "This geographically strategic arrangement underscores the NORDAM commitment to deliver consistently outstanding service and value to our customers, anywhere in the world."

Oakenhurst Aircraft Services signs partnership agreement with Ontic

Oakenhurst Aircraft Services has entered into a partnership agreement with Ontic. As a recognized approved supplier, Oakenhurst further increases its OEM support for component MRO services. Charlie Parker, Managing Director, stated "We have reacted quickly to the recent demand for our services by expanding our U.K. Facility in Rayleigh. Additional capacity has been provided by increasing test benches dedicated to each product line and implementing a training program for our engineering teams. This agreement is testament to all the hard work and planning that goes into collaborating with OEMs in partnership agreements".

EASA approves AerTrak ADS-B Out system for Boeing 737 NG series aircraft

AerSale®, a global supplier of mid-life aircraft, engines, used serviceable material and MRO services, has reported that the European Aviation Safety Agency (EASA) has approved the company's AerTrak™ ADS-B Out system on Boeing 737 NG-series aircraft (10065422). Earlier this year, the Federal Aviation Administration (FAA) approved

AerTrak™ for Boeing 737 NG-series aircraft (ST04009NY) and Boeing 757-200-series aircraft (ST04011NY) to comply with the FAA's Automatic Dependent Surveillance-Broadcast (ADS-B) Operations rule. The Boeing 757-200-series aircraft Supplemental Type Certificate (STC) is now pending EASA and National Civil Aviation Agency of Brazil (ANAC) validation.

GA Telesis Engine Services achieves Directorate General of Civil Aeronautics certification in Mexico

GA Telesis Engine Services (GATES) has achieved Directorate General of Civil Aeronautics Certification in Mexico (DGAC). DGAC approval provides GATES with access to a major MRO market for CFM56 engines and will allow the company to develop and expand its customer base in the region. GATES has previously been approved by the Federal Aviation Authority (FAA), European Aviation Safety Agency (EASA), Transport Canada Civil Aviation (TCCA), the Civil Aviation Administration of China (CAAC) and General Authority of Civil Aviation in Saudi Arabia (GACA).

thyssenkrupp Aerospace new Moroccan location taking off this year

Morocco's aerospace industry is booming. With an annual growth rate of over 15%, it is a significant driving force behind the nation's economy. This encouraging development is also fueling demand for local material suppliers and service providers. "This is a trend we identified early on, and we will be commissioning our highly modern materials processing and logistics center in Casablanca before the end of the year, so that we can supply our local customers with the required materials and services," explains Patrick Marous, CEO thyssenkrupp Aerospace. "It is not only the French aviation industry that is investing in Morocco and we are pleased to be able to show our presence there for our customers from France and to further expand our global partnerships there as well," said Eric Cornilleau, Managing Director thyssenkrupp Aerospace France. On around 3,500 m² (warehouse, production hall and offices) located in Ouled Salah area, between Casablanca downtown and the airport, up to 20 new jobs will be created to address customer wishes and requirements. Besides the storage of materials such as aluminum, steel and copper in various shapes and alloys, the center will also process materials. Modern machinery cuts the materials precisely to customer specifications for just-in-time delivery to the customer's facilities.

GA Telesis provides innovative inventory operating lease to support LATAM 777-300ER long-term operations

GA Telesis has closed a large inventory lease comprised of rotatable spare parts for LATAM Airlines in support of its 777-300ER operations that was tailored to provide maximum operational flexibility for the airline. Commencing its first inventory financing in 2008, GA Telesis has emerged as a world-leader in inventory financing of leased assets with over 30 major airline operators on six continents. Inventory leasing has grown in relevance with airlines as new-technology aircraft are delivered by the airframe manufacturers. This proprietary leasing program provides operators, MROs, and other aviation asset investors increased flexibility in managing their capital investment and facilitates greater focus on their core operations. Over the next three years, GA Telesis has budgeted up to US\$1 billion for asset financing in various structures to meet its customers' needs for innovative financing solutions. The transaction was financed jointly with GA Tel-

esis' shareholder, Tokyo Century Corporation, under undisclosed terms.

Safran wins new wheel and brake contract from Turkish Airlines

Turkish Airlines has chosen wheels and carbon brakes from Safran Landing Systems for its fleet of 25 Airbus A350-900 and 25 Boeing 787-9 long-range aircraft, set to enter service starting in 2019. The contract was announced during a signing ceremony at the MRO Europe trade show in Amsterdam. With this latest contract, Safran Landing Systems bolsters its leadership in the market for wheels and brakes on long-range commercial jets. On the Airbus A350, it provides a carbon brake which is the lightest on the market, while helping reduce fuel consumption. On the Boeing 787, the company's electric brake saves weight while retaining excellent thermal absorption capacity, higher dispatch reliability, simplified maintenance and longer service life.

West Star Aviation nears completion of new hangar at East Alton, ALN facility

West Star Aviation is nearing completion of construction on a new 60,000 ft² hangar at its East Alton, IL (ALN) location. This hangar is anticipated to be operational by the end of fourth quarter of 2018. The hangar features 40,000 ft² of hangar space and 20,000 ft² of back shop and office space and will support West Star's growing capabilities allowing the company to fully expand existing aircraft maintenance programs. This planned growth will employ an additional 28 technicians to support the expansion, in addition to their existing hiring efforts. "We are pleased to expand our East Alton facility. With this hangar, we occupy over 380,000 ft² of hangar and shop space at St. Louis Regional Airport," said Scott Sweeney, General Manager, West Star Aviation. "Having a new hangar provides us the necessary capacity to continue offering world-class service to our customers and ensure we meet scheduled deadlines," Sweeney added.



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Kellstrom signs multiple new distribution agreements

Kellstrom Aerospace has been the appointed and authorized distributor for Enviro Tech International's line of vapor degreasing products including its n-propyl bromide and fluorinated solvents for aerospace and industrial parts cleaning applications.

"Enviro Tech is happy to leverage Kellstrom's global reach to offer our vapor degreasing products to an increasing number of aerospace and defense customers," states Scott Aulinskis, Vice President Sales and Marketing of Enviro Tech.

"Kellstrom is delighted to be able to offer our 1,200+ customers in over 86 countries the ability to choose Enviro Tech's line of vapor degreasing products for the aerospace and defense industry to meet their needs," commented Daniel Adamski, Executive Vice President – Distribution Kellstrom Aerospace.

