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MRO

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Opinion

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MRO Americas picks up on trends

The 2017 edition of MRO Americas pulled in quite a crowd at the Orange County Convention Centre in Orlando Florida this April.

Several new deals were announced. Notably, Rockwell Collins announced two new service contracts, and participated in a panel discussion on maximising assets. The company also announced that Singapore Airlines was its latest airline customer for its DispatchSM 100 avionics support, and asset and maintenance management programme.

Of particular interest was information released by Oliver Wyman in its 2017-2027 fleet and MRO forecast. The report highlights the in-service commercial airline fleet is forecast to grow from nearly 25,000 aircraft

at the beginning of 2017 to over 35,000 by 2027. Aircraft deliveries to airlines will total about 20,000 over the period, so retirements of older technology will accelerate to about 10,000 during that time. The accelerated rate of new aircraft deliveries will result in a massive technology shift over the period. By 2027, 58% of the fleet will be new-generation aircraft.

These figures will have a significant impact on the MRO business and as evidenced by the scale of new initiatives from companies that attended in Orlando, the coming years will be ones to watch.

Happy reading!

Keith Mwanalushi
Editor

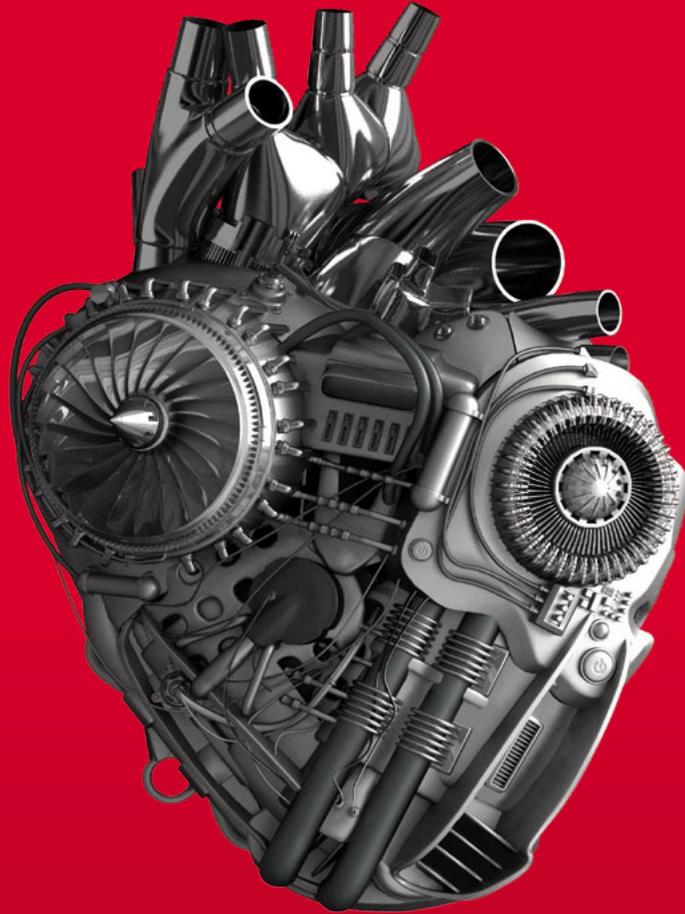


Photo: MTU

Contents

MRO and Production News	4
Finance News	12
Other News	18
Information Technology	18
Cover story: Maintaining engines	21
Cabin solutions II	26
Company profile: AerFin	28
Industry opinion: Big data takes off	30
Industry interview: Todd Lewis, President, Component Control	31
Facility visit: FAI completes new hangar	32
People on the Move	34

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Major component assemblies for the first A320 to be produced in the U.S. has arrived at the Airbus U.S. Manufacturing Facility – located in Mobile, Alabama
Photo: Airbus

Airbus begins production of first U.S.-built A320 in Mobile

The Airbus U.S. Manufacturing Facility in Mobile, Alabama, has received the major component assemblies for the first A320 that will be produced in the U.S. The 27 aircraft delivered from the facility thus far have been A321s. This marks another important milestone for the manufacturing facility, which began production in July 2015 and which is equipped to build three members of the A320 Family: A319, A320 and A321. This A320 is destined to be delivered to Spirit Airlines this summer.

SR Technics extends line maintenance capabilities for Airbus A350 and A320neo in Zurich and Geneva

SR Technics is expanding its line maintenance capabilities to accommodate two new Airbus families. As of April 1, 2017, the Zurich line station and, as of May 1, the Geneva station has extended their capabilities of servicing the Airbus A350. Both Zurich and Geneva line stations are now also equipped to handle everything from routine checks to major overhauls on the A320neo (LEAP engine). In

addition, this summer the company's largest line station, London Gatwick, will also begin offering services for these aircraft.

TAM receives EASA Production Organisation approval

Täby Air Maintenance, TAM, has been given an EASA Production Organisation Approval certificate, POA, meaning that TAM now is fully authorized to manufacture parts and appliances for their reputed Saab 340 A/B cargo conversion design, as well as other new projects. As cargo conversions for the venerable Saab 340 A/B family of regional airliners is a major business for TAM, along with maintenance, repairs and upgrades for mainly Saab 340 As/Bs and the Saab 2000, the ability to produce most parts in-house is a safeguarding from a delivery as well as quality aspect. Consequently, the new added parts manufacturing business brought TAM to invest in an additional warehouse floor space. "I am proud to say that we are now taking another important long-term step in the right direction, thus being even better suited to be the prime service, repair and conversion center for the vast global fleet of Saab airliners," said Pär Gulle, TAM Managing Director.

