

Editor's Page 2



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Opinion

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Testing times for aviation

he aviation industry is facing a crisis unlike any we have witnessed before. The travel bans and border closures put in place to prevent the spread of the COVID-19 pandemic have led to a prolonged decrease in air traffic and associated services.

IATA has called on governments to take some extraordinary measures in the current circumstances. One that you will have heard about is a waiver on slots—particularly the 80-20 use-it-or-lose-it rule. Demand patterns have shifted radically. And airlines should not be hindered by the 80-20 rule when adjusting their operations to the reality of today's market. Governments have responded positively to this. IATA is concerned however that the EU is only granting a waiver until June. It is unclear what demand will look like in June.

Direct financial support for carriers to compensate for reduced revenues, loan guarantees and tax re-

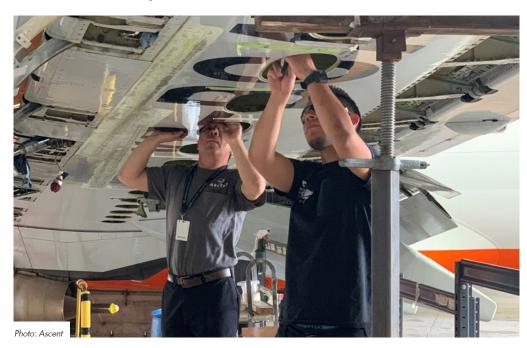
lief initiatives have all been highlighted as urgent measures that are needed to get the airlines back on track.

Clearly there is no one-size fits all solution and there will surely be some casualties along the way.

In Europe the situation is especially acute. The European Regions Airline Association (ERA) is seeking urgent measures at a European level. ERA is encouraging the European Commission and member states to give special consideration to airlines given the critical need for cash due to the enormous cut in passenger revenues.

It is yet unclear how the current crisis will affect the MRO and aftermarket sectors in terms of financial figures but certainly, we anticipate a ripple effect.

Keith Mwanalushi Editor



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Recaro Aircraft Seating installs first seats from SPRINT program on B737 aircraft

Recaro Aircraft Seating has installed its first shipset of its BL3530 seats from the SPRINT program on Air Lease Corporation's B737 aircraft start of March. Introduced in late 2019, the SPRINT program develops and ships predefined BL3530 seats for lessors within two months of the order being submitted. The SPRINT program can equip either an A320 or B737 with the BL3530 economyclass seat, which lessors can customize with one of five different predefined e-leather dress covers. Recaro is the first aircraft seating manufacturer to introduce a seating program that offers lessors a customizable seat with a two-month turnaround.

AJW Group extends Pool Access Agreement with Acropolis Aviation

AJW Group is extending its Pool Access Agreement with Acropolis Aviation in support of G-NOAH and has entered into a new support agreement for G-KELT. AJW has been providing tailored spares support services to Acropolis Aviation, the U.K.-based VIP charter and aircraft management company since 2011. The extension to the contract sees AJW continue to provide support for Acropolis'

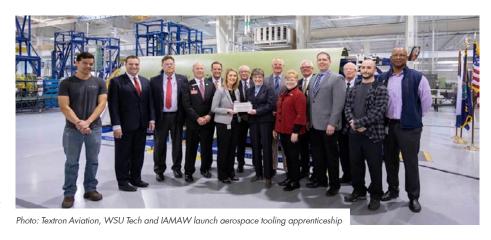
ACJ319 G-NOAH along with a Pool Access Agreement for their new ACJ320neo G-KELT aircraft, which is the first of its kind. AJW operates a comprehensive 24/7/365 export freight and logistics service. Our knowledge of all customs, hazardous goods regulations, and export control regulations, enables us to advise customers and ship spares with maximum efficiency and safety.

AEM secures Wizz Air contract for first aid kits

AEM Limited, a business within AMETEK's Aerospace and Defense Division, has signed a contract to supply Hungarian airline, Wizz Air, with Aeromedic first aid kits for an additional 146 aircraft in the airline's Airbus fleet. AEM will manufacture and deliver kits for more than 268 firm orders of the Airbus A320/A321 NEO and CEO family aircraft. AEM will manufacture the kits at its Luton Airport facility, located in London. Airbus will receive the kits by the aircraft on dock dates, per the agreement. The agreement also covers the refurbishment of the kits, as required.

Textron Aviation, WSU Tech, and IAMAW launch aerospace tooling apprenticeship

Textron Aviation, WSU Tech and the International Association of Machinists and Aerospace Workers (IAMAW) have announced a new collaborative apprenticeship program to address long-term production and tooling requirements for the company's aircraft programs. The two-year program, the first of its kind in the region, will provide students both factory and classroom training in a wide range of skills needed to help design, build and maintain production tooling, which covers everything from specialized hand-held tools to large jig assemblies supporting aircraft parts and assemblies. As Textron Aviation employees, program participants will not only earn a full-time salary and benefits, but the company will also cover related tuition and fees at WSU Tech. "Textron Aviation has long been committed to building educational and community partnerships that benefit both the company and the region, particularly in developing a well-paid, skilled workforce that maintains our advantage in a very competitive, global market," said Maggie Topping, senior vice president of HR and Communications at Textron Aviation. "Through the new apprenticeship program with WSU Tech, our students will get the benefit of an advanced curriculum designed specifically for this program, as well as learn on the job from our highly skilled tradespeople."



Revima





S7 Technics and Satair sign consignment agreement

Russian MRO services provider S7 Technics has signed a consignment stock agreement with Satair, the aviation spares and solution provider. The agreement covers the exclusive distribution of over 350-part numbers from a number of suppliers over a multi-year period and constitutes the first of its kind between Satair and customers in Russia and the CIS region. Furthermore, the agreement facilitates the plans of growing the cooperation between \$7 Technics and Satair further over the coming years. The new strategic partnership between the two companies will expand the scope of S7 Technics' maintenance capabilities, increase the overall productivity, and will allow the release of aircraft from maintenance checks more efficiently.



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Magnetic MRO and Airbus sign airframe maintenance agreement

Magnetic MRO, a Total Technical Care and asset management organization, and Airbus have signed a long-term airframe maintenance agreement for the support and maintenance of Airbus Family aircraft. "The Total Technical Care is not only about the quality of MRO services. It's also about first-class customer support, transparent processes, and exceptionally high procedural standards. We're very proud of our team which has proven to meet these standards on numerous occasions. We are glad to expand our partnership with Airbus and share the experience of Magnetic MRO high quality of service with them and their partners. This has definitely opened new horizons for Magnetic MRO, and we are looking forward to wide cooperation now that we are an approved supplier for Airbus maintenance-related activities," shared Inga Duglas, Chief Commercial Officer at Magnetic MRO. Magnetic MRO provides EASA- and FAA-certified Total Technical Care services for aircraft operators and owners in Europe, the Middle East, Africa and Asia.





"AMOS, which is already used as a standard tool by many LH group airlines, will also help us at Lufthansa to make our Technical Fleet Management processes even more transparent and, above all, even more efficient. Among other things, we are relying on the already very broad AMOS know-how of our sister companies. We chose AMOS because of its 30 years of success in the industry, but also because of its continuous product innovations, which help us to establish state-ofthe-art processes in Technical Fleet Management at Lufthansa as well."

says CEO Lufthansa German Airlines Hub Frankfurt



Lufthansa and Lufthansa Cargo take off with AMOS, the world-class M&E software solution.

Both carriers will implement AMOS including AMOSmobile, enabling paperless maintenance operations from the beginning.

The close cooperation of the Lufthansa group members will be further promoted by AMOScentral, which enables the exchange of data between AMOS instances while nevertheless allowing each group member to keep control over their individual AMOS environments.



LHT signs technical support contracts with Red Wings and SmartAvia

The Russian carrier Red Wings Airlines has contracted Lufthansa Technik to provide extensive support for its growing Airbus narrowbody fleet. Within the frame of a contract with another Russian airline, Lufthansa Technik will also provide technical services for the Boeing 737 fleet of SmartAvia. Under a six-year contract with Red Wings Airlines, Lufthansa Technik supports the IAE V2500 and CFM56-5B engines of the carrier's Airbus fleet with a full range of engine services including engine condition monitoring (ECM). For the duration of the contract, a shop visit is planned for each of the current 24 engines. Lufthansa Technik will also maintain the landing gears of Red Wings' fleet of currently eight Airbus A320s and four A321s on a fixed-price basis over the next six years.

SmartAvia has signed a long-term agreement covering technical services for the carrier's Boeing 737 fleet. Under the terms of the contract, Lufthansa Technik provides spare parts for the Boeing 737 NG aircraft of the carrier's fleet. The new contract provides Smartavia with guaranteed access to Lufthansa Technik's component and spare parts pool. Lufthansa Technik's support around the clock ensures that all aircraft spare parts can be supplied to the airline at short notice, reducing the time required to maintain the aircraft and therefore its ground time. Ultimately, this comprehensive support will allow Smartavia to increase its fleet renewal rate, to expand its route network, and enhance the level of services provided to passengers.