Thermal Management Systems (TMS) of AMETEK Aerospace & Defense has selected Kellstrom Aerospace as its authorized distributor for FMH Aerospace products. With the signing of this agreement, Kellstrom Aerospace is approved to solicit business for FMH commercial spares globally. AMETEK acquired FMH Aerospace, based in Irvine, CA, earlier in 2018. It is a leader in products used by the aerospace, defense and space industries to transfer fluids and gases

at extreme temperatures and pressures in highly demanding applications. "AMETEK Thermal Management Systems has a strong suite of technologies deployed across many platforms. Adding FMH Aerospace to our AMETEK portfolio represents a significant milestone for Kellstrom Aerospace," comments Kellstrom Aerospace Executive Vice President – Distribution Daniel Adamski.

Furthermore Kellstrom Aerospace has been appointed as exclusive distributor to all commercial passenger and freight airlines (both major and regional carriers), located in the USA and Canada and authorized distributor worldwide for SKYMO's complete line of aerospace cleaners, degreasers and chemicals. "SKYMO is pleased to establish a partnership with Kellstrom Aerospace for distribution of our aerospace products worldwide," states Reyniel Santoya, Director of Operations SKYMO.

Sine Draco selects Sierra Completions as engineering design supplier for A321-200 SDF passenger-to-freighter

Sierra Completions has been selected by Sine Draco for engineering design of its A321 passenger-to-freighter converted aircraft (A321-200 SDF). Sine Draco is an aviation development company with locations in the USA and China. It focuses on developing, managing and executing large-scale aviation projects, including aircraft design, modification, certification and investment management. The A321-200 SDF aircraft design offers an economic solution for customers with an upper deck loading capability of 14 (88x125 or 88x108) unit load devices (ULDs) and 10 LD3-45 ULDs for the lower deck. Sierra Completions serves private sector, VVIP and head-of-state clientele by modifying transport-category aircraft for interior and mission requirements. Featuring world-class engineering and design, Sierra Completions applies the cutting-edge systems, technology, schedule performance and integration excellence for which its par-

ent company, Sierra Nevada Corporation, has been recognized for 50 years, to deliver innovative, customer-focused solutions in the aircraft completions and modification sector.

CTT Systems receives Cair™ VIP inflight humidification order from Comlux

CTT SYSTEMS AB (CTT), a leader of aircraft humidity control systems, has been awarded a Cair™ VIP Inflight Humidification (IFH) order from Comlux Completion to be fitted to one Airbus ACJ320neo. This award is CTT Systems' 92nd IFH order for Airbus ACJ and Boeing BBJ VIP aircraft. "Delighted to cooperate with Comlux again in another prestigious completion," says Peter Landquist, Vice President Sales & Marketing, CTT Systems. "Humidification is one of the most important features in engineering luxury and comfort for our most prestigious completion clients," stated Scott Meyer, CEO Comlux Completion. Meyer continued, "CTT Systems is a trusted supplier and its Cair™ VIP Inflight Humidification has proven to be a very reliable and efficient system". The CTT VIP Inflight Humidification (IFH) system achieves a comfortable level of 22 % relative humidity throughout the entire aircraft cabin. Without such a system the relative humidity would be only 3-5 %, far below the recommended level for human comfort, health and well-being. VIP passengers will, on long-haul flights, benefit from the increase in humidity with reduction of dry air-related problems (e.g. fatigue, jet-lag, red eyes, dry skin, spread of viral diseases), but also from improved well-being and sleep. The CTT IFH system utilizes evaporative cooling technology that effectively precludes the transfer of bacteria and improves air quality by reducing particles in the cabin air. The system also offers total anti-condensation protection.



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BOEING 737 NG / 747-400 / 757
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BAE SYSTEMS BAE 146 / Avro RJ
EMBRAER ERJ / E-Jet
FOKKER 50
SAAB 2000
BOMBARDIER Dash 8 all series

LANDING GEAR

AIRBUS A300-600R / A310-200 & 300
A320 Family / A330 / A340
BOEING 747-400 & 400ERF / 747-8
777 all types including 300ER
& 200 LR / MD11

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RECARO Aircraft Seating turnover rises to over €500 million



RECARO Aircraft Seating's turnover rises to over €500 million

Photo: RECARO

For the first time in the aircraft seat manufacturer's history, turnover is exceeding the 500 million euro mark. This strong growth confirms RECARO Aircraft Seating's five-year strategy. When it was introduced in 2013, sales turnover was just over €330 million, and the number of seats sold was just under 80,000. Current figures reflect continuous growth since that time. Chief Executive Officer and Shareholder Dr. Mark Hiller sees significant investment in several areas, including research and development, as a key reason behind the brand's success. "There are several strategic reasons why we are already exceeding the €500 million sales milestone with more than 110,000 seats during this current financial year," highlights Peter Müller, Executive Vice President Finance & Administration, adding that: "It was the right decision not to focus exclusively on market leadership in the area of economy class seats, but rather to invest in strengthening our position in the business class as well." Moreover, the fact that RECARO is now more customer- and service-oriented than ever before, is a result of positive changes within the company. This is not just at company headquarters in Schwaebisch Hall, Germany, but worldwide. While the establishment of a company presence in China (Hong Kong/Qingdao), which began five years ago, has already achieved great success for the Asian market, business in Latin America is currently being successfully developed as well. (€1.00 = US\$1.13 at time of publication.)

ATSG completes Omni Air acquisition

Air Transport Services Group has completed the previously announced acquisition of Omni Air International (Omni Air), a passenger ACMI and charter services provider, along with related entities, for US\$845 million, subject to customary adjustments. In contemplation of the Omni purchase, ATSG has agreed to amend its senior credit facility with a consortium of banks led by SunTrust Bank, previously dated May 31, 2016. The new amended agreement has an aggregate principal amount of US\$1.28 billion, consisting of the continuing secured revolving credit facility of US\$545 million, a continuing secured term loan with a current balance of US\$60 million, and a new US\$675 million secured term loan. The maturity date of these loans is May 30,

2023. The amended facility includes an accordion feature that would allow the total amount of borrowings under the facility to increase by up to US\$400 million, assuming certain conditions and with bank consent. The total amount of additional debt ATSG and its subsidiaries may incur outside of the amended facility increases from US\$300 million to US\$500 million. Credit terms are consistent with the existing facility, including with respect to provisions limiting ATSG's ability to declare or pay dividends or repurchase shares, and requires ATSG to maintain specified financial ratios and minimum collateral values, and meet other financial condition tests. The facility is secured by substantially all of ATSG's Boeing 777, 767 and 757 aircraft.