OEMServices signs 15-year component support contract with Asiana Airlines

South Korean carrier Asiana has entrusted OEMServices' integrated component support solution for its A350-900 fleet. OEMServices and Asiana have signed an integrated component support contract covering repair services, pool access and 24/7 component support from OEMServices' main A350 regional pool, based at Singapore's Changi Airport. Within the scope of this contract, OEMServices will be supporting Asiana Airlines' four Airbus A350-900s, three of which are currently on-order, backed by its unique long-term source of know-how of the aviation industry's supply chain. The first out of the four aircraft to be delivered in 2017 reached Seoul on April 26. Commercial flights will start on May 15.

GE Aviation opens new Brilliant Factory

GE Aviation has reported the grand opening of its US\$14.5m Brilliant Factory in Muskegon – an investment that will stimulate economic growth in the region and where GE is using data and analytics to run its plants more efficiently. The new 35,000-ft² facility will manufacture parts for the GE90 engine and will perform development work for new programs as needed. The GE90 on the Boeing 777 is one of the world's most powerful jet engines, with about 2,500 engines in service and more than 67 million flight hours. The new facility expands GE Aviation's footprint in Muskegon to about 220,000-ft² total, including three buildings (the new facility in Norton Shores, along with existing manufacturing in Norton Shores and Muskegon). GE has already hired nearly 90 new employees toward a goal of 100 at this advanced manufacturing facility, bringing the total to almost 800 employees across the three buildings. GE announced plans to expand in Muskegon in 2016. The Michigan Economic Development Corporation encouraged this expansion by providing a grant to GE for US\$800,000. The City of Norton Shores also provided a 50% property tax abatement to GE for a 12-year period.

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The team of Jet Aviation Basel with a Boeing B737
Photo: Jet Aviation

Jet Aviation completes and redelivers major refurbishment on Boeing B737

Jet Aviation has redelivered a refurbished Boeing B737, which was completed in conjunction with a scheduled C-1 maintenance inspection. The BBJ1 had been out of service for a number of years before it was sold to the owner and subsequently refurbished. The same long-range Boeing Business Jet was also outfitted by Jet Aviation in 1999 – and happens to be the first BBJ Completions contract the company was ever awarded. The full interior refurbishment was completed without making any structural changes. Some of the wood marquetry was removed and replaced, such as that of the valances. All of the chairs, sidewalls and carpets were replaced, and the entire exterior was repainted. In addition to the refurbishment, C-1 check and general defect rectifications, the maintenance facility installed a new Rockwell Collins Venue Cabin Management System (CMS), activated Swift Broadband, upgraded the Future Aircraft Navigation System (FANS) and configured ADS-B Out. It also improved the soundproofing using its new targeted sound prediction technology, and implemented a number of service bulletins, including a Low Cabin Altitude modification.

SR Technics intends to grow Malta operations

SR Technics, a world-leading MRO service provider, has signed a non-binding memorandum of understanding (MOU) between Malta Enterprise and Malta Industrial Parks Limited in order to assess the possibility of expanding its current operations in Malta. As part of the MOU, Malta Enterprise will assess the possibility of making land available

at Malta International Airport for SR Technics to expand its facilities. SR Technics will assess the opportunity to enhance its current operations at Malta International Airport. The parties intend to conclude their assessments with an aim to sign the binding contracts later this year. "We are excited to explore this new opportunity with Malta Enterprise and Malta Industrial Parks Limited to further develop our presence in Malta," said SR Technics CEO Jeremy Remacha. "Malta offers an ideal location with a suitable business environment and a highly skilled workforce to deliver our operations. We are assessing a possibility to build a modern MRO facility which would allow us to significantly increase our capacity over the coming years."

Rolls-Royce continues to provide service support for Turkish Airlines' expanding fleet

Rolls-Royce is providing TotalCare service support for Trent 700 engines that power seven Airbus A330 aircraft included in the extensive fleet of Turkish Airlines. The last of those seven aircraft was delivered to the airline on May 10, bringing the airline's total number of Trent 700-powered A330s to 27. All are supported by TotalCare, the flagship Rolls-Royce CareService, which maximizes engine reliability and aircraft availability.

Cayman Airways signs wheel and brake support contract with Aircrafters

Aircrafters has signed a multi-year contract to support the wheels and brakes on Cayman Airways' fleet of 737Classic and 737NG/

MAX aircraft. Cayman Airways' wheels and brakes will be supported through Aircrafters' Advanced Exchange Program (AEP). Jim Hicks, President of Aircrafters said "We are thrilled to be working with Cayman Airways, supporting their wheels and brakes and look forward to building a strong relationship. Our Advanced Exchange Program provides smaller operators with OEM quality and removes the upfront capital costs of owning wheels and brakes. The AEP will also protect Cayman Airways from secondary, 'out-of-scope' charges and will deliver a cost-effective solution to Cayman Airways for the management of their operations."