FL ARI obtains EASA Part 145 Maintenance Organization certification for line maintenance in China

FL ARI Aircraft Maintenance & Engineering Company, based in Harbin, China, has ob-

tained certification approval as an EASA Part 145 Maintenance Organization. FL ARI is a joint venture between China Aircraft Leasing Group (CALC), its mid- to end-of-life aircraft solutions arm Aircraft Recycling International (ARI), and FL Technics, a leading provider of MRO services in Europe. FL ARI is now cleared to provide line maintenance support for aircraft from the Boeing 737 NG series to Airbus A320 Families.

C&L Aviation Services receives Transport Canada Civil Aviation approval

C&L Aviation Service has received Transport Canada Civil Aviation (TCCA) approval. This certification allows C&L to perform maintenance services on commercial aircraft (defined as any aircraft that sells individual seats or full-aircraft rental services) that are registered in Canada. C&L Aviation Services performs depot-level maintenance from its FAA- and EASA-approved, 140,000 ft², Part 145 maintenance facility located in Bangor, ME U.S.A. The company focuses in on regional aircraft including the ERJ 135/140/145, Saab 340, ATR 42/72, Dash-8, and the CRJ 200/700 and corporate aircraft including the Challenger 604/605, Hawker 800 series, Citation Aircraft, and the Beechjet 400A.

AvAir opens facility at Dublin Airport

AvAir, a global supplier of aftermarket aviation parts, will open a 25,000-ft² warehouse facility at Dublin Airport. The United Statesbased company's expanded presence in Europe comes as at the start of its 20th year and as part of a new strategic vision for AvAir, which offers customized solutions for customers and suppliers to buy, sell, exchange, loan, lease, or consign more than 26 million in-stock aviation parts. "The new Dublin location will allow us to provide better service to our customers in Europe, Asia, and the Middle East," Bianco said. "With this new facility, we are removing nearly 5,000 miles from the total distance much of our inventory would need to travel. This allows us to be more responsive to our customers while saving time and money." To lead the Dublin office, Fjalar Scott has been promoted to vice president of sales in Europe. Scott has led the European business development for the company with a focus on expanding its footprint to better serve international clients for the last four years.



TRANSITIONING out of 737NG or A320 fleets? FORECASTING engine maintenance costs?

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Air India Engineering Services to perform Pratt & Whitney GTF™ maintenance

Air India Engineering Services (AIESL) will provide maintenance, repair, and overhaul (MRO) services in support of Pratt & Whitney's GTF™ engines and customers in India. AIESL will service PW1100G-JM engines at its facility in Mumbai. AIESL's introduction to GTF maintenance will be a phased approach, starting with engine upgrade and module exchange capabilities as immediate support of the GTF fleet in India. The facility has already received its first GTF engine.

Stevens Aerospace awarded Mexican AFAC approval for Macon, GA. facility

Stevens Aerospace and Defense Systems has been awarded full Mexican Agencia Federal de Aviación Civil (AFAC) approval for the company's facility in Macon, Ga. (KMCN). This authorization allows Stevens to fully work and return to service Mexican-registered aircraft. The approval provides owner-operators of Mexican-registered aircraft, from turbo props to large cabin business jets, an additional high-quality option in the U.S. for maintenance, avionics modifications and interior refurbishments. Stevens' Macon team specializes in Gulfstream and Global aircraft. but has considerable expertise and authority on Challenger, Citation, Embraer, Hawker, King Air, Learjet and other airframes. Stevens' Greenville, S.C. operation (KGYH) has been Mexican-certified for years and the company's Nashville facility (KBNA) is currently in-process and expecting authorization later this year.

GA Telesis MRO Services Group receives B737NG landing gear certification from FAA

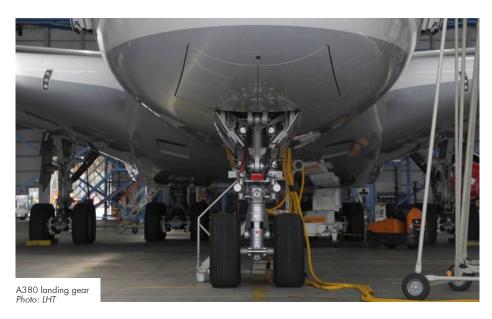
GA Telesis' MRO Services Group has received its Boeing 737NG landing gear certification from the United States Federal Aviation Administration. This new rating allows GA Telesis MRO Services to repair and overhaul Boeing 737NG landing gears. The company has elected to make a substantial investment in growing its MRO services footprint and will invest in the latest equipment, tooling, and plating technologies available for current and future-generation aircraft models. Landing gear repairs and overhauls for this aircraft type will be carried out in the Miami facility located across from Miami International Airport and will support Florida Governor Ron DeSantis' job creation initiatives creating a significant number of new high-tech jobs.

TP Aerospace opens wheel and brake MRO in Russia

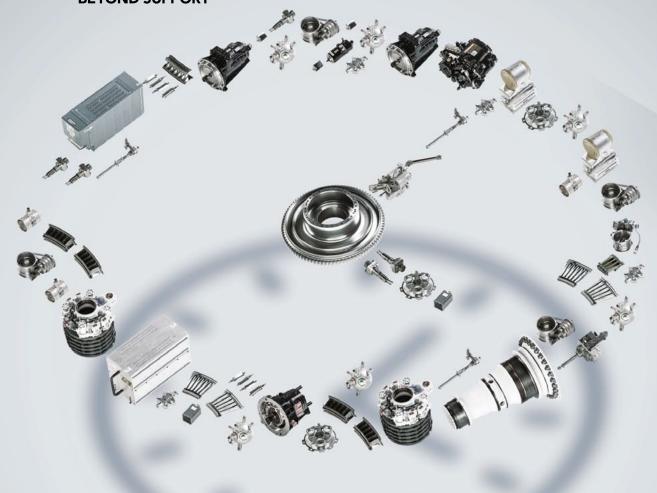
TP Aerospace has opened its first wheel and brake MRO in Moscow, Russia. The extension to the green family is part of the Green Sunrise strategy, an ambitious growth plan for increasing proximity to airline customers worldwide and to provide the best possible wheel and brake support, wherever in the world their aircraft may be. The new workshop is located close to Sheremetyevo International Airport and consists of a combined office and workshop space, currently operated by six skilled staff, four technicians and two in management.

Safran and Lufthansa Technik sign MRO partnership agreement for A380 landing gear

Safran Landing Systems and Lufthansa Technik have signed a long-term contract on A380 landing gear services. The two companies will combine their respective areas of A380 landing gear MRO expertise at their Singapore (Safran Landing Systems) and London (Lufthansa Technik) facilities to deliver optimized solutions that cover all aspects of the so-called superjumbo jet's landing gear. This extensive asset and MRO partnership will provide airlines with a single point of contact throughout the whole commercial and industrial chain, thus a comprehensive A380 landing gear support. Airlines will be free to send their complete set of landing gear to one of the partners, thus avoiding complex processes.







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MAC Aero Interiors to establish new production facility in Estonia

MAC Aero Interiors, a United Kingdom-based subsidiary of Magnetic MRO, has moved its production facility to Tallinn, Estonia. The new facility in Estonia's capital was opened in January 2020 and publicly on March 4, 2020. Due to changes in the economic environment in the United Kingdom, the company has made the decision to support its customers in full-scope delivering high-standard service via Magnetic MRO Part 145, POA, DOA-certified production facility in Tallinn, Estonia. MAC Aero Interiors remains the supplier and holder of its contractual obligations, while production is executed at MAC Aero Interiors parent company Magnetic MRO facility - benefitting from the wide network of Magnetic's overall infrastructure in Tallinn. Additionally, China-based MAC Sichuan (a subsidiary to MAC Aero Interiors) continues to provide cabin total technical care support for large-volume orders and brings exposure to the Asian market.

Malaysia Airlines collaborates with REVIMA to provide landing gear services

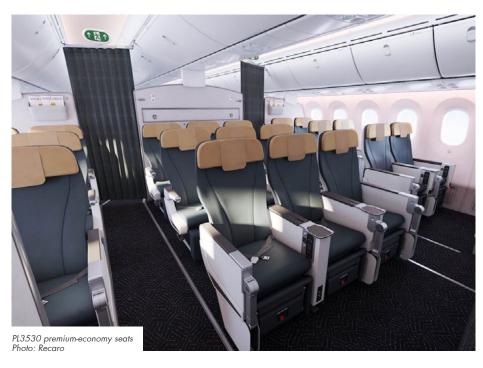
Malaysia Airlines Berhad (MAB) will be collaborating with Maintenance, Repair and Overhaul (MRO) solutions provider REVIMA, specialized in APU and landing gear solutions. REVIMA has over 60 years expertise in MRO with major industry players and has recently extended its footprint in the Asia Pacific region via its newly constructed state-of-the-

art landing gear overhaul facility in Chonburi, Thailand. Both companies will work together in providing a one-stop-service center on landing gear replacement and overhaul solutions to third-party customers. This will enable Malaysia Airlines to provide landing gear replacement services for REVIMA customers at its KUL Hangar. Likewise, REVIMA will be supporting landing gear overhauls for MAB customers at any one of its facilities, in addition to offering its customers landing gear replacement packages with Malaysia Airlines. REVIMA will also provide technical and training support for fleet landing gear replace-

ments, including knowledge sharing on best practices and facility benchmarking for Malaysia Airlines, allowing competencies and capabilities enhancements. Both parties will also have a role in marketing and promoting their joint services to IATA 3 operators within the Asia Pacific region. Through this, Malaysia Airlines hopes to grow its share in the Asia Pacific MRO market, as well as promote the services to fellow operators. REVIMA, on the other hand, will be able to leverage on Malaysia Airlines' experience in airframe maintenance, as well as landing gear replacement experience for both narrow-body and widebody aircraft.