SIA Engineering posts profit of S\$78.5 million for first half FY 2018-19

SIAEC Group has recorded a profit attributable to owners of the parent of S\$78.5 million for the half year ended September 30, 2018. Revenue of S\$509.0 million saw a decrease of S\$38.5 million or 7.0%, mainly from lower airframe and fleet management revenue. Expenditure came down by S\$21.2 million or 4.2%, mainly from lower material and subcontract services costs, as well as an exchange gain of S\$1.7 million compared to an exchange loss of S\$2.8 million in the corresponding period last year. Operating profit at S\$21.5 million was S\$17.3 million or 44.6% lower. Share of profits of associated and joint venture companies increased S\$18.4 million or 41.8% to S\$62.4 million, with the engine and component centers contributing S\$62.1 million, an increase of S\$18.0 million or 40.8%, while the airframe and line maintenance segment earned a profit of S\$0.3 million, a turnaround from a S\$0.1 million loss incurred in the same period last year. (US\$1.00 = S\$1.38 at time of publication.)

TrueNoord secures further funding to drive growth plans

TrueNoord, the independent regional aircraft lessor, has secured new investment from existing and new investors. This brings total equity available to nearly US\$400 million to expand TrueNoord's aircraft portfolio and partially refinance the existing fleet as it embarks upon the next phase of growth. It complements a senior secured debt facility of US\$500 million which was announced in July. Following the equity and debt raise, TrueNoord is targeting an acceleration of its growth plans with a strategy to substantially grow its existing fleet of 30 Embraer, Bombardier and ATR aircraft within the next five years, and building on its strong presence in Europe through further expansion in Asia, Africa and the Americas. New equity was raised from its original investors, Bregal Freshstream, BlackRock and Aberdeen Standard, alongside further investment from a number of new investors including Capital Dynamics, Euro Private Equity and Flandrin, amongst others. The US\$500 million secured debt facility was arranged and fully underwritten by Morgan Stanley, NORD/LB Norddeutsche Landesbank and Barclays. TrueNoord focuses on the acquisition of relatively young aircraft with leases attached to stable and well-positioned airlines. The Company is well placed to take advantage of the inherent growth potential of the regional aircraft leasing market and, since launching, has developed an extensive network of airline, technical, financial and OEM con-

tacts that is, in the specialist regional aircraft lessor market, second only to Denmark-based lessor Nordic Aviation Capital (NAC) in terms of scale.

AeroCentury reports third-quarter 2018 net loss of US\$4.5 million

AeroCentury Corp., an independent aircraft leasing company, has reported a third-quarter net loss of US\$4.5 million, compared to a net loss of US\$81,000 for the second quarter of 2018 and net income of US\$0.4 million for the third quarter of 2017. The results announced are for the period ended September 30, 2018, and therefore, do not reflect the combined operations of the Company and its newly acquired subsidiary, JetFleet Holding, which was acquired on October 1, 2018. In the first nine months of 2018, the Company reported a net loss of US\$4.2 million, compared to net income of US\$1.4 million in the first nine months of 2017. The first nine months of 2018 included US\$1.6 million of other income resulting from payments received from a lessee of three aircraft that were returned to the Company during 2017. The Company is accounting for the payments from this lessee as they are received, and they are recorded in other income. The third quarter and first nine months of 2018 also included US\$2.4 million of losses related to the sale of two off-lease tur-

boprop aircraft, as well as impairment provisions totaling US\$2.7 million on four other off-lease turboprop aircraft that have been identified for sale.

Spirit AeroSystems delivers Q3 2018 financial results – all customer deliveries on schedule

Spirit AeroSystems Holdings (Spirit), headquartered in Wichita, Kansas, USA, and one of the world's largest non-OEM designers and manufacturers of aerostructures for commercial and defense aircraft has released its financial results for the third quarter of 2018. Commenting on the results, the Company President and CEO, Tom Gentile, confirmed that: "A full schedule recovery and subsequent cost reduction of the 737 line has been a primary focus while sustaining execution across all programs. We made great progress continuing to improve the consistency and efficiency of 737 deliveries during the quarter and are now fully recovered to our delivery schedule. All other programs, including the [Airbus] A320 and the A350, are on schedule. We are also on track to increase rates to 57 airplanes per month on [the Boeing] 737 and 14 airplanes per month on the 787, both of which occur next year." Spirit's third-quarter 2018 revenue was US\$1.8

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billion, up from the same period in 2017, primarily driven by higher production deliveries on the Boeing 737 program and increased defense-related activity. Spirit's backlog at the end of the third quarter of 2018 was approximately US\$48 billion, operating income for the third quarter of 2018 was US\$223 million, up compared to US\$202 million in the same period of 2017. This increase was primarily due to the recovery of legal fees related to a recent court decision as well as margin recognized on the Airbus A350 program as a result of the adoption of ASC 606. Third quarter EPS was US\$1.59, up compared to US\$1.26 in the same period of 2017. Third-quarter adjusted EPS was US\$1.70, excluding the impact of the proposed Asco acquisition and debt financing costs, compared to US\$1.26 in the same period of 2017. Cash from operations in the third quarter of 2018 was US\$170 million, compared to US\$291 million in the same quarter last year. Adjusted free cash flow in the third quarter of 2018 was US\$130 million, compared to US\$240 million in the same quarter last year. Cash balance at the end of the quarter was US\$683 million. The company's revolving credit facility remained undrawn at the end of the quarter. Spirit delivered 431 Boeing, Airbus and business/regional shipsets in total for the third quarter 2018, compared to 404 for the same period in 2017.

ORIX acquires 30% stake in Avolon with enterprise value of US\$23.7 billion

Avolon, the international aircraft leasing company, has released that ORIX Corporation (ORIX), through its wholly owned subsidiary ORIX Aviation Systems, has completed the acquisition of a 30% stake in Avolon from Bohai Capital for US\$2.2 billion, based on a March 31, 2018 NAV. The addition of ORIX, an investment-grade institution, diversifies and strengthens the financial profile of Avolon's shareholder base and facilitates positive credit-rating momentum. Additionally, the new governance structure enhances protections for minority shareholder and debt investors.