CTT Systems receives Zonal Drying order for 9 Boeing aircraft

CTT Systems AB (CTT), a market leader in aircraft humidity control systems, has received a Zonal Drying order for an additional 2 Boeing 757-200s and 7 Boeing 767-300s to be retrofit installed by AZUR Aviation. Delivery from October 2017 to first quarter 2018. Peter Landquist, VP Sales & Marketing, CTT Systems AB, comments: "We are privileged to receive an additional order from AZUR Aviation, now with proven system effectivity from previous installation and valuing the benefits of mastering the root-cause of fuselage condensation. Hereby, the new aircraft will not gain weight from accumulated water/ice accretion (which increasing fuel and CO2 burn) and it will not experience moisture problems, such as electrical failures, which increase cost."

AFI KLM E&M signs long term agreement with MOOG

AFI KLM E&M and Moog Inc., the North American OEM, have put their official stamp on the creation of a strategic component maintenance agreement. Under the terms of the agreement, AFI KLM E&M provides repair services, parts supply and assistance with capability development for Moog-designed products.

Moog is a worldwide designer, manufacturer, and integrator of precision motion control products and systems. Moog's high-performance systems control many commercial aircraft in the aviation industry. Its products are integrated on new-generation aircraft such as the Airbus A350 XWB. The partnership between the two groups involves the sharing of repair workload, engineering experience, expertise and data. AFI KLM E&M and Moog will also strive to jointly develop repair procedures designed to optimize component reliability and reduce related maintenance costs.



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A320 Door Trainer
Photo: EDM

Major UK airline chooses EDM to manufacture two Door Trainers

EDM, a global provider of training simulators to the civil aviation and defence sectors, has won an order to supply a major UK airline with two new Door Trainers. The A320 Door Trainer will be used to train the airline's cabin crew to become proficient in the safe operation of A320 aircraft emergency exits and doors including procedures for normal, abnormal and emergency scenarios. The equipment will simulate all faults that may be encountered on an aircraft door including handle and door jam, power assist failure and slide deployment failure. All simulated door malfunctions and maintenance will be operated via a touchscreen Instructor Operator Station (IOS). After being manufactured at EDM's facility in Manchester both Door Trainers will be shipped and installed at the airlines' cabin crew training facility in the UK.

PEMCO and Mitsubishi Aircraft sign MRO licensing agreement

Aviation maintenance and engineering company PEMCO World Air Services has finalized and signed an MRO licensing agreement with Mitsubishi Aircraft Corporation to be a preferred MRO service provider of the Mitsubishi Regional Jet (MRJ). The letter of intent was announced in July 2016 at the Farnborough International Airshow in Hampshire, England. Together, PEMCO and Mitsubishi Aircraft will provide best-in-class services, improved efficiencies, and cost advantages to MRJ aircraft operators. The companies will offer airframe related MRO services to North American MRJ customers, such as applicable letter and heavy checks, structural repairs, modifications, and warranty work. PEMCO was chosen following a rigorous selection process by Mitsubishi Aircraft that encompassed the review of the company's operations and standards. PEM-

CO operates following a strict set of metrics, available to all employees, that is constantly measuring the company's performance at the aircraft and transaction level.

ATR renews and expands maintenance agreements with three Latin American and Caribbean operators

ATR has taken the opportunity of the MRO Americas 2017, currently being held in Orlando, USA, to announce the signing of maintenance agreements with three operators from Latin America and the Caribbean. Firstly, ATR and Avianca Holdings have extended the scope of their Global Maintenance Agreements (GMAs) covering the 15 ATR 72-600s operated under different brands of Avianca in Colombia, Guatemala and Honduras. The GMA now includes services for the maintenance of the propellers of the ATR fleet. In addition, two stocks of propellers will also be available at the airline's facilities. Avianca will also benefit from a specific training program developed by the service provider APS (Aircraft Propeller Service).

ATR has also renewed its GMA with the Colombian airline Easyfly for a period of five years, covering their fleet of five ATRs. The GMA includes lease stock, standard exchange, repairs of LRUs (Line = Replaceable Units) and propeller repairs, along with availability services. In addition to the renewal of the GMA, ATR and Easyfly have also signed an agreement for lease and overhaul services of the landing gears of two of the airline's ATRs.

Finally, Trinidad and Tobago's national flag carrier Caribbean Airlines, which has been covered by a GMA since 2011, has also signed an agreement with ATR for lease and overhaul services of the landing gears of their current fleet of ATR 72-600s.