Recaro Aircraft Seating equips Vistara's first Boeing 787-9 aircraft

Vistara has ordered Recaro seats for its premium-economy and economy- class cabins on its brand-new fleet of Boeing 787-9 Dreamliners, which began delivery at the end of February. This makes Vistara the first Indian airline with a Boeing 787-9 Dreamliner. Recaro Aircraft Seating has installed its PL3530 premium-economy and CL3710 economyclass seats on Vistara's first Boeing 787-9 Dreamliner. "Recaro is always looking to expand its footprint and this is a fantastic opportunity to collaborate with a new partner." said Dr. Mark Hiller, CEO and Shareholder at Recaro Aircraft Seating. "There can be a lot of challenges when entering a new market but having a strong partner can make all the difference."







DC Aviation Group and Comlux sign cooperation agreement

DC Aviation Group and Comlux have signed a cooperation agreement. DC Aviation has been selected to perform the line maintenance and warranty work for Comlux customers based in Europe and CIS. The line and base maintenance services for aircraft of the Airbus ACJ Family, Global Express 5.000/6.000, and Challenger 604/605 will be carried out at DC Aviation's dedicated 5,700 m² Stuttgart Airport (EDDS) hangar, which also contains a large and well equipped parts inventory, a certified battery and tire shop, and a maintenance logistics center. DC Aviation has been offering line and base maintenance services for various types of aircraft since 1999 and is able to carry out exceptionally complex work with the highest level of reliability and competence. Due to 24/365 availability, combined with intelligent planning and smooth workflows, DC Aviation is able to meet challenging ground-times.

Elbe Flugzeugwerke achieves STC for A321 Freighter conversion

Elbe Flugzeugwerke (EFW), the joint venture of ST Engineering and Airbus, has received supplemental type certification for its A321 Passenger-to-Freighter (P2F) conversion from the European Union Aviation Safety Agency (EASA). The Supplement Type Certificate (STC) comes one month after the prototype unit, to be redelivered to launch customer Vallair, made its maiden flight test on January 22. As the STC holder, EFW is responsible for customer support services as well as the adaption engineering in the serial phase. Within the

setup of the joint venture, EFW is furthermore taking care of the overall Program Management, Marketing and Sales and the subcontracting of conversions to the lines in Singapore, China, the U.S. and Germany. The program, launched in 2015, is the result of a collaboration between ST Engineering, Airbus and EFW. ST Engineering is responsible for the engineering development phase, up to obtaining the STC from EASA and U.S. Federal Aviation Administration. Airbus contributes to the program with Original Equipment Manufacturer (OEM) data and certification support, on-board computer development, airframe engineering, flight-physics and flight-testing expertise. This is the exclusive A321P2F program whereby Airbus contributes with OEM data and certification support.

Air New Zealand considering use of "Skynest" sleeping pods for economy class passengers

Air New Zealand has announced it is investigating the potential use of "Skynest" sleeping pods for economy-class travelers on some of its longest routes. The carrier has applied for a patent for what it is calling "Economy Skynest" which will contain six full-length sleep pods at 200cm long and 58cm wide each. There will be three levels of beds and two beds on each level. Each bed will include a pillow, sheets, blankets and possibly a USB charging point and reading light. Flights being considered suitable for the Skynest include the Auckland to New York service which will begin next year, a flight lasting 17 hours and 40 minutes. The carrier has yet to give an indication of cost, but it will be in addition to the cost of an economy-class seat. Passengers will be able to book slots in the Skynest as opposed to booking one for the full flight, with cabin crew refreshing them with clean sheets, pillows, etc. on each changeover. As the Skynest is an optional extra for passengers, they will still retain their economy-class seat throughout the flight, even when using the Skynest. The airline would need to get it certified with regulators before passengers can expect to climb into the in-air beds. "But it was a prize worth chasing and one that we think has the potential to be a game-changer for economy class travelers on all airlines around the world," said Kerry Reeves, Air New Zealand's head of airline programs. If the product proves popular, Air New Zealand has said it will consider licensing the Skynest to other airlines.



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Honeywell expands maintenance and connectivity services in Central Europe

Honeywell has added Lithuania-based Jet Maintenance Solutions to its business and general aviation Channel Partner program. Under the agreement, Jet Maintenance Solutions will provide Honeywell's leading maintenance services and connectivity solutions for Central European customers. As Honeywell's third authorized service center in the region, the agreement will expand maintenance location options for Honeywell customers, saving them precious time and money. Jet Maintenance Solutions offers base and line maintenance services for various Hawker Beechcraft aircraft, including the 700, 800, and 900 models, and their related variants; the Bombardier CRJ 100, 200 and 440; Bombardier Challenger 604, 605 and 850; and Bombardier Global 5000 and 6000 aircraft. Before this agreement, Honeywell customers using these platforms had to travel to Western Europe for maintenance service and support.



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King Aerospace growth continues

King Aerospace completed routine maintenance, avionics, paint and interior refurbishment on 40 Boeing Business Jets (BBJs), Boeing 737s and Boeing 757s and 45 of corporate aircraft last year at its facilities in Ardmore, OK. In 2018, it completed work on 29 Boeing aircraft and 44 corporate aircraft. King Aerospace's Ardmore facility includes four hangars offering 200,000 ft² of space. In addition to VVIP and corporate aircraft, it also provides depot services for military and government aircraft.

C&L Aerospace purchases ATR inventory from Intertrade

C&L Aerospace has purchased a package of ATR inventory from Intertrade. As part of the transaction, C&L has acquired over 1,400-line items to be added to its existing ATR inventory. All parts from the program are now stocked in C&L's U.K. and Bangor, ME, U.S. warehouses. Parts from the purchase will bolster existing inventory and be used to support C&L's robust ATR support programs by offering items ranging from new and overhauled, serviceable and repaired condition.

Columbia Manufacturing Receives AS9110 certification

Columbia Manufacturing (CMI), a privately held manufacturer and supplier of precision components for turbine engines, has received AS9110 quality management system certification by NSF International Strategic Registrations (NFS-ISR). AS9110 is a widely

adopted quality management system standard within the aerospace industry for FAA repair stations and other MRO suppliers. Criteria is designed to meet the highest industry standards specific to commercial, private, and military aircraft maintenance. Certification entails a rigorous two-stage process that thoroughly examines and evaluates an organization's quality system through on-site inspections and comprehensive audits. The Scope of Registration includes Maintenance, Repair, and Overhaul of precision machined parts and sheet metal fabrication for the aerospace industry. Special processes include non-conventional machining, welding, brazing, heat treating, and non-destructive testing. Certification was issued on February 11, 2020 and is valid for three years with annual surveillance audits.

EL AL signs PBH contract with AJW Group

AJW Group, an independent specialist in the global management of aircraft spares, has won a long-term power-by-the-hour (PBH) contract with Israeli carrier, EL AL Israel Airlines (EL AL). The PBH support will cover EL AL's fleet of 26 Boeing 737 Next Generation aircraft via AJW inventory hubs in the U.K., Germany, Israel, as well as at other key European line stations in the EL AL network. The contract marks an extension of AJW's relationship with EL AL, which has seen many years of ad hoc work to-date. By utilizing AJW's PBH offering, EL AL will have access to aircraft parts and AJW Technique's repair facility, which will be supporting the repair of EL AL components across multiple ATA chapters including avionics, fuel, hydraulics and pneumatics.







EngineStands24 signs contract with Rhinestahl CTS

EngineStands24, a subsidiary of Magnetic MRO, and Rhinestahl CTS, authorized provider of aviation and gas turbine engine tooling to GE, CFM and Rolls-Royce, have signed an engine stand service agreement, covering the maintenance service of EngineStands24 stands pool for all the company's global hubs. According to the agreement, Rhinestahl CTS will be responsible for managing the entire engine stand fleet including LEAP, CFM56, CF6 and CF34 engines and will ensure its readiness. The agreement covers service in all of the hubs, including Amsterdam, Dubai and Guangzhou, making Rhinestahl CTS an exclusive engine stands maintenance service provider for Magnetic MRO.