Airbus reports nine-month 2018 financial results

Airbus has reported nine-month (9m) 2018 consolidated financial results and provided updated full-year guidance. "The nine-month results mainly reflect the good performance on the A350 and the aircraft delivery profile. Even though we delivered more aircraft than a year earlier, we still have a lot to do to meet our commitments," said Airbus Chief Executive Officer Tom Enders. "On the A400M, we are progressing with the military capabilities, deliveries and retrofit. The contract amendment discussions are advancing, but a bit slower than planned. Our primary operational focus remains on commercial aircraft deliveries and securing the A320neo ramp-up." As of July 1, 2018, the A220 aircraft program has been consolidated into Airbus. Net commercial aircraft orders totaled 256 (9m 2017: 271 aircraft) with gross orders of 311 aircraft including 58 A350 XWBs. Industry fundamentals remain solid with the Airbus order backlog totaling 7,383 commercial aircraft as of September 30, 2018. Net helicopter orders increased to 230 units (9m 2017: 210 units), including 6 Super Puma Family and 36 H145s in the third quarter alone. Airbus Defence and Space's 9m 2018 order intake of around €5.0 billion included the contract for Heron TP drones from Germany. Consolidated revenues increased to €40.4 bil-

lion (9m 2017: €38.0 billion (1)), mainly driven by Airbus and including the perimeter changes. At Airbus, a total of 503 commercial aircraft were delivered (9m 2017: 454 aircraft), comprising 8 A220s, 395 A320 Family, 31 A330s, 61 A350 XWBs and 8 A380s. Airbus Helicopters delivered 218 units (9m 2017: 266 units) with revenues stable on a comparable basis. On a reported basis, Airbus Helicopters' revenues reflected the perimeter change from the sale of Vector Aerospace in late 2017. 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, restructuring or foreign exchange impacts as well as capital gains/losses from the disposal and acquisition of businesses – totaled €2,738 million (9m 2017: €1,208 million). Airbus' EBIT Adjusted of €2,340 million (9m 2017: €806 million) was driven by the A350 performance and higher deliveries, particularly for the A320neo. On the A320neo program, a total of 222 aircraft were delivered, compared to 90 in the first nine months of 2017. On the A330neo program, the A330-900 received Type Certification from the European Aviation Safety Agency in September with the first delivery expected shortly. Meanwhile, the A350 program is progressing well, with the targeted monthly production rate of 10 aircraft expected by the end of 2018. Good progress continues to be made on A350 program recurring cost with the A350-1000 benefiting from the A350-900 learning curve. Airbus Helicopters' EBIT Adjusted increased to €202 million (9m 2017: €161 million (1)), reflecting solid underlying program execution which compensated for the lower deliveries. Consolidated net income) of €1,453 million (9m 2017: €1,398 million) and earnings per share of €1.88 (9m 2017: €1.81) included a negative impact from the foreign exchange revaluation of financial instruments partly offset by the positive revaluation of certain equity investments. The finance result was €-413 million (9m 2017: €+101 million). Net income also reflects a higher effective tax rate from the reassessment of tax assets and liabilities. Consolidated free cash flow before M&A and customer financing amounted to €-4,169 million (9m 2017: €-3,344 million) and now includes the A220. It reflects progress on aircraft deliveries but also the on-going ramp-up and some finished aircraft. Consolidated free cash flow of €-3,928 million (9m 2017: €-3,208 million) included around €0.4 billion of net proceeds from divestments at Airbus Defence and Space. Cash flow for aircraft financing was limited. (€1.00 = US\$1.14 at time of publication.)

Embraer posts third-quarter loss of US\$21 million

In the third quarter of 2018 (3Q18), Embraer has delivered 15 commercial and 24 executive (17 light and 7 large) jets, compared to the 25 commercial and 20 executive (13 light and 7 large) jets in 3Q17; The Company's firm order backlog was US\$ 13.6 billion at the end of 3Q18, including contracts of the Services & Support segment. Embraer's reported EBIT and EBITDA in 3Q18 were US\$45.4 million and US\$104.8 million, respectively, yielding margins of 3.9% and 9.1%. On a year-to-date basis, the Company's reported EBIT and EBITDA in 2018 were US\$54.1 million and US\$238.4 million, respectively. The year-to-date figures include the negative impact of a non-recurring special item of US\$127.2 million related to additional costs on the KC-390 development contract in 2Q18 resulting from the incident with prototype aircraft 001 in May. 3Q18 net loss attributable to Em-

braer shareholders and loss per ADS were US\$(21.3) million and US\$ (0.12), respectively. Adjusted net loss (excluding deferred income tax and social contribution) for 3Q18 was US\$(29.1) million, with adjusted loss per ADS of US\$(0.16).

Boeing reports solid third quarter

The Boeing Company has reported third-quarter revenue of US\$25.1 billion driven by higher defense volume and services growth. GAAP earnings per share increased to US\$4.07 and core earnings per share (non-GAAP) increased to US\$3.58 primarily driven by strong operating performance at Commercial Airplanes and a tax benefit related to a tax settlement. Results also reflect charges related to planned investments in the newly awarded T-X Trainer and MQ-25 programs. Boeing delivered strong operating cash flow of US\$4.6 billion, repurchased US\$2.5 billion of shares, and paid US\$1.0 billion of dividends. The company's revenue guidance increased US\$1.0 billion to between US\$98.0 and US\$100.0 billion, driven by defense volume and services growth, inclusive of the KLX acquisition. Operating cash flow guidance is reaffirmed at US\$15.0 to US\$15.5 billion. Full year GAAP earnings per share guidance is increased to between US\$16.90 and US\$17.10 from between US\$16.40 and US\$16.60 and core earnings per share (non-GAAP) guidance is increased to between US\$14.90 and US\$15.10 from between US\$14.30 and US\$14.50 driven by a lower-than-expected tax rate and improved performance at Commercial Airplanes.

MTU Aero Engines raises forecast for nine months results

In the first nine months of 2018, MTU Aero Engines (MTU) generated revenues of €3,318.7 million, up 14% on the previous year (1-9/2017: €2,900.8 million). The group's operating profit increased by 16% from €439.9 million to €508.9 million. The EBIT margin stood at 15.3% (1-9/2017: 15.2%). Earnings after tax rose by 16% to €362.8 million (1-9/2017: €312.8 million). The strongest increase in MTU's revenues in the period January to September 2018 was attributable to the commercial engine business, where revenues grew by 28% from €943.1 million to €1,203.7 million. The main source of these revenues was the V2500 engine for the classic A320 family as well as the PW1100G-JM for the A320neo and the GEnx engine that powers the Boeing 787 and 747-8. In the commercial maintenance business, revenues rose by 17% from €1,727.5 million to €2,019.7 million. This growth was driven mainly by the V2500 engine, followed by the CF34 family of regional and business jet engines. "Our engine leasing and asset management business, which is constantly being expanded to include new services, is also gaining importance," commented CFO Peter Kameritsch. MTU is addressing the growing future demand for maintenance services by expanding its MRO network: "At the end of September, we laid the foundation stone for our EME Aero joint venture with Lufthansa Technik in Poland for the maintenance of Geared Turbofan™ aircraft engines," said Winkler. Revenues in the military engine business remained stable at €303.1 million (1-9/2017: € 305.2 million). The EJ200 Eurofighter engine was the main source of these revenues. As at September 30, MTU had an order backlog of €15.3 billion, compared with €14.9 billion at December 31,

2017. The majority of these orders relate to the V2500 and the Geared Turbofan™ engines of the PW1000G family, in particular the PW1100G-JM for the Airbus A320neo.