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Bart Reijnen, Chief Executive Officer, Satair Group
Photo: Satair Group

Airbus subsidiary Satair Group and VAS Aero Services enter into new Strategic Cooperation

Satair Group, an Airbus wholly-owned subsidiary, has entered into a new strategic services agreement with VAS Aero Services, a global leader in aviation logistics and aftermarket services, to support Satair Group with servicing, certification, warehousing and distribution of OEM excess parts inventory, consisting of both surplus and used serviceable material. With this used and surplus parts program on top of the current VAS and Satair Group activities, customers around the globe will benefit from a wide range of opportunities for available parts with VAS' innovative online parts sales platform and the Airbus Spares portal. Additionally, VAS-owned certified surplus new and certified serviceable / overhauled used components will be supplied to all customers. VAS will provide the related operational support using their dedicated used/surplus knowledge. "VAS' extensive knowledge and capabilities in used/surplus parts servicing, sales and operations will be of a high value as we seek to build the Satair Group and hence also Airbus Services business in this core market," said Bart Reijnen, Chief Executive Officer, Satair Group. "VAS will play a pivotal role in assuring the availability of value-priced surplus, overhauled and used serviceable parts to our worldwide customers, whenever and wherever they are needed."

Rolls-Royce Control Systems extends Pattonair contract for expanded product portfolio

Pattonair, a leading global aerospace and defense supply chain provider, has been awarded a five-year extension to its contract with

Rolls-Royce Control Systems (RRCS) to supply C-class parts to RRCS sites in Birmingham, UK. The contract extension grows Pattonair's relationship with RRCS, seeing Pattonair deliver an increased portfolio of products and the highest level of customer service. It also represents the latest success in Pattonair's drive to expand its global presence through world-class service standards and innovation.

GA Telesis and Volvo Financial Services enter into consignment agreement for Airbus and Boeing components

GA Telesis has entered into an agreement with Volvo Aero Leasing, a Volvo Financial Services (VFS) company, for the consignment of Airbus and Boeing aircraft parts. The agreement covers an extensive list of new and serviceable aircraft components, immediately available for global distribution. GA Telesis has managed hundreds of asset consignments for airlines and financial institutions, returning over US\$500,000,000 in net proceeds to asset owners.

PenAir renews three-year general terms agreement with C&L Aviation Group

C&L Aviation Group has renewed its three-year aircraft maintenance support agreement with PenAir to perform aircraft maintenance requirements on their fleet of Saab 340 aircraft. The contract includes heavy checks, aircraft painting, component repair, interior refurbishment, and other aircraft maintenance support services. C&L is a global aviation services and aftermarket-support provider for regional and corporate aircraft specializing in quality maintenance, aircraft refurbishment

and remarketing, parts, sales and leasing, and has extensive experience working with the Saab 340 aircraft.

ATSG subsidiary PEMCO launches B737-700 FlexCombi & Full-Freighter Aircraft conversion programs

Aviation maintenance and engineering company PEMCO World Air Services has launched its Passenger-to-FlexCombi and Passenger-to-Freighter conversion programs for the Boeing Next-Generation 737-700 aircraft. The programs will be marketed as B737-700FC (FlexCombi) and B737-700F (Freighter). The launch customer for the PEMCO B737-700FC is Bahrain-based Chisholm Enterprises, an internationally recognized provider of tailored aviation and business solutions in the Middle East. Its subsidiary Texel Air, a non-scheduled cargo airline, will operate the B737-700FC from Bahrain International Airport.

GOL entrusts 737NG engines to AFI KLM E&M

AFI KLM E&M and GOL Linhas Aéreas Inteligentes have announced a further step in their long-standing partnership. In 2016, AFI KLM E&M was selected by GOL as a strategic provider for part of its fleet of 122 Boeing Next-Generation 737s, handling CFM56-7 maintenance and repairs at Amsterdam Airport Schiphol. In accordance with that agreement, AFI KLM E&M started to receive the awarded engines from January 2017.

Werner Aero Services to expand Embraer E-Jet services

Werner Aero Services has announced the expansion of its E-Jet business to now include pooling access and repair management services to E175 and E190 operators. Additional investments have been approved to acquire the assets needed to support this expansion. The company further plans to make additional future investments in the regional market to provide comprehensive nose to tail support. Werner Aero Services regional business provides complete logistical support to E-Jets (E-175, E-190, E-195) and some turbo-prop aircraft. It offers engines, APUs, component support, pooling access, and repair management. Werner Aero Services' legacy was created in the regional market and it plans to utilize its expertise and experience to develop customized Embraer programs while providing exceptional customer service.



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STG has received approval for installation of LED liTeMood system on the Boeing 757
Photo: STG Aerospace

STG Aerospace achieves FAA approval for installation of LED liTeMood system on Boeing 757

STG Aerospace has secured FAA approval for the installation of its LED liTeMood system on the Boeing 757 series of aircraft. This announcement follows the earlier FAA approval given for the 737NG series back in 2015 and complements the existing approvals given by EASA. liTeMood has become the undisputed system of choice for operators of narrow-body Boeing fleets and is already delivering significant cabin transformations with multiple US and Latin American airlines. The simple plug-and-play lighting system requires no aircraft modification and is easily installed under a single STC, enabling operators to bring the lighting quality of non-LED-equipped aircraft cabins up to a standard comparable to the latest new aircraft in just a couple of hours.

OEMServices opens subsidiary in the USA, OEMServices Americas

As one of the worldwide leaders in integrated OEM component services, inventory solutions and logistics services, OEMServices is expanding its global footprint in the United States and has unveiled the opening of its subsidiary, OEMServices Americas, based in Atlanta, Georgia. OEMServices, founded by four major European OEMs (Thales, Zodiac Aerospace, Diehl Aerospace and Liebherr), is headquartered in Paris, France and supports its clients from New York, Singapore and Dubai. Today, OEMServices serves major airlines around the world through numerous aircraft programs

such as A350, A380, A320, A330, SSJ100, B787..., as well as major OEMs for their international logistic requirements.