Emirates and Spairliners sign GTA for component support of Emirates' A380 fleet

Emirates and Spairliners have signed a General Terms Agreement (GTA) to provide component aftermarket solutions for Emirates' A380 fleet, Ammar Al-Zaben, Emirates' Vice President Procurement Aircraft, added: "Component support for any aircraft is critical. But the complexity is multiplied many times over when it's for the largest passenger aircraft - the A380s, and specifically for us, as we are its largest operator. Our association with Spairliners will further strengthen the support, service and reliability for our A380s, the flagship of our fleet, which will translate to optimized operations and a better customer experience."



Revima and Air Arabia contract signing Photo: Revima

Air Arabia awards A320 landing gear MRO contract to Revima

Revima, the independent landing gear and APU MRO, has signed a six-year contract with low-cost carrier Air Arabia, for the full support of its A320 landing gears, totaling 40 shipsets for the period. The MRO work will be provided by Revima's facility located in Normandy, France. Revima has been operating its A320 landing gear repair shop for several years, with a world-class dedicated customer service.



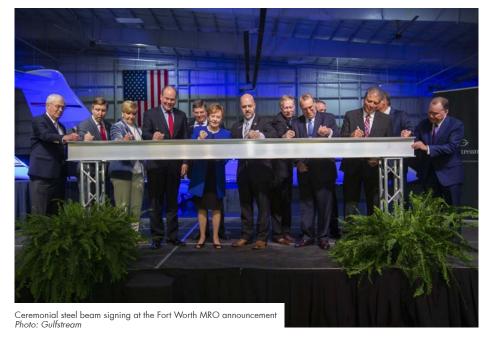
En AAR signs LoI with Air Canada to add new aircraft types and establish airframe maintenance Center of Excellence

AAR Aircraft Services Trois-Rivières ULC (AAR) has entered into a letter of intent with Air Canada regarding a ten-year, renewable agreement for airframe maintenance. This long-term agreement should enable AAR to develop an Airframe Maintenance Center of Excellence at its Trois-Rivières MRO in Quebec, Canada and to expand its heavy maintenance services for Air Canada, which will stimulate new in-

vestment in aerospace and create more highquality aircraft mechanic jobs. The larger combined Airbus A330 fleet of Air Canada and Air Transat would allow Air Canada to move wide-body A330 maintenance work for both airlines from abroad to AAR in Trois-Rivières, in addition to maintaining and expanding AAR's airframe maintenance work in Quebec on the A320 family, including all new A321neo aircraft. AAR currently performs airframe maintenance work in Trois-Rivières on Air Canada's existing A320 fleet and E190 fleet (which is being phased out). The letter of intent is subject to completion of the Transat A.T. merger by Air Canada, requisite Board of Directors' approvals and completion of final agreements, including terms generally applicable to large-scale airframe maintenance agreements. AAR intends to make necessary facility infrastructure investments in Trois-Rivières to develop a Center of Excellence and accommodate the new wide-body A330 work of the combined Air Canada and Air Transat fleet. Through this agreement, it is expected that incremental aerospace jobs will be created in Trois-Rivières and AAR's new capabilities will attract airframe maintenance work from other A330 operators.

Gulfstream to expand in Dallas-Fort Worth area

Gulfstream Aerospace will expand its operations in the Dallas-Fort Worth metropolitan area with the construction of a service center at Fort Worth Alliance Airport. The facility. which will complement Gulfstream's presence at Dallas Love Field, is expected to open by the fall of 2021 and will create approximately 50 new jobs. To help meet the needs of its growing customer fleet, Gulfstream will invest more than US\$35 million to build a nearly 160,000-ft² / 14,864-m² maintenance, repair and overhaul facility at Alliance. The building will include hangar space, back shops and employee and customer offices. Groundbreaking is scheduled for the third quarter of 2020. Approximately 150 to 200 of Gulfstream's 230 Customer Support employees at Love Field are expected to relocate to Alliance, about 35 miles away, while about 30 to 80 employees will remain at Love Field to continue to provide on-site and transient operators with maintenance and service. Gulfstream's mid-cabin



aircraft completions business in Dallas, which includes about 350 employees and

five hangars, will remain at Love Field.



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Tulsa team members at the announcement of the US\$550 million investment

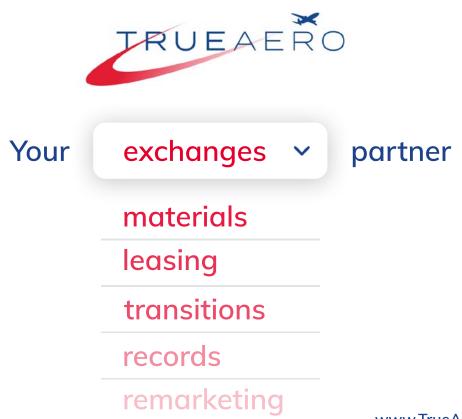
American Airlines to invest US\$550 million in Tulsa maintenance base

American Airlines will invest US\$550 million at its base maintenance facility in Tulsa (Tech Ops – Tulsa). It is American's largest base maintenance facility and is an integral part of operating the

carrier's fleet of nearly 1,000 mainline aircraft safely and reliably. Tech Ops – Tulsa is home to more than 5,500 team members — 600 of those positions were added in 2019 — and conducts nearly half of the airline's overall maintenance work. The new project includes construction of a new wide-body-capable hangar and base support building. The investment also provides for improvements to the existing infrastructure, including roof replacements, utility and IT upgrades, and ramp repairs. This investment underscores American's long-term commitment to the Tech Ops – Tulsa team, State of Oklahoma and City of Tulsa by making improvements to ensure success.

Willis Lease Finance reports annual pre-tax profit of US\$88.9 million

Willis Lease Finance has reported annual total revenues of US\$409.2 million and pre-tax profit of US\$88.9 million for the year ended December 31, 2019. The Company's 2019 pre-tax results were driven by continued leasing revenue growth as well as gains associated with the active management of its portfolio. Aggregate lease rent and maintenance reserve revenues were US\$299.7 million for 2019. The Company's results also include



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US\$18.2 million of non-cash write downs. As of December 31, 2019, the Company had a total lease portfolio consisting of 263 engines, 12 aircraft, 10 other leased parts and equipment and one marine vessel with a net book value of US\$1.651 billion. As of December 31, 2018, the Company had a total lease portfolio consisting of 244 engines, 17 aircraft and 10 other leased parts and equipment, with a net book value of US\$1.673 billion.

GKN Aerospace posts strong 2019 performance

GKN Aerospace has delivered a strong performance in 2019, with sales up 7% and operating margin up to 10.6% (from 9.9% in 2018), coupled with new contract wins, breakthrough technology developments and more than £50 million invested in key sites. During the year, GKN Aerospace has signed a contract for a large workshare on the all-new Gulfstream G700 Business Jet, including design and manufacture of empennage and floorboards and production of fuselage panels. In addition, Aerion Supersonic selected GKN Aerospace as a supplier on the AS2 supersonic business jet. GKN Aerospace will design the empennage and the electrical wiring and interconnection systems (EWIS). GKN Aerospace continued its strategic expansion in the growing Asian market, announcing a new facility in China and starting production in its new wiring site in Pune, India. Over £50 million was committed to new investment productivity across key European and US facilities, including Cowes, Luton and Portsmouth in the U.K., and Garden Grove in the U.S. (£1.00 = US\$1.31 at time of publication.)

Rolls-Royce upbeat on recent advances despite COV-ID-19 outbreak

Rolls-Royce rounded off 2019 on a positive note having overcome most of the problems which had particularly beset its Trent 1000 TEN engine variant which powers the Boeing 787 Dreamliner with durability issues. With the roll-out of fixes progressing and increased confidence in a new engine blade due for production next year, the number of grounded jets requiring inspection or repairs to engines should drop to single digits by the end of the second quarter this year, which, according to Warren East, Rolls-Royce CEO, is in line with forecasts. Rolls-Royce reported a £852 million operating loss for 2019, predominantly owing to a £1.4 billion charge for the Trent 1000, without which, core underlying profit rose 25% to £810 million. Cash flow increased to £911 million, led by higher profit and Trent 1000 insurance receipts worth £173 million. East confirmed that Rolls-Royce had delivered a record 510 wide-body aircraft engines in the year and secured about two out of three orders for new wide-body engines. Meanwhile, the British engine maker sees the COVID-19 outbreak as an "unknown unknown" with regard to both scale and duration. However, it confirmed that its supply chain, including that from China, had not experienced any disruptions. According to Reuters news agency, Rolls-Royce currently expects core operating profit to grow by about 15% this year, with at least £1 billion of free cash flow. (£1.00 = US\$1.28 at time of publication.)