Safran on track to meet 2018 outlook

Safran has reported that third-quarter 2018 adjusted revenue was €5,348 million, an increase of 45.4% on a reported basis, including a contribution of €1,200 million from Zodiac Aerospace. On an organic basis, adjusted revenue grew 11.4%. First nine-month 2018 adjusted revenue was €14,854 million, up 30.9% on a reported basis year-on-year, including a seven-month contribution from Zodiac Aerospace of €2,716 million. Adjusted revenue increased 10.5% on an organic basis. First nine-month 2018 civil aftermarket revenue was up 14.7% in US\$ terms, including an increase of 16.4% in Q1 2018, 8.8% in Q2 2018 and 19.2% increase in Q3 2018. Spare parts sales and quarterly variations in revenue recognition for services drove the growth year-to-date. Safran confirms its assumption for civil aftermarket to increase in the 10-12% range based upon the positive momentum of spare parts sales and a slow-down in revenue recognition for services in Q4 2018. Compared to its estimated restated key metrics for the application of IFRS 15, Safran expects adjusted revenue to grow on an organic basis in the range 7% to 9%. At an estimated average spot rate of US\$1.21 to the Euro in 2018, adjusted revenue is expected to grow in the mid-single digits. Adjusted recurring operating income to grow around 20% at a hedged rate of US\$ 1.18 to the Euro. Free cash flow to be comfortably above 50% of adjusted recurring operating income, an element of uncertainty being the rhythm of payments by state-clients. The 2018 outlook notably benefits from a stronger civil aftermarket growth than the secular high single digits growth trend, from gross margin improvement of CFM56 OE and from advance payments of export contracts. (€1.00 = US\$1.14 at time of publication.)

Honeywell delivers third-quarter reported sales growth of 6%

Honeywell sales for the third quarter 2018 were up 6% on a reported basis and up 7% on an organic basis (the difference between reported and organic sales primarily relates to the impact of foreign currency translation.) Third-quarter reported earnings per share was US\$3.11, which includes US\$233 million of separation costs (including net tax impacts) associated with the Garrett and Resideo spin-offs and a US\$1 billion favorable adjustment to the charge the company took in the fourth quarter of 2017 related to U.S. tax legislation. Aerospace sales for the third quarter were up 10% on an organic basis driven by robust demand from business aviation original equipment manufacturers, continued strength in the U.S. and international defense business, growth in the air transport and business aviation aftermarket, and demand for light vehicle gas turbochargers in Transportation Systems (which was spun-off as Garrett Motion Inc. effective October 1). Segment margin expanded 80 basis points to 22.1%, primarily driven by higher defense and aftermarket volumes, commercial excellence and lower customer incentives.

Pentagon 2000 Software has delivered direct system interfaces within the Pentagon 2000SQL™ system for the Aeroxchange AeroBuy® and AeroRepair® collaboration platforms. These interfaces have been developed in partnership with joint customers in order to enable real-time communication of purchase and repair orders between the Aeroxchange marketplace and Pentagon 2000SQL™ users, allowing Aeroxchange members to more effectively connect and serve their most-valued trade partners. These integrations ensure an advanced-function user interface that provides efficient and optimized workflow. Support for both buyer-side and a seller-side functionality is available, and additional work is underway with the Aeroxchange team to deliver Pentagon2000SQL™ interfaces for AeroComponent® and AeroMRO® in the future

Pentagon 2000 Software, a leading provider of fully integrated MRO and supply-chain software solutions for the Aerospace & Defense industry, has released an enhanced Leasing Contracts Manager module that delivers advanced capabilities for contract management of engines and complex assemblies. Functionality for supply-chain logistics, accounting and financials, and contract terms management are included and tightly integrated along with

standard forms and reports for seamless end-to-end workflow. The Pentagon 2000SQL™ Leasing Contracts Manager supports a wide variety of time-control and cycle parameters to support contract management and customer billing. In addition to simple contract billing based on calendar periods, usage may be managed and billed based on hours, cycles, landings, and advanced formulated calculations. This enhanced add-on module compliments a full set of other contract management modules that support buy/sell contracts, repair contracts, exchange contracts, and import/export contracts. In today's increasingly competitive environment, operators are demanding the flexibility to obtain parts and components under a variety of flexible terms. By providing leasing contracts with fixed or variable power-by-the-hour billing terms, strategic suppliers are able to respond to the rapidly expanding needs of aircraft operators and gain competitive advantage over other brokers, distributors and parts traders. Benefits of the Leasing Contracts Manager module to Pentagon 2000SQL™ customers include increased contract revenues, reduced operating costs, and improved customer service.



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An AOG situation can cost an airline \$150,000 per delayed flight.
Photo: Commsoft

There are several ways to prepare for AOG situations. **Keith Mwanalushi** looks at how MRO support can reduce or prevent such instances.

Aircraft on Ground or AOG is a term in aviation maintenance indicating that a problem is serious enough to prevent an aircraft from flying. Generally, there is a rush to acquire the parts to put the aircraft back into service and prevent further delays or cancellations of the planned itinerary.

AOG incidents are often unavoidable and can be hugely disruptive and costly to airlines of all sizes. Guy van den Berg, Director of Contract Services at AJW Group says when it comes to managing AOG situations, speed, location of inventory and around the clock availability are key. "Efficient handling of these incidents by experts will not only save an airline money, but it will also ensure that passengers receive a positive service with minimal disruption."

AJW Group focuses on designing tailored supply chain solutions to mitigate AOG situations for airlines, with a strong focus on establishing



Guy van den Berg, Director of Contract Services, AJW Group
Photo: AJW

customer relationships and personalised service. "It examines an airlines usage data to identify aircraft parts prone to causing AOG-related issues and proactively acquires the inventory needed to anticipate them.

"By partnering with an AOG specialist, AOG time can be greatly reduced leaving airlines to focus on what matters most - delivering the best possible service to its customers," van den Berg states.

An AJW customer recently experienced an AOG situation at Orlando International Airport (MCO). The aircraft's First Officer's windshield was cracked and as a result the aircraft could not take off for its return journey to the UK.