The new subsidiary in the United States is a key milestone for OEMServices, providing a comprehensive service offering to North and South American customers. As of May 1, 2017, OEMServices Americas will offer its ORIGINAL service model combining capabilities, access to inventories, OEM technical expertise and key competencies in logistics and spare parts management, as part of its three-pole service portfolio: Components, Logistics & Trading Services. With more than fifty Atlanta-based employees and a 40,000 ft² warehouse, OEMServices Americas is putting the resources in place to succeed in the Americas.

TAG Aero acquires assets of Iberia Maintenance APU facility in Madrid

TAG Aero has acquired the assets of the Iberia Maintenance APU facility in Madrid. The equipment consists of a full set of OEM tooling, shop maintenance stands and test cell for various APU applications, enabling TAG Aero to offer a full overhaul and repair capability for the Honeywell A320 APU (GTCP131-9A). Operations are scheduled to commence early 2018 after relocating the assets to TAG Aero's brand new custom built facility in Orlando, Florida. From this location, TAG Aero will open a new 145 repair station (TAG TechOps). Founder and Managing Director Myles Thomas states that TAG TechOps will strongly focus on securing 300 aircraft under APU contract maintenance within the first two years of operations. This represents another step in the impressive growth of TAG Aero, remaining consistent with its strategic business plan to add value to its current trading.

StandardAero's European service center receives EASA and FAA certifications for HTF7000 engine MRO services

StandardAero's European Service Center (ESC), located in Tilburg, the Netherlands, has received EASA and FAA certifications for Honeywell HTF7000 turbofan MRO services and is now authorized to support business aviation operators within the EMEA region. In March of 2016, StandardAero was authorized by Honeywell Aerospace as the industry's only independent MRO heavy maintenance provider for the Honeywell HTF7000 family of turbofan engines. Subsequently, the company was also authorized to provide HTF7000 minor and line maintenance services for European business aviation operators from its

ESC. The minor and line authorization allows StandardAero's ESC to perform all scheduled and unscheduled workscope up to and including 8,000 hour borescope inspections, including combustor liner changes. StandardAero also manages and administers a rental pool of HTF7000-series engines.

Aero Norway achieves UAE GCAA CAR 145 Maintenance Organisation Approval

Engine MRO facility Aero Norway AS has been granted UAE GCAA CAR 145 Maintenance Organisation Approval. The engine MRO centre is now multi-release FAA, EASA, TCCA, CAAC and GCAA certified. GCAA certification allows Aero Norway to carry out maintenance of engines for aircraft registered in the UAE in accordance with CAR Part-145. The certification covers the full spectrum of services offered by CFM-authorized repair station Aero Norway across all three engine models: CFM56-3, CFM56-5B and CFM56-7B.

Singapore Technologies Aerospace secures new contracts worth \$1.11bn in 1Q2017

Singapore Technologies Aerospace has secured new contracts worth about \$1.11bn in the first quarter of 2017 for services ranging from line and heavy airframe maintenance to component repair and overhaul. These contracts include performance-based logistics operation and support for military aircraft, several components repair and overhaul agreements, and contracts for EcoPower engine wash services. Among these contracts are several multi-year renewal agreements. The aerospace sector redelivered a total of 836 aircraft for airframe maintenance and modification work in the first quarter. Additionally, a total of 11,021 components, 65 landing gears and 38 engines were processed, while 2,292 engine washes were conducted. ST Aerospace expanded its MRO capacity in China during the quarter when its airframe MRO station in Guangzhou opened its second hangar which can accommodate two wide-body and two narrow-body aircraft simultaneously. With the new hangar, which has 500,000 man hours in capacity when it reaches steady state, the Guangzhou MRO facility will be able to have 1,000,000 man hours in capacity in total. In Germany, ST Aerospace expanded its capacity in aircraft component manufacturing when its subsidiary, Elbe Flugzeugwerke, broke ground for a new facility in Kodersdorf, Saxony. When completed, the facility will add 200,000 com-

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Finance News

DVB Bank Group posts first-quarter 2017 net loss of €-72.9m

DVB Bank Group (DVB), the specialist in international transport finance, reported a consolidated net loss before taxes of €83.8m in the first quarter of 2017 (previous year: net income of €25.9m). This was heavily influenced by a negative net result from financial instruments in accordance with IAS 39 (€-61.3m). Furthermore, reflecting market developments, additional allowance for credit losses was recognised in the amount of €65.9m. DVB's consolidated net loss (after taxes) amounted to €-72.9m (previous year: €19.2m). Total assets increased to €27.8bn as at 31 March 2017, up 0.4% from the 2016 year-end (31 December 2016: €27.7bn). (€1.00 = US\$1.09 at time of publication)

Bombardier reports-first quarter 2017 results

Bombardier reported its first-quarter 2017 results. Bombardier reported revenues of US\$3.6bn and EBIT before special items was US\$128m. EBIT margins before special items grew to a robust 8.0% at Transportation, 7.6% at Business Aircraft and 7.5% at Aerostructures, while Commercial Aircraft recorded an EBIT loss in line with the prior year. Free cash flow usage improved by US\$157m to US\$593m for the quarter.