Astronics Corporation reports 2019 fourth-quarter and full-year financial results

Astronics Corporation reported that fourth-quarter consolidated GAAP sales were down US\$4.5 million, reflecting a US\$10.3 million decline related to the divestiture of the semiconductor business. The acquired businesses contributed US\$9.9 million in sales. As a result of the increase in the legal reserve and the impairment and restructuring charges associated with the antenna business, consolidated operating loss was US\$36.9 million, compared with operating income of US\$18.6 million in the prioryear period. The effective tax rate for the quarter was 21.3%, compared with 19.9% in the fourth quarter of 2018. Net loss was US\$34.1 million, compared with net income of US\$12.5 million in the prior year. Adjusted consolidated sales were up 3% to US\$196.5 million in the fourth quarter of 2019. Adjusted Test



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System sales were up US\$8.9 million due to incremental sales from the acquired businesses, while the aerospace segment sales were down US\$3.1 million. Consolidated GAAP sales for the full year of 2019 decreased US\$30.6 million to US\$772.7 million, primarily because of the divested semiconductor business which had sales of US\$9.7 million in 2019 and US\$84.3 million in 2018. Consolidated operating income declined to US\$1.7 million compared with US\$63.7 million the prior-year period. The effective tax rate for 2019 was 23.8%, compared with 10.5% in 2018. The 2018 tax rate was favorably impacted by a revised state tax filing position. Net income was US\$52.0 million, compared with US\$46.8 million in the prior year. The US\$80.1 million pre-tax gain on the sale of the semiconductor test business contributed US\$60.4 million to net income after taxes.

Seabury Capital establishes new financing arm to deliver advanced support for global aircraft market

Seabury Capital Group (Seabury Capital) has announced the formation of Seabury Aircraft Capital (SAC) through a combination of its existing advisory practices and the acquisition of an investment banking firm Structured Finance International (SFI) whose professionals have arranged over the past 20 years aircraft financing with an aggregated acquisition costs exceeding US\$18 billion (in 2020 dollars). By virtue of this combination, SAC will be one of the leading advisory and capital arranging firms for financing for new and used aircraft, using innovative tax-and non-tax-driven financing structures. With SAC, Seabury Capital professionals have a combined history of advising on over US\$300 billion of new aircraft agreements, US\$30 billion of aircraft financing structures and over US\$100 billion in corporate financing arrangements. Buttressed with SFI's investment banking capabilities, market knowledge, and expertise in the development and implementation of structured financing solutions for aerospace clients, SAC will assist carriers in sourcing and purchasing assets, as well as in arranging and executing the financings, specific to each airline fleet and balance sheet's requirements. In addition, the unit leadership's unique ability to analyze transactions from the perspective of all key participants, including airlines, manufacturers, and investors, as well as their long-standing relationships within the investment community, are strategically positioned to expand Seabury Capital's investor pool, making airlines and aircraft more appealing to a wider array of institutional and other investors.

Fly Leasing reports fourth-quarter and full-year 2019 financial results

Fly Leasing (FLY) is reporting net income of US\$75.2 million for the fourth quarter of 2019. This compares to net income of US\$31.0 million for the same period in 2018. Net income for the year ended December 31, 2019 was US\$225.9 million, compared to net income of US\$85.7 million for the year ended December 31, 2018. Adjusted net income was US\$77.0 million for the fourth quarter of 2019, compared to US\$30.8 million for the same period in the previous year. For the year ended December 31, 2019, adjusted net income was US\$245.9 million, compared to US\$91.2 million for the same period last year. In the year 2019, FLY sold 35 aircraft with an average age of over 10 years, generating an economic gain of nearly US\$150 million, which was an 18% premium-to-book value.

DB Schenker new investor at Volocopter

Volocopter and DB Schenker have reported an investment by the global logistics service provider into the pioneer of Urban Air Mobility (UAM) as Volocopter extends its Series C funding to now total €87 million. Besides DB Schenker, Mitsui Sumitomo Insurance Group, TransLink Capital who join the round as new investors, existing investor Lukasz Gadowski and btov also invested. The funding will go towards the certification of the VoloCity, hiring more industry experts and a second-generation VoloDrone to ensure commercialization of the heavy-lift cargo drone product. To date Volocopter has raised total funding of €122 million. Volocopter is developing autonomous electrical Vertical Take-Off and Landing (eVTOL) aircraft, e.g. the VoloCity, to offer air taxi services in the megacities of this world as an addition to existing transport options. Just recently the company performed a public flight over Marina Bay Reservoir in Singapore demonstrating the maturity of its technology. A full scale VoloPort prototype on display allowed visitors to experience what UAM could feel like in the future. This bears testimony to Volocopter's holistic approach to UAM as an ecosystem. Last October, Volocopter presented the demonstrator of its VoloDrone, marking the company's expansion into the logistics, agriculture, public services and construction industries. (€1.00 = US\$1.08 at time of publication.)





SalamAir has chosen Communication Software's OASES engineering and maintenance platform for its growing regional girline. The deal will see the Oman-based airline using several OASES modules, all of which will be implemented on Commsoft's private cloud. These include its core, airworthiness, planning, materials, line maintenance control and warranty modules. The first low-cost carrier based in Oman, SalamAir was established in 2016 and now serves 27 destinations. Its current fleet comprises three Airbus A320-214s (with CFM56 engines) and five Airbus A320-251Neos with a further A320neo aircraft being planned. Implementation will start with the materials module in the next month and CAMO implementation will commence as new aircraft arrive. The OASES implementation will start immediately with onsite implementation likely to commence in March 2020.

Honeywell has completed ground testing and flight testing of the JetWave connectivity system in China on its Boeing 757 aircraft. This is a major milestone for Honeywell that will greatly increase its support of China's in-flight, high-speed satellite communication. Based on proven performance and recognition in the market, Jet-Wave is designed for the China's Ka-band satellite network. It provides reliable and high-speed cabin connectivity. JetWave has speeds of up to 180 Mbps, so passengers can expect the same high-speed Wi-Fi experience at 40,000 feet as they do on the ground, fully meeting business and entertainment connection demands. In March 2019, Honeywell announced the appointment of Air Esurfing as the sole distributor of JetWave in China.







"Focused on what is Up Ahead"

www.aerosetgroup.com



Unplanned maintenance costs airlines over \$20 billion a year. **Keith Mwanalushi** looks at predictive maintenance and the cost benefits for inventory management.

he aviation industry is grasping for opportunities to reduce costs.

According to data from EXSYN Aviation Solutions predictive maintenance is recognised by 66% of airlines as one of the most prominent new technologies to have entered the market by 2020.

Within aviation maintenance and engineering the aim of predictive maintenance is first to predict when a component failure might occur, and secondly, to prevent the occurrence of the failure by performing maintenance. Monitoring for future failure allows maintenance to be planned before the failure occurs, thus reduce unscheduled removals and avoid Aircraft-on-Ground (AOG).

Tying predictive maintenance to inventory management can have significant benefits agrees Mat Punter, Head of Repairs at AerFin. "Firstly, it allows the airline operator to schedule the maintenance in advance and have prior notice of the inventory required for the maintenance procedure. It also allows for the necessary supply chain requirements to be organised accordingly."

In addition, Punter says it allows the supplier to proactively align the



Mat Punter, Head of Repairs at AerFin

inventory in advance of the maintenance work, rather than reactively responding to component failure and possible AOG requirements – "This should also allow the supplier the opportunity to secure more cost-effective solutions."

Another expected benefit of predictive maintenance, is that catastrophic component failures will significantly decrease, thus reducing the number of high cost repairs and BER events, Punter notes. "The big challenge with predictive maintenance and inventory management is that the removal of components before a hard defect is reported currently means that there is no standard practice for the 145 workshops to follow for units that are currently serviceable and may pass CMM testing procedures. Looking to the future, the CMMs will have to evolve and develop to incorporate preventative and predictive maintenance processes, rather than the current procedures which only cover testing, found defects and standard overhauls," Punter speaks.

Matthew Kammerait, AAR's Director Digital Product Management feels that there are two types of "predictive" maintenance - both compelling, but only one of which is possible at scale today – "The type that gets the most visibility involves a connected sequence of people, connected devices, and data - linking operational, connected aircraft data to scheduled maintenance activity, in order to drive more proactive remediation."

That type, especially in an independent MRO context, requires a lot of integration and interconnectedness between multiple players in the operations and maintenance chain, states Kammerait. He says while more

proactive sharing of operational data, Al/ML enabled platforms, and commensurate commercial agreements are all hot topics across the industry this type of predictive maintenance and the value it promises to create still lies mostly in the future.

The other type of predictive maintenance, however, is very much possible and a lot more real today. Kammerait suggests. "This type lies more within the four walls of the operator or maintenance provider and has to do with using some of the



Greg Hogget - Technical Director at AJW Group



same underlying technology to drive a greater degree of optimisation and automation within the existing flow of work."

In the absence of predictive maintenance, Greg Hogget – Technical Director at AJW Group warns that you can end up in an environment where one holds an excess of inventory in anticipation of an unpredictable AOG event – "This accumulates into surplus stock and is a source of inefficiency for airlines, which AJW has a proven track record of eliminating. With consistent and accurate predictive maintenance planning, airlines and their partners can eliminate most of this uncertainty and plan for the strategic global positioning of stock, thereby mitigating potential operational disruption."