"We leapt into action to supply and arrange the transport of the various components (some of which were Dangerous Goods) from locations including LHR, MIA, ATL and LAX. Shipping methods included cargo flights, hand carries and road, all organised remotely and on a very tight timescale to MCO," van den Berg continues.

Daniel Stromski, Executive General Manager, HAECO ITM Limited says generally, it is not difficult to source parts in the market in case of an AOG as there is a broad range of suppliers ranging from OEMs, MROs, IATP, parts traders or other airlines.

"It is more difficult to arrange shipment of that part with a fast and efficient forwarder." Stromski reports that there are only a few who have specialised on AOG shipments. "However, more and more logistics providers are expanding their services and presence globally, improving visibility for transit calculation timeframes, backed up with real time milestone and status reports."

Stromski advises that an airline can reduce AOG situations mainly in two ways: 1. Hold



Daniel Stromski, Executive General Manager, HAECO ITM Limited.



AOG go teams are crucial to the operation.
Photo: Jet Aviation

large amount of inventory (owned or leased) 2. Predict the next removal and arrange a spare part in advance.

He says new technologies such as Big Data analytics platforms which aggregate and analyse aircraft data in real time are in development and could lead to a reduction of AOGs in the future. "However, we see already today that there are some market players who promise to 'prevent' AOGs with their digital solution. It remains to be seen and proven if such digital platforms deliver what airlines would expect."

On one recent occurrence, Alex de Gunten, Business Development Officer at HEICO Aerospace recalls an urgent call from a customer who had just encountered a bird strike upon landing at Miami International Airport. The inlet cowl of an A330 aircraft had been damaged and the customer did not have a maintenance base at MIA.

"The bird strike damage was so severe that the aircraft was grounded," states de Gunten. "Within one hour of the request, we were on-site inspecting the problem. We were told that the passengers who were scheduled to board the aircraft had been advised of a departure delay and possible cancellation due to maintenance issues. Our technical crew assessed the damage to the aircraft and determined the repair solution with coordination with our engineering team. All required tooling and materials for the repairs were delivered to MIA by our logistics team. We were able to complete the repairs overnight and the aircraft departed before noon the next day, with all its passengers. Hence, saving the airline significant costs."

De Gunten adds that airlines can reduce their exposure to AOGs by partnering with suppliers who can provide AOG support – through provisioning of spare LRUs for loan and/or exchanges during AOG situations, or onsite repair support, etc. "Additionally, HEICO offers preventative maintenance programmes that are designed to result in

higher part reliability, extending their time on-wing, and subsequently the avoidance of higher costs derived from flight cancellation, delays and unplanned repairs."

Compared to 15 years ago when AOGs were synonyms with panic and crisis, the response to AOG situations has greatly improved, reckons Alexandra Guillot, CEO of Hi-Fly Marketing. "The industry's focus is on preventive solutions rather than curative actions," she says.

OEM's and MRO's AOG desks have improved their services by relying on not-so-recent technologies with more efficiency; 24/7/365 hotlines are now the standard and AOG support is now a requirement in any support contract.

"As far as logistics are concerned, most freight forwarders recognise the AOG status nowadays and have put in place dedicated channels with specialised transport teams to track and expedite these time-sensitive shipments.

"Ultimately, AOG logistics still suffer from external heavy customs processes, availability of flights or cargo space," Guillot points out.

It is estimated that an AOG can cost an airline \$150,000 per delayed flight.

"We notice that small



Alexandra Guillot and Christobal Henner.
Photo: Hi Fly

operators often struggle with maintaining a proper AOG procedure and might not even have the adequate AOG desk contacts of their suppliers," adds Christobal Henner General Manager of Hi-Fly Marketing.

Hi-Fly Marketing recently had to handle a situation where a client's aircraft was grounded while waiting for an advanced exchange unit for a key engine component. "They didn't have the contact of the AOG desk of the OEM and didn't know how to escalate the urgency status.

"We helped them by getting in touch with the right service and getting the appropriate paperwork done. Also, payment terms were a big issue and it took some explaining to both parties to have the shipment released.

"This situation could have been easily avoided if the operator had signed a long-term agreement with preferred conditions and payment terms, which should be a must have for critical equipment," Henner advises.



Kaarle Karp, Logistic Manager, Magnetic MRO

Kaarle Karp, Logistic Manager at Magnetic MRO is glad that there are more and more innovative technology companies who are entering into the aviation market. Operators, MRO's, engineers and IT companies in cooperation with universities and research centres are trying to find the most optimum way to support AOG events. "Companies we have consulted are always ready to find new ways to minimise costs and get the maximum out of the new age technology programmes."

Karp observes that one of the stoppers in aviation industry is still regulation, which doesn't let new technologies into the market as fast as we are expecting. "Once a new tool is on the market, it is better to have more than one trustworthy company launch a programme with it to support it and minimise AOGs"

Of course, airline can take measures to reduce AOGs and Karp indicates it really depends where the airline is operating, the location of the main base, are they covered with PBH agreements and who is supporting the airline with logistics and materials. "AOG situations can be reduced by using different forecast programmes, frequently analysing consumption and having a good understanding of where we are and where we need to be in 1-3-5 years."

The use of data analytics is going to have a major impact on the reduction in AOG situations through the implementation of preventative maintenance measures to avoid component failure, believes David Doherty, Head of Commercial at Monarch Aircraft Engineering. "The larger airlines can utilise their proprietary data to identify the failure rates of units and adjust the maintenance schedules accordingly. While the argument over who owns the data will continue, making use of what is available is already paying dividends for the early adopters."

Whilst potentially cost prohibitive, an extended support network with local line maintenance providers at all operational stations could reduce the instances of AOG delays as engineering coverage is on-hand, Doherty mentions. He says access to a global pool of compo-

nents rather than a centralised base hub could also reduce delays while waiting on components to be shipped. "Given the costs of operational delays, additional outlay in service provisions in advance of any potential AOG situations, may actually be more cost effective."

Some freight forwarders recently reported significant increases in shipments related to AOG business. But van den Berg from AJW feels the number of AOG events is relatively very small compared to the number of requirements processed as AOG. "The appeal of AOG performance means that airlines want to reduce their downtime and in order to do so, they often order parts that would normally be critical 3 – 5 days in advance as AOG to get them delivered more quickly. The aim of this is to reduce the time the aircraft spends in maintenance.

"That being said, in the summer months, demand for AOG parts often peaks due to airlines running at full or near-full capacity during this time."

Predictive maintenance technology and more effective trouble shooting would enable airlines to reduce the number of AOG situations they experience.

AJW receives a lot of AOG orders at the end of maintenance programmes, where the stations have not ordered the correct quantity of an item or have forgotten to order completely. "We also receive a lot of AOG's that end up being returned unused due to ineffective trouble shooting," van den Berg states.