Business Aircraft deliveries and revenues for the first quarter reflected typical seasonal patterns, achieving in excess of 20% of full-year guidance of 135 deliveries. EBIT margin before special items improved by 90 bps from 6.7% to 7.6% in the first quarter. The Global 7000 and Global 8000 aircraft programs continued to make significant strides in the development, with two FTVs in flight testing, demonstrating a high degree of maturity. Subsequent to the end of the quarter, the third FTV joined the flight test program. The two remaining FTVs are in advanced stages of production. The Global 7000 aircraft is expected to enter into service in the second half of 2018.

The Commercial Aircraft segment received orders for 10 CRJ900 aircraft from CityJet, increasing its CRJ Series fleet to 22 aircraft. Based on list price, the firm orders are valued at US\$467m. Subsequent to the end of the quarter, Transport Canada and the European Aviation Safety Agency awarded the CS100 aircraft its steep approach certifications, allowing the aircraft to operate at challenging airports such as London City Airport.

ALAFCO announces net profit of US\$ 35.4m for first half of fiscal year 2017

Vice Chairman of the Board and Chief Executive Officer of Aviation Lease and Finance Company (ALAFCO), Ahmad A. Alzabin, has announced that the company recorded a net profit of KD 10.8 million (US\$ 35.4m) for the first half of the financial year ending 30 September 30, 2017 – a 78% increase from the same period of the previous financial year. ALAFCO's operating revenue increased by 32% year-on-year in the first half of FY2017. The rise in operational revenues was the result of the company's increased operational performance, which came on the back of the acquisition of 14 aircraft during the previous year through sale-and-leaseback operations and through acquisition of aircraft with leases attached. Additionally, ALAFCO took delivery of its first two A320neo aircraft in February and April 2017. The aircraft form part of the 117 new-technology aircraft on order with Airbus and Boeing, scheduled to be delivered between 2017-2021.

Aergo Capital announces debt facility with Investec Bank

Aergo Capital has successfully closed a warehouse facility with Investec Bank to finance aircraft transactions. The facility will be used to raise senior debt against on-lease commercial aircraft still to be acquired. Commenting on Aergo's financing activities, Stan Barnes, Chief Financial Officer of Aergo Capital, said, "We are delighted to diversify Aergo's funding sources through this new facility with Investec. It is a clear vote of confidence in the Aergo portfolio, platform and business model."

Spirit AeroSystems reports first-quarter 2017 financial results

Spirit's first-quarter 2017 revenue was US\$1.7bn, up by 1% compared to the same period of 2016, primarily driven by higher production deliveries on the Airbus A350 XWB, partially offset by lower production deliveries on the Boeing 777 program. Spirit's backlog at the end of the first quarter of 2017 was approximately US\$46bn, with work packages on all commercial platforms in the Boeing and



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Airbus backlog. Operating income for the first quarter of 2017 was US\$214m, compared to US\$267m in the same period of 2016, primarily due to higher favorable changes in estimates recognized during the first quarter of 2016, which were US\$42m higher when compared to those recognized in the current period. Cash balance at the end of the quarter was US\$672m. The company's US\$650m revolving credit facility remained undrawn at the end of the quarter.

MTU's first quarter net earnings up 21%

MTU Aero Engines AG saw its revenues increase by 15% to €1,261.3m in the first quarter of 2017 (1-3/2016: €1,097.9m). The group's operating profit improved by 20% from €131.3m to €157.0m, pushing the EBIT margin up from 12.0% to 12.4%. Earnings after tax rose in line with operating profit, increasing by 21% to €111.0m (1-3/2016: €91.5m). The increase in MTU's first-quarter revenues is primarily due to strong growth in the commercial maintenance business, where revenues increased by 37% to €588.4m (1-3/2016: €428.8m). Revenues in the commercial engine business increased by 10%, from €556.0m to €611.4m. The V2500, the GENx for the Boeing 787 and 747-8, and the PW1100G-JM for the A320neo generated the greatest share of revenues in this business unit. Revenues in the military engine business dropped by

33% from €124.5m to €82.9m. The EJ200 Eurofighter engine was the main source of these revenues. MTU's order backlog reached its highest-ever level of €14,344.9m at the end of March 2017 (Dec. 31, 2016: €14,172.2m). The majority of these orders relate to the V2500 and to the geared turbofan engines of the PW1000G family, foremost among them the PW1100G-JM for the A320neo. (€1.00 = US\$1.09)

Airbus' first quarter 2017 net income down 50%

Airbus reported first quarter 2017 results and confirmed its guidance for the full year. Order intake totalled €3.8bn (Q1 2016: €7.2bn) with the order book valued at €1,030bn as of March 31, 2017 (year-end 2016: €1,060bn) and supporting the ramp up plans. Net commercial aircraft orders amounted to six aircraft (Q1 2016: 10 aircraft), with the backlog comprising 6,744 aircraft as of March 31. Net helicopter orders rose to 60 (Q1 2016: 51 net orders), including 10 Super Puma family helicopters and 14 H145s. Defence and Space's order intake was impacted by the perimeter changes from portfolio reshaping. Revenues increased seven percent to €13.0bn (Q1 2016: €12.2bn). Commercial Aircraft's revenues rose 13%, with deliveries of 136 aircraft (Q1 2016: 125 aircraft) including a higher proportion of A350 XWBs.