AJW supports its customers by mitigating this disruption using its inventory optimisation model, which is constantly being refined by predictive maintenance.

Clearly, predictive maintenance is all about 'proactive maintenance'. Hogget highlights that most aircraft do not have inbuilt technologies to provide predictive algorithms. Thus, AJW works with available datasets to simulate a realistic predictive maintenance environment.

"However, AJW does work with certain operators [such as easyJet] that are growing their fleet of predictive capable aircraft. When working with forward-looking companies like this, it is about working in partnership to develop a genuine predictive maintenance model that ensures the right parts get to the right place at the right time."

AJW is targeting a near zero AOG environment using its existing data and planning capabilities. predictive maintenance reduces the AOG demand and, as it builds a consistent data set, this can then be factored into the planning information.

"This isn't just about having the parts on the shelf within the inventory system, but rather an integral part of the overall supply chain solution. PM enables AJW to ensure that the logistics are efficient through its optimised route planning. It is looking at how we move serviceable inventory around our network to meet the predictive maintenance signs that are coming off the aircraft. It is more of a repairs ecosystem that surrounds the predictive elements rather than just about the components and the aircraft. It is an ecosystem that encompasses the total supply chain, in-

cluding warehousing and logistics," explains Hogget.

In the long term, predictive maintenance should hopefully allow for a collation of predictive removal data, notes Punter from AerFin. "This Big Data will allow for inventory management teams to analyse noticeable predictive removal trends and improve their effectiveness in reducing unscheduled removals and AOGs. This in turn will then lead to more components being removed on a scheduled basis and a reduction in unscheduled removals thus providing the supply chain the opportunity to position the necessary inventory ahead of the scheduled requirements on a more cost-effective basis."

Anthony Florian, VP EMEAI airlines at Honeywell notes that challenges arise when operators settle for predictive maintenance platforms that provide significant historical data, but only gives advice on how to fix what's already broken. Ideally, he says predictive maintenance solutions monitor onboard equipment in real time and analyse historical data. "They use advanced analytics to predict which components will fail and when, as well as tracking assets and inventory, to maintain optimal levels, so technicians can address potential issues before there are major problems. At Honeywell, we have combined the capabilities of the connected aircraft and the Industrial Internet of Things to develop the aviation industry's first true prescriptive maintenance solution."

One airline used Honeywell Forge Connected Maintenance software to reduce auxiliary power unit (APU) failures. The airline was experiencing APU failures that costed an estimated \$24 million annually. Through using Honeywell Forge, the airline reduced delays and cancellations by 30 per cent, lowered repair times by 90 per cent, and experienced improved customer satisfaction, according to Honeywell.

"Excess stock is a depreciating asset that takes up both space and money while lying in the corner of a warehouse," Florian says. "With predictive maintenance, stock can be ordered and used more precisely. This means that excess stock numbers are dramatically reduced, freeing up cash flow for airlines."

To support purposeful buying and use of stock, Honeywell recently brought-in blockchain technology to the aerospace inventory market to deliver security, trust and transparency with GoDirect Trade online.



Chris Clements, Sales Representative at Swiss AviationSoftware

When using predictive maintenance to improve the prediction and utilisation of inventory stock, Chris Clements, Sales Representative at Swiss Aviation-Software Ltd sees two different data sets: "Predictive maintenance in itself will indicate what component should be replaced, but, if the available stock and all associated data is managed in an E&M software such as AMOS then this would be managed separately."

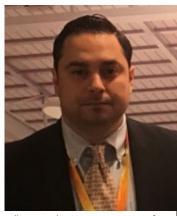
As Clements explains, AMOS has a function, 'Material Allocation', which allows the customer

to customise the allocation of stock and components on open orders to events using a rule engine. He says there are many factors that must be considered to utilise the available stock such as ownership, pool agreements, physical location, financial projects and additional part requests that already exist.

Clements: "AMOS allows the management of the customers stock and when events are updated by the likes of Aviatar then AMOS will immediately recalculate all relevant parameters to ensure the best utilisation of the stock. What must also be considered is the complexity of managing the configuration of the aircraft based on many factors such as SB/AD status or software installed. AMOS has the capability of receiving the 'predicted' component change instruction and ensuring that the correct part number is allocated or ordered according to the aircraft status. This remains a function that AMOS can perform based on the managed aircraft data as well as the stock availability, approved part numbers and vendors.

Clements believes that the very concept of predictive maintenance should also reduce the rate of unexpected activities because solutions such as Aviatar make use of not only OEM aircraft data to monitor aircraft systems but install additional sensors to increase the range of data available. "In the case of sudden and unexpected failures with no preceding trends then the fall back is of course as it is today with defect management and engineering providing trouble shooting support."

Predictive maintenance appeals to companies with the promise of fewer repairs due to regular maintenance, adapted to the production line, but what happens in instances of unexpected activities? Gilberto Aya-



Gilberto Ayala, Manager, eMRO Software at TRAX

la, Manager, eMRO Software at TRAX responds: "In the case of airlines and MRO providers, unexpected maintenance problems and protracted downtimes can take a heavy toll on profitability and customer goodwill. In 2018 the FAA estimated the annual cost of delays to airlines and passengers at \$28 billion. Having a predictive maintenance system that is dynamic, that can incorporate machine learning algorithms, uses statistical analytics, and intelligence-driven planning can help overcome these unexpected activities."

Cliff Topham, Senior VP Sales and Business Development at Werner Aero Services says unfortunately in some ways with the movement from hard times to on condition management of components - there are still many instances of unplanned activities which domino into additional maintenance work.

Unexpected actives - or to be more specific - low frequency high impact events are still an area where greater collaboration and investment is needed, to really drive value in both mainte-



Cliff Topham, Senior VP Sales & Business Development at Werner Aero Services

nance and inventory management, suggests Kammerait from AAR.

"This is one of those areas where data sharing among parties, even anonymised, can unlock a tremendous amount of value for everyone involved. The size of any one programme, MRO, or even operator may not provide enough data to drive enough productivity on these 'black swan' type events. As such, a broader pool of inputs, external data, and potentially causal factors are needed to better train the models and drive value creation. This is an area where we continue to invest and seek partners who share our aims of better data sharing and subsequent predictiveness and outcomes for all involved," Kammerait states.

Punter adds that currently, the process of responding to unexpected or unscheduled failures and removals means that the required inventory has to be sourced immediately and transported to the required location within the quickest timeframe available in order to avoid disruptions in the airline service – "It also adds further time constraints and pressure to the airlines' engineering and technical teams and may divert them from scheduled work that was anticipated and budgeted for. In addition, there are the costs involved with sourcing and transporting the inventory, which are inherently more expensive and challenging when working to a tight deadline, as opposed to providing them for a scheduled maintenance event."

Certainly, predictive maintenance is still a new technology and it may take some time to derive the full cost benefits for inventory management. The folks at TRAX believe that inventory management is an integral component of any aviation maintenance operation. "We have been consistently enhancing our software's maintenance and supply chain functionality for the past decades," says Ayala. TRAX will continue to do so with new technological advances that incorporate Artificial Intelligence, blockchain parts records, the use of Big Data, remote inspection, smart scan, machine learning, predictive analytics, and augmented reality. "The application of such technology is still in its infancy, so there will be a lag between the initial development and when the cost benefits will be fully achieved. Yet this should not take too long given that the capabilities exist, and the anticipated payback and motivation is great."

TRAX has pilot projects in place to develop and investigate opportunities in predictive maintenance technology. "We are working with our customer base to prioritise those areas that can derive the maximum benefit in terms of cost, safety and efficiency of operations," Ayala concludes.

Aviation. Parts. Services.



AS Aero Services ("VAS") is a leading provider of new and used aftermarket services in the aviation industry. VAS sources, warehouses and markets components across a broad range of aircraft and engine platforms and provides related services to airlines, MROs and OEMs globally.

VAS is an aftermarket facilitator and redistributor for Boeing, Satair Group, Airbus, UTC Aerospace Systems, Honeywell Aerospace, and others. In addition, VAS is a preferred supplier to leading airlines worldwide. Our global network manages over \$3 Bn of aerospace products, leveraging our industry and geographic reach, as well as our expertise and knowledge of operations, markets and customer care to create maximum value for customers' assets. The VAS difference can be seen in the trusted partnerships we have forged, the broad range of programme services we provide, our unique online portals, systems integration capabilities and our innovative 3PL and VMI supply chain solutions.

VAS supports the global aerospace industry with a wide range of custom tailored, comprehensive service offerings. VAS offers aircraft, engine, and inventory consignment programmes and acquisition solutions, engine management, trading, exchange, and leasing, asset teardown management, component repair management, inventory warehousing and supply chain management, and material sourcing portals.

A longer version

VAS sources, warehouses, and markets aftermarket and used preowned components across a broad range of aircraft and engine platforms and provides related services to airlines, OEMs, leasing companies and MRO providers around the world.

VAS created a unique business model in which both the supply and demand channels driving revenues of the used and pre-owned parts (aftermarket components) are largely derived from exclusive and long-term agreements.