A key element of AJW's future strategy is the development of an industry-leading predictive maintenance system. "To do this, we are drawing on many years of experience, and component usage data from a contracted fleet of more than 4,000 aircraft, and longstanding partnerships with major parts OEMs across the globe, to create a system which accurately predicts the advance point of failure."

Darmilo Sosa, Managing Director at Wingbox Aviation sums up that the current level of internet connectivity with the aviation service providers and suppliers help in reducing the AOG time. "Many businesses now are offering customised solutions with around the clock services with the assistance of digital platform that tend to be getting smarter and faster, I believed this is a result of companies putting huge investment in algorithm, artificial intelligence and new digital technologies."



David Doherty, Head of Commercial, Monarch Aircraft Engineering



Darmilo Sosa, Managing Director, Wingbox Aviation Inc

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Invicta-FRS installation in progress in B737 Classic series aircraft.
All photos: Jetaire

Jetaire is a full-service avionics and aircraft engineering firm providing services to clients in the aviation and aerospace industries. Headquartered in Atlanta, Georgia, Jetaire is a Federal Aviation Administration (FAA) approved Design Approval Holder (DAH) with Parts Manufacturing Approval (PMA) and is certified to manufacture FAA certified flight-qualified electronic and mechanical hardware for commercial aircraft. Established in 1984, Jetaire is a global organisation with dedicated employees located in four offices worldwide.

Over the years, Jetaire has developed over 500 major FAA approvals and is the Design Approval Holder for 40+ Supplemental Type Certificates (STC). Jetaire's extensive FAA and European (EASA) certification experience enables the company to manage a variety of certification and engineering development activities. Our staff of Designated Engineering Representatives (DER) are capable of responding to a client's certification requirements effectively and efficiently. Jetaire is known for developing innovative solutions that enhance the safety and security of commercial aircraft.

One of Jetaire's latest products is the Invicta™ Reticulated Foam Technology System. In July 2008, the FAA issued a requirement making it necessary for aircraft manufacturers to provide procedures to reduce flammability for all airplanes with heated fuel tanks located all, or partially within, the aircraft fuselage. Jetaire began developing the system the same year, and received the first STC in July 2014.

The Invicta system is a centre tank flammable solution, currently FAA-certified for the B737, B757 and B767 aircraft as well as the Airbus A320 family of aircraft. Installation of the Invicta system is cost effective and much faster and simpler than other products offered in the market. Once installed, the Invicta system is essentially maintenance-free and completely passive. The advantages of Invicta are encapsulated in the product's tagline, "Simplicity is the ultimate sophistication".

Jetaire received a patent for the Invicta™ Reticulated Foam Ignition Mitigation technology from the U.S. Patent Office in December 2017.

Reticulated Foam Technology is an FAA-approved method of compliance (MOC) that fulfills the requirements of 14 CFR 25.981 and 121.1117. There is no other company in the market with the scope and depth of the knowledge regarding this patented technology. Approximately 50+ aircraft are currently flying with the Invicta system onboard. Jetaire is currently developing STCs for other aircraft types, including the B777 and the A330 series.

Other products and services include an Auxiliary Fuel System (AFS) for the Boeing B737-400 and -500 aircraft and D2C Cargo Conversions. The company was the first to certify an FAA Class D2C Cargo Compartment and, as a result, Jetaire's processes became the Gold Standard for the certification of D2C Conversions, and the standard the FAA has used to certify all similar systems. Originally designed at the request of Delta Air Lines, Jetaire has since sold over 1,000 modification kits to airlines and operators around the world. Jetaire has STCs and provides complete installation kits for MD-80/ DC-9 / MD-90 series aircraft, the B727 series and the B737.

Jetaire's combination of knowledge, expertise and experience allows the company to meet the varied needs of its client base, which includes commercial, military, and government operators and OEMs.





7 times lucky

MAX MRO is a new capability.
Photo: Aleksey Poshin and S7 Technics

S7 Technics has had an interesting year, **AviTrader MRO** highlights some of the recent activities at the Russian MRO company.

By all indications S7 Technics is coming up. It provides maintenance services for the Western and Russian aircraft in Russia and CIS. The group unites two companies: Sibir Technics and S 7 Engineering.

By all indications S7 Technics is coming up. It provides maintenance services for the Western and Russian aircraft in Russia and CIS. The group unites two companies: Sibir Technics and S 7 Engineering.

In August, the MRO provider launched a new line station at Moscow's Sheremetyevo airport, Russia's biggest, which currently serves more than 300,000 aircraft movements a year.

The new station is managed by S7 Technics' subsidiary S7 Engineering and is the first located outside of its two main bases at Moscow's Domodedovo airport and at Mineralnye Vody. The latest station is fully approved for the provision of line maintenance, non-destructive testing (NDT) and structural repairs on the Airbus A320 family of aircraft, as well as for Boeing 737NGs and Russian-built Superjet 100 regional jets.

"The highly qualified engineering and technical staff of this line station, working in four shifts at Sheremetyevo to provide 24/7 service, is ready to render full support to customers, and is supplied with the complete range of equipment and tools necessary for servicing aircraft on any call within S7 Engineering's capabil-

ity list," reveals Vladislav Kotenko, S7 Engineering's line stations management director. "We offer round-the-clock logistics support, including a portable store of spare parts and components, etc," he adds.

And during the MRO Europe event in Amsterdam, the company showcased its showcase lease return check expertise. It was the first MRO Europe show, where the company presented itself with its new brand S7 Technics.

There was also a lot of interest from the leasing community during the show. "We've had many meetings at our booth, during which several agreements were reached on providing a number of redelivery checks in the interests of leasing companies, at S7 Technics bases in Russia," reveals Igor Panshin, S7 Technics' deputy general director for planning and sales.

Engine services have also been highlighted during the year. In October, the company's Moscow Domodedovo-based station launched Cyclean® engine washing. The cleaning technology is developed by Lufthansa Technik.

Regular engine wash results in significant increase of its operating time until it reaches the point when EGT (exhaust gas temperature) Margin deteriorates down to zero and the engine requires a shop visit. It also tangibly improves fuel efficiency, reducing fuel burn by up to 1 per cent, which is vital for airlines now when fuel prices



S7 Technics' new capability in engine washing.
Photo: S7 Technics

tend to spike," comments Nikita Babkin, S7 Technics Director, Engine Services.

"At present we work with seven engine types, which our main customers either operate or plan to start operating soon. S7 Technics can build up additional capability for other engine types within shortest time frame, including those which power widebody aircraft A330, Boeing 747 / 767/ 777 and others" Babkin adds.