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Helicopters' revenues increased by 11% with deliveries of 78 units (Q1 2016: 56 units). Lower revenues at Defence and Space were mainly driven by the perimeter change impact from portfolio re-shaping but were stable on a comparable basis. The sale of the Defence Electronics business took place in the first quarter. EBIT Adjusted totalled €240m (Q1 2016: €498m). Commercial Aircraft's EBIT Adjusted was €281m (Q1 2016: €406m), mainly reflecting the aircraft delivery mix, transition pricing and some higher ramp-up costs.

Boeing's first quarter revenues down 7%

Boeing has reported higher first-quarter earnings and operating cash flow compared to the previous year, driven by solid execution on production programs and services. Revenue decreased to US\$21.0bn, down 7% from 2016, reflecting the timing of commercial and defense aircraft deliveries. Commercial Airplanes first-quarter revenue was US\$14.3bn on services growth, down 1% from 2016, offset by lower planned 737 deliveries, as the company prepares for 737 MAX entry into service in May. First-quarter operating margin increased to 8.5%, reflecting improved performance on production and services programs, cost growth on the initial production of KC-46 Tanker aircraft, and less favorable delivery mix.

Operating cash flow in the first quarter of US\$2.1bn was driven by solid operating performance and timing of receipts and expenditures. During the quarter, Boeing successfully completed the first flight of the 787-10 Dreamliner. The 737 program rolled out the first 737 MAX 9 and received FAA certification for the 737 MAX 8. Demand continues to be strong for the 737 MAX with more than 3,700 orders since launch. Commercial Airplanes booked 198 net orders during the quarter. Backlog remains robust with more than 5,700 airplanes valued at US\$417bn.

For the full year, GAAP earnings per share guidance increased to between US\$10.35 and US\$10.55 from US\$10.25 and US\$10.45 and core earnings per share (non-GAAP) guidance increased to between US\$9.20 and US\$9.40 from US\$9.10 and US\$9.30, primarily driven by a lower-than-expected tax rate.

MTU Maintenance reports another year of successful growth in 2016

MTU Maintenance, the maintenance, repair and overhaul (MRO) arm of MTU Aero Engines, has reported another year of successful growth in 2016. The company has signed independent deals with a contract volume of US\$2.2bn, with the program families CF34, CFM56, and LM industrial gas turbines (IGTs) enjoying

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particular success. "Over 250 new contracts have been signed in 2016 and 26 new customers have joined the company's engine and IGT MRO customer lists," explained Michael Schreyögg, Chief Program Officer at MTU Aero Engines, "underlining our customers' trust in MTU Maintenance's technology, market and engineering expertise." Additionally, the company receives shop visit volume from contracts signed with MTU Aero Engines and partners through the OEM network. MTU Maintenance grew its revenue by 21% to US\$2.1bn in 2016. Nearly 1,000 engines were delivered to the company's locations around the world for repair and overhaul – bringing the total shop visit count to over 17,000 in more than 35 years. The largest share of turnover came from the V2500 engine family, with a market share percentage in the mid-thirties in 2016. Growth is set to continue into 2017; MTU Aero Engines foresees around 10% overall growth in US Dollar its MRO segment for the coming year.

HEICO Corporation completes Air Cost Control acquisition

HEICO Corporation has released that its Flight Support Group completed the acquisition of Air Cost Control (A2C). Financial terms were not disclosed, but HEICO stated that it expects the acquisition to be accretive to its earnings within the year following closing. On March 8, 2017, HEICO announced it had entered into an agreement, subject to foreign governmental approval which was subsequently received, to acquire 80.1% of the operating units of A2C from its founders, Laurent and Laure Parelle. The Parelles will continue to own 19.9% of A2C, which will operate as part of HEICO's Flight Support Group. Founded by the Parelles in 2000, A2C is a leading aviation electrical interconnect product distributor of items such as connectors, wire, cable, protection and fastening systems. It also distributes a wide range of electromechanical parts. A2C's customers include aircraft manufacturers and their sub-tier suppliers, as well as airline and maintenance, repair and overhaul organizations worldwide.

Dubai Aerospace Enterprise acquires AWAS to create top-10 aircraft leasing company

Through the signing of a definitive agreement, Dubai Aerospace Enterprise (DAE) has announced its intention to acquire the AWAS group of companies, a leading global aircraft leasing company. While terms of the transaction have not been disclosed, it is understood that it will be financed from funds managed by Terra Firma Capital Partners and the Canadian Pension Plan Investment Board. DAE is majority-owned by the Dubai government holding company Investment Corporation of Dubai, which also controls the parent company of Dubai airline Emirates. DAE reported having a portfolio of 112 aircraft earlier this month, while AWAS currently has a fleet of 263 owned, managed and committed narrow-body and wide-body aircraft, with a further 23 new aircraft on order for delivery prior to the end of 2018. The takeover will see the total fleet reach 394 aircraft with a combined value in excess of US\$14bn. DAE was advised by Freshfields Bruckhaus Deringer LLP and Morgan Stanley & Co. LLC. DAE was also advised by KPMG and Latham and Watkins LLP.