The company has both supply agreement programmes as well as consignment programmess. Supply agreements provide the company the ability to sell its products through exclusive channels while enjoying persistent demand at market prices. The company provides services to an array of customers including Airbus, ATR, Boeing, Bombardier, Collins Aerospace, Embraer, Honeywell, Lufthansa Technik, Satair, and Southwest Airlines.

On the supply of aftermarket parts, VAS has been successful in leveraging significant exclusive long term consignment agreements with OEMs, airlines, and leasing companies and on the demand side, VAS's unique operational expertise and global network of sourcing aircraft and engines for the purpose of tearing them down to parts which it sells directly to airlines, MROs and OEMs throughout the world.

VAS's management of end of life assets sets it apart from its peers. VAS's expertise includes the tear down of a broad range of aircraft and engine platforms including aircraft - B737, A320, B787, 747, A330, A340, B777 and Engines - CFM56-7B/CFM565B, V2500, PW4000, and CF6-80C2. The uniqueness of VAS is its ability to immediately scale these programmes to other aircraft and engine types and expand into new and untapped regions around the globe.

VAS's long-term exclusive consignment and aftermarket agreements with Boeing, Airbus, Collins, MROs and Airlines include over 35 consignors, over \$3BUSD of pre-owned, new and used material which is consigned to VAS on an exclusive basis and enable VAS to seamless access high moving sought after parts with no inventory cost.

VAS is proud to be the only company with exclusive long-term consignments that enable VAS to sell globally through its network of direct sale channels and relationships with airlines and MROs throughout the world.

VAS has created agreements through which it receives constant demand for aftermarket parts. VAS facilitates this demand via Tear down of aircraft and engines, and its consignments with airlines, MROs and OEMs (long term exclusive consignment agreements include such airlines as South West, Jet Blue and British Airways and OEMs such as Boeing, Airbus and Collins /UTAS) plus numerous leasing companies and aircraft owners.

VAS is proud the be the first and only company entrusted by Boeing, Airbus (leasing facilitator Dr Peters) and Embraer to tear down the very first ever B787, Airbus 4 x A380, E170, 175 E195 respectively.

Offers more than 1,000,000 different aviation part numbers to a wide range of customers around the world

The company operates through four main service segments – asset management (such as end of life expert), programme management (which includes long term exclusive consignment agreements with tier 1 airlines and OEMs and leasing companies), repair management (managing repair of all components removed from aircraft and engines utilising its preferred relationships and pricing with repair shops and OEMs), and re-distribution (massive established global distribution) – cater to a network of key partners including major airlines, OEMs, and MROs (such as Boeing, Airbus Collins / UTAS).

VAS is the only company that has the approval to sale aftermarket parts with over 1400 airlines in the world. Having the benefit of being an approved aftermarket to most of the airline community is due to its unique business relationship with Boeing and Airbus who are themselves using VAS as their aftermarket providers exclusively.

VAS enjoys a unique and exclusive 5-10-year engine repair programme with the largest MRO in the world, SR Technics, wherein VAS provides all parts harvested from engines and tear down activities. Parts are being sold at predetermined prices and volume thereby preserving VAS's market share.

The company maintains warehouses as well as a global sourcing and sales network, which allows for the optimisation of distribution of aviation materials by being positioned close to key customers and partners.

In August 2015, America Aero Group acquired the company from H.I.G. Capital, which originally bought VAS Aero Services from Volvo Group in October 2010.

Largest re-distributor of inventory in the aftermarket

 VAS has sold in excess of \$8 billion of new and used parts since inception • Largest portfolio of re-distribution programmes and partnerships across the industry

Pre-eminent brand in the market

- Premier Volvo Aero heritage / quality driven
- · Recognised as the go-to aftermarket player
- Boasts over 1,200 end-user customers (4,000+ total customers in SAP)

Established network of industry relationships

- Long standing tenure and experience with major market envied player
- Critical partner to OEMs on aftermarket strategies
- Preferred or approved supplier with all major airlines and MROs

Unique business model

- Multi-faceted business model enabling flexibility to address any customer needs
- Secures long term demand streams through partnerships and supply contracts with multiple monetisation paths
- Utilises both principal asset light strategies to profitably address any customer or partner requirements
- Flexible strategy allows VAS to be opportunistic with changes in the market
- Strategy seeks to optimize margin, balance sheet and ROE

Industry leading IT infrastructure with robust digital strategy

- Robust IT infrastructure with \$30 million invested in aftermarket advanced technologies
- Only player with an aftermarket IT infrastructure (SAP systems) that can quickly and seamlessly integrate with airlines, MROs, and OEMs with minimal costs to them.
- Aggressive digital strategy well underway to capitalize on the rapidly w321evolving aftermarket landscape

Established management team

- Experienced executive team with a combined 150+ years of experience in the aftermarket
- Recognised as market leader in flexibility and customised business solution
- Stable, committed leadership team delivering the company's long-term business plan

Industry Interview 33

In the hot seat.....

Carl Glover, VP Sales & Marketing Americas, AAR

AviTrader MRO: Briefly explain your job function at AAR.

Glover: As Vice President Sales & Marketing Americas, I am responsible for various business development initiatives we have here in the "Americas" market to help our customers achieve their goals. This can entail individual business units and product lines or a multitude of our business units providing a joint solution to a customer. It is fair to say, with AAR's presence here in the Americas we would very rarely be in discussions with a client on a single topic. We could be talking about supporting their engine needs, landing gear and component repair activities all at the same time, whilst in the background we may have some of their aircraft in one of our domestic or Canadian MRO facilities. My focus is to grow and enhance our commercial business and ensure that the organisation is there to support our customers where they need us. This includes helping AAR strategically position ourselves with our business partners, suppliers, repair vendors concurrently. I can be one day with a customer and the next day with a major OEM partner working on how we leverage our respective core competences to support the industry. Having been in the industry for nearly 20 years I often find myself in a consultative position with customers trying to work out what fits best with their situation to address what they need.

AviTrader MRO: What is the most challenging and rewarding part of the job?

Glover: The most challenging is keeping ahead of everything in this dynamic industry; ensuring we're positioned to react to customer demand whether that be capability, inventory, client relationships, bid qualification or resources. We have invested smart over the last couple of years at AAR to ensure we have the right "front end" of our commercial business who can support our customers and react to their demands often with a tailored offering. This includes our mobile app for our sales and leadership teams which push everything from pricing data, inventory KPI, Service level performance into the hands of who needs it most in real time.

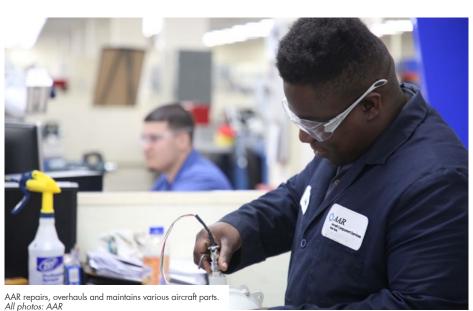
We've continued that digital investment with our online (PAARTS® Store) and B2B presence allowing us to quote directly to our customer base and their respective ERP systems and push key data on shipments, stock availability and documentation.

Whilst all this has been occurring we haven't ignored our close to the customer model helping to identify opportunities and solutions we can bring to market. It's this ability to flex and be creative that differentiates AAR in the market (and keeps it exciting!). My most rewarding aspects are seeing the company and our teams grow in our markets and with our customers.

AviTrader MRO: AAR was present at the Singapore Airshow, what did you showcase there?

Glover: • 65 years of aviation services growth and excellence

- 2020 marks 65 years since AAR founder





Carl Glover, VP Sales & Marketing Americas, AAR

Ira A. Eichner incorporated his aircraft radio and equipment supply business in Chicago. A former one-man operation is now an industry-leading provider of aviation services to commercial airlines, OEMs and governments worldwide, with a global headquarters near O'Hare International Airport and 6,000+ employees in 20 countries.

- Engine and airframe parts
- AAR's parts supply business, which first expanded internationally in 1965, helped pioneer the development of custom supply chain solutions. These range from individual components to integrated rotable and consumable inventory and repair management programmes.
- The company maintains one of the industry's largest and most complete inventories of engine and airframe parts, stocking more than 1 million items from over 250 manufacturers.
- AAR's ecommerce platform PAARTS™ Store allows customers to check inventory availability, order parts and track shipment status at any time, from any place. The company reports significant engine business growth, including whole-asset trading and leasing, turnkey parts solutions parts, engine build support and overall technical support.
- OEM Solutions
- AAR acts an extension of its OEM partners to reach commercial and military aircraft markets. For example, the company has garnered significant attention for its April 2019 agreement to distribute BASF Deoxo™ aircraft cabin ozone and volatile organic compound converters and provide converter MRO services for better air.

Industry Interview 34



- Component Repair
- AAR repairs, overhauls and maintains rotable components for virtually every type of commercial aircraft, either as part of an integrated supply chain solution or as a stand-alone MRO offering. Its repair centers in Amsterdam and New York provide component repair, overhaul, exchange and replacement options tailored to individual customer requirements.