Maintenance on the popular CFM56 is also an important business the company says. Engine shop mechanics can perform maintenance and inspection of CFM56-5B/7B engines both on-wing and off-wing. During the maintenance process, the key components of engines are checked, components are replaced, in order to extend the period of effective engines exploitation.

Perhaps the most important news to come from the company is approval for providing maintenance works on the new generation Boeing 737 MAX aircraft, equivalent to A-Check. This development coincided with the first delivery of the MAX to S7 Airlines.

In preparation for launching Boeing 737 MAX maintenance the Russian MRO provider purchased all necessary equipment and tools, spare parts and components in compliance with the manufacturer's recommendations.

The 737 MAX fleet in Russia is poised for growth – several local

airlines have voiced their intentions for adding the aircraft to their operations. S7 Technics is therefore getting ready to proactively develop the MRO market for the type in Russia.

"As the number of the most modern Boeing narrow-body aircraft in the region grows, we will continue to extend our offer for maintenance services on Boeing 737 MAX aircraft to all of its operators. Now we view this market segment as a promising one," comments Sergey Kravchenko, S7 Technics regional sales director.

Most recently, S7 Technics laid a new "Time Capsule" to commemorate its Novosibirsk facility's 14th birthday. The staff of Siber Technic, S7 Technics' Novosibirsk site, located at Tolmachevo Airport decided to pass a message to their young successors, who will be able to read it in 2064

Through years of development S7 Technics' Siberian site has built capabilities for maintenance of a wide range of Boeing, Airbus and Embraer aircraft. Under its own EASA Part 145 approval Siber Technic provides line and base maintenance on Airbus A310 / A320, Boeing 737 CL and NG / 757 / 767, wheels and brakes repair and continuously expand the list of aircraft components its services.



Eric Dollman

GA Telesis (GAT) has appointed Eric Dollman as Vice President of its Leveraged Finance Group. **Eric Dollman** brings nearly 20 years of experience in the transportation finance and leasing sector to GAT. Dollman joins GA Telesis from Amur Capital Management, where he led the fixed- and rotary-wing aircraft business for over four years. His previous positions include American Express Co., where he led the global risk and strategy team responsible for American Express' portfolio of airline partners for over three years and HSH Nordbank AG, where he served as Senior Vice President – Aviation Finance Americas, originating aircraft secured loans for over six years. Joining the GA Telesis Leveraged Finance Group, Dollman will be responsible for transaction origination, loan execution and risk management.



Stuart Itkin

Exostar, a leader in trusted, secure business collaboration in aerospace and defense (A&D), life sciences, and healthcare, has reported that **Stuart Itkin** has joined the company as Vice President of Product Management. He will oversee all of Exostar's strategic and tactical product management and product marketing activities. Itkin has led product strategy, development, and execution for cybersecurity, supply chain technology and software businesses for more than twenty years, helping those companies deliver products and services that customers value.

Most recently, Itkin oversaw cybersecurity company SAIFE, bringing its software-defined perimeter solutions for the intelligence community and Department of Defense into commercial markets and played a key role in its sale to a strategic buyer. He also led product marketing at cybersecurity companies ThreatTrack Security and PivotPoint Risk Analytics.

MTU Aero Engines AG's Supervisory Board has extended the contract of CEO **Reiner Winkler** by five years until September 30, 2024. The decision was made by a unanimous vote at the Supervisory Board's meeting on October 24, 2018. **Klaus Eberhardt**, Chairman of the Supervisory Board, said: "Reiner Winkler has done an excellent job running MTU over the past few years and has played a key role in boosting the company's value. This benefits MTU's employees, customers and shareholders. The Supervisory Board is convinced that under the leadership of Winkler, MTU's Executive Board will continue to successfully

shape the company's future. Winkler has been the company's CEO since January 2014 and previously served as its Chief Financial Officer since May 2005 when MTU went public.



Brian Rynott

Alton Aviation Consultancy has released that **Brian Rynott** has joined the company as Managing Director. Based in New York, he will contribute across all of the firm's advisory practices, with an emphasis on aircraft financing and leasing, airline advisory and restructuring, and strategy and management consulting engagements. Rynott is an accomplished aviation industry executive and leader, bringing Alton Aviation Consultancy and its clients nearly 20 years of experience.

Prior to joining Alton, he held the position of Chief Investment Officer with Intrepid Aviation, a commercial aircraft lessor, where his primary responsibilities included implementing, managing and directing the company's risk and portfolio management groups.



Joyce Pae

Cadence Aerospace, a provider of highly complex aerospace components and assemblies to commercial and defense customers, has appointed **Joyce Pae** as its Chief Financial Officer (CFO). Pae has served as Interim Chief Financial Officer since September 10, 2018. In her new, permanent role as CFO, she is responsible for optimizing the financial performance of Cadence Aerospace, including managing the company's finances, financial planning, risk management, record keeping, liquidity, financial reporting and return on investment. She succeeds **Don DeVore**, who retired from the company earlier this year. The entire Corporate Finance team will report to Ms. Pae, focusing on continued delivery of key business initiatives in partnership with the site controllers.

Daniel Coffey has been appointed Regional Sales and Service Manager for Mexico, Central America and the Caribbean for StandardAero's Airlines & Fleets team. Coffey, whose 25-year career includes spells with Honda Aircraft, Hawker Beechcraft and Landmark Aviation, will support a wide range of engines including the PT6A, JT15D and PW100.

Other News

Magnetic MRO, a global provider of Total Technical Care for aircraft operators and lessors, made a significant step towards becoming a fully paperless MRO. The company has decided to digitalize paper-based aircraft maintenance work orders, as well as introduce biometric e-signatures for aviation mechanics and other certifying staff. "Paper documents made their job back in those days when there was no other reliable alternative for keeping track of aircraft maintenance works. Today, highly secure digital storage systems provide an unprecedented level of reliability and security against manipulations or unauthorized edits," comments Jan Kotka, the COO of Magnetic MRO. "With this in mind, we've made yet another important step towards a paperless environment by

digitalizing aircraft maintenance work orders and securing them with fingerprint signatures. The new system has already received an approval from Estonian CAA."

"Biometric e-signature and digital storage bring document management to a new level of transparency and security. Further on, the new system eliminates an unnecessary and time-consuming process of delivering work orders from the engineering department to maintenance shops and vice versa. What is particularly delighting, our clients will also benefit from the system, since all aircraft-related documents will now be available even faster," shared Sergei Shkolnik, Magnetic MRO's Base Maintenance Director.