AviTrader MRO: 2020 marks ARR's 65th anniversary. How significant is this milestone?

Glover: The company has a fantastic and proud history supporting the industry and our customers globally. We've seen a lot of change in those 65 years in the markets we serve, how we serve them and who our customers are. The foundation of the company was in the parts trading business here in Chicago. That entrepreneurial spirit is very much in the fabric of our global business today.

AviTrader MRO: How is the parts supply business performing?

Glover: Parts supply alongside inventory solutions are a core discipline of AAR and our customers alike who work with us to our respective competences. Airlines and MRO's are focusing on their core areas and AAR is leveraging our skillsets and solutions to support them.

We are the largest independent aftermarket participant globally in the combined engine and airframe markets. We are constantly investing in inventory through our global sourcing and trading product groups. They work with airlines, lessors and industry participants to monetise inventory and surplus assets that match our customer demands. Our OEM So-

lutions (OS) business is aligned with key OEM partners for whom we support their production and aftermarket initiatives to sustain the global fleet (this includes outsourced 24/7 AOG functionality also).

Our parts business supports our transactional customers all the way through to our fully integrated supply chain customers whereby we are acting as an extension of the airline holding inventory, forecasting and managing the repair process. Under these solutions we're bringing a multitude of our core competence areas together to help maintain inventory efficiency and profitability for our customers. Our ERP systems and infrastructure are designed in a manner to identify obsolescence risk, condition, repairs, FMV's and evaluations which is invaluable when managing both legacy and new technologies and components, especially when some of the technologies are leapfrogging from generation to generation.

More recently we've seen the adoption of some of our commercial best practice by some of our OEM and governmental customers who identify and relate to the value proposition AAR's infrastructure can bring to market.

AviTrader MRO: The component repair market is increasingly crowded. What sets AAR apart?

Glover: Our component repair shops have a lot of domain knowledge in the components we overhaul. They are key component vendors for many of our flight hour based solutions on Airbus, Boeing and regional platforms. We have facilities in New York and Amsterdam who both hold licenses from the key component OEM's we support, so we have access to the IP and sub-components. We work alongside some of these OEM's on product enhancement ideas and repair schemes.

We perform a lot of inventory planning to ensure we're provisioned correctly to support our customer TAT and OTD metrics. Our commercial teams work alongside our customers on MTBR tracking, SB incorporation and forecasting to ensure we're aligned as best we can to turn a quality product on time. This commercial alignment and our independent position, service level and the 'power of focus' sets us apart from the crowd you note.

Our landing gear and wheels and brakes component shops continue to grow with our Miami facility supporting both commercial and government customers alike.

The topic of data has been heavily discussed in our industry and we see that remains a key fact from removal forecast trends to piece part material demands. We capture a lot of this key component behavior through our flight hour, C&E and repair solutions which help us

further identify key trends and areas of focus. The pro-active use of this data is helping differentiate us from the crowd.

AviTrader MRO: What can the aftermarket sector expect to see from AAR in the coming months?

Glover: AAR has a unique position in the aftermarket. Although I would hypothesize that there's a blurring of lines now that aftermarket is simply the market; we're positioning ourselves further to strengthen our offerings to the market and our customers.

We see the dynamic nature of the market as a positive, as it highlights opportunities for competition and improvement. There continues to be a strategic alignment with our customers who are working with us with inventory solutions USM / new or otherwise to ensure component availability to support their operations. More recently we've gone public on a few contract signatures relating to partners who are leveraging AAR's global market presence to ensure their customers are supported as required. There are a lot of our airline customers who are asking us to bid in outsourced opportunities and leverage our intellectual property and systems to their benefits (Airvolution™/Airinmar).

Our commercial teams are responding to several similar requests from the market so we shall see where they end up. Our daily discipline at AAR is supporting the industry of mature aircraft platforms and new platforms alike.

Like some of our customers we eagerly await the progress of the B737Max RTS and the impact that this will have on the market for older aircraft (B737NG / A320CEO). It would be fair to say that a lot of our customers continue to invest heavily in their current fleets (cabin mods, components, engines) in anticipation of keeping those aircraft operational for the next three to five years or more. As fleets continue to renew (globally) we see opportunities to help customers optimise their inventory and work with AAR to transition and support their newer fleets.

Our leasing and trading activities remain opportunistically buoyant as lessors and operators alike are looking for flexible options for aircraft and engine solutions to support their current fleet. We feel that we have a unique insight into the global market through our global presence with some commercial best practices in some territories being exercised and promoted in other geographies.

In summary I think you can expect to see plenty of the same innovative support approaches to the market from AAR.... It started 65 years ago.

People On The Move



AerCap has released that **Pieter Korteweg**, the
Chairman of the
Company's Board
of Directors, has decided to retire from
the Board with effect from the close
of the Company's

annual general meeting of shareholders in 2020 (the 2020 AGM). The Board has appointed **Paul T. Dacier** to succeed Korteweg as Chairman of the Board with effect from the close of the 2020 AGM. Dacier has been a Non-Executive Director of AerCap since 2010 and Vice Chairman of the Board of Directors since 2013. His appointment as Chairman of the Board is subject to his reappointment as a Non-Executive Director at the 2020 AGM.

Éric Martel has been appointed President and Chief Executive Officer, and a member of the Bombardier Board of Directors, effective April 6, 2020. He succeeds Alain Bellemare. Martel joins Bombardier from Hydro-Québec, where he has served as President and Chief Executive Officer since July 2015. Prior to joining Hydro-Québec, he held several leadership positions at Bombardier, including President of the Business Aircraft Division and President of the Customer Services and Specialized Aircraft Division.

TrueAero has promoted **Chris Luke** to Senior Vice President of Leasing. Luke's leadership of TrueAero Asset Management has led

to TrueAero's excellence in aircraft leasing, asset trading, origination, customer service, and marketing. Under his stewardship, TrueAero Asset Management has broken into the top third of commercial aircraft lessors worldwide.



Jet Maintenance Solutions (JET MS), a global provider of integrated aircraft maintenance, repair and overhaul solutions for business and regional aviation, has appointed Vytis Zalimas as the

new Chief Executive Officer (CEO) of JET MS, effective March 9, 2020. Zalimas has been leading and transforming different sales and customer care teams for more than 12 years at ICT, Banking and Aviation industries. For the past five years, he held the position of Head of Corporate Customers at Telia Company and Head of Contact Center at a major banking institution in the Baltic Countries.

Boeing has named **Susan Doniz** as the company's Chief Information Officer and Senior Vice President of Information Technology and Data Analytics, effective in May. She will succeed **Vishwa Uddanwadiker**, who has served as an interim capacity since October 2019. In this role, Doniz will oversee all aspects of information technology, information security, data and analytics for the company. She will also support the growth of Boeing's business through IT- and analytics-

related revenue-generating programs. She will report to Boeing President and CEO David Calhoun, serve on the company's Executive Council and be based in Chicago.

Independent MRO service provider Sabena Techics has appointed **Philippe Fournadet** as General Manager of its Nîmes site. Fournadet is a recognized expert in the field of aircraft maintenance. He has held various responsibilities in France as well as internationally, including several experiences within the Airbus Group. In 2008, Fournadet was extensively involved in the creation and development of Tarmac Aerosave, a company specializing in the dismantling and storage of aircraft.



Airbus Helicopters has appointed

Thomas Hundt

Executive Vice-President Finance and

Member of the Executive Committee
of Airbus Helicopters, effective March

1, 2020. Previously,

he served as Senior Vice-President, Performance Management and Costing for Airbus Helicopters and Managing Director, Airbus Helicopters Germany. Hundt succeeds **Linda Honold**, who will retire after more than three decades with Airbus and its predecessor companies. Before joining Airbus Helicopters in 2016, Thomas Hundt was Chief Financial Officer and Senior Vice-President, Arianespace, based in Evry, France.

Other News

Magnetic MRO and OSM Aviation (OSM) have signed an MoU to engage in a strategic partnership by generating an apprenticeship program aimed at OSM recruits and employees. The first group of qualified technical apprentices from Norway and Sweden has been selected and will start their 24-month practical studies program at Magnetic MRO in Tallinn, Estonia, from early September 2020. Globally, the aircraft technical trade has undergone dramatic changes and shifts in manpower requirements over the past decades. At a regional level, there has been a steady reduction and a slow-down of maintenance activities carried out in Scandinavia. As a consequence, there has been

a sharp decrease in interest among students who select the aircraft technical trade and the industry is suffering from low growth and low interest among young talents. OSM Aviation, a leading global specialist in employment, training and administration of aviation personnel worldwide, has also encountered the lack of internship opportunities in the region for the students who require such apprenticeships in order to complete their technical studies, therefore the joint program was established in cooperation with Magnetic MRO. The first application wave proved to be successful with over 60 students applying for the internship, laying the foundation for a continuous and promising program offering.