Honeywell delivers US\$1.71 earnings per share, up 10%

Honeywell reported a strong start to 2017, with over 2% organic sales growth, 70 basis points of segment margin expansion, and free cash flow of nearly US\$800m that was more than six times greater than 2016. The strong operational performance resulted in reported earnings per share of US\$1.71. Normalizing for tax, earnings per share was US\$1.66, or 2 cents above the high-end of its first-quarter guidance and up 11% versus last year, excluding divestitures. Aerospace sales for the first quarter were flat on an organic basis driven by growth in the Air Transport aftermarket and gas turbo penetration in Europe and China, offset by lower OE volumes in Business and General Aviation. Overall, Defense and Space sales were flat on an organic basis in the quarter. Segment margin expanded 90 bps to 22.4%, driven by restructuring benefits, productivity net of inflation, and commercial excellence, partially offset by lower Business and General Aviation volumes.

Rockwell Collins reports second-quarter financial results

Rockwell Collins has reported sales for the second quarter of fiscal year 2017 of US\$1.34bn, a 2% increase from the same period in fiscal year 2016. Second quarter fiscal year 2017 earnings per share from continuing operations was \$1.27 compared to \$1.30 in the prior year. Earnings per share for the second quarter of fiscal year 2017 include 7 cents of B/E Aerospace acquisition-related expenses. Total segment operating margins were 21.0% for the second quarter of fiscal year 2017, a 30-basis point improvement over the same period in fiscal year 2016. On April 13, 2017 the company completed the acquisition of B/E Aerospace, a leading manufacturer of aircraft cabin interior products and services, for US\$8.6bn in total consideration. B/E Aerospace will operate as a new Interior Systems segment within Rockwell Collins. The company's updated full-year fiscal 2017 financial guidance adjusted to include the acquisition of B/E Aerospace is as follows:

Sales are now expected to be in the range of US\$6.7bn to US\$6.8bn (from US\$5.3bn to US\$5.4bn). Interior Systems (formerly B/E Aerospace) sales are estimated to be about US\$1.4bn. GAAP earnings per share are expected to be in the range of US\$4.50 to US\$4.70. Earnings per share adjusted for B/E Aerospace acquisition-related expenses and total combined company acquisition-related intangible asset amortization is expected to be in the range of US\$5.95 to US\$6.15. Free cash flow is now expected to be in the range of US\$650m to US\$750m (from US\$600m to US\$700m).

HEICO Corporation reports 25% increase in credit facility

HEICO Corporation have increased its revolving credit facility to US\$1bn, which is a US\$200m, or 25% increase to the Facility's previous US\$800m limit. This facility's term expires in December 2018 and there are no maturities under the facility until then. HEICO has used the facility, which is available for general corporate purposes, principally to make acquisitions. Since 1996, the company has completed approximately 60 acquisitions and remains committed to disciplined capital allocation. The company soon expects to close its previously announced pending acquisition of Air Cost Control. Further, the company continues to review numerous acquisition candidates and to seek additional acquisitions.



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Engine Parts.

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Rockwell Collins has delivered its first Iridium ICS-300 SATCOM units to **Boeing** for its 737 MAX aircraft. Available as a production line option and the only approved Iridium SATCOM solution on Boeing platforms, the product provides long-range voice capabilities as well as data link communications that improve operational efficiency. The ICS-300 is an advanced voice and data link communications system that operates over the Iridium satellite network. With complete global coverage, reliable communications between the ground and aircraft enable improved routing and enhanced coordination between the flight crew and operations. "This solution offers Boeing 737 MAX customers a highly reliable and cost-effective platform for all their aircraft operational communications needs wherever they may fly," said Brian Pemberton, vice president and general manager of Aviation for Iridium. The Iridium constellation consists of 66 low-Earth orbit satellites, enabling real-time communications anywhere on the planet and extends coverage to include polar and all remote airspaces.

Quantum Marketing Group, in partnership with **b2b-aero.com GmbH**, are creating the aviation industry's first smart INTEGRATED AIRCRAFT TEAR DOWN parts recycling program for aircraft dismantlement, airlines, overhauled and repair shops and MRO's. The new patent-pending application will run on the OneAero-MRO platform providing part locating of tear down parts in a pre-sales system with verification, certification, tracking, history, repair and overhaul methodology with the ability to match airline fleet part utilization history. The system has all of the compliance and tracking via OneAero-MRO's platform including capability, MRO tracking (that integrates into MRO and Airline ERP and EDI systems), fleet intelligence, part inventory

search and industry directory services. The goal is to have tear down parts get to market faster and provide airline customers with a new tool to help find and manage their aircraft parts requirements. Their goal is simple - to make locating, repairing and storing aircraft parts in a proactive way rather than a reactive manner, to help airlines find, better manage and have available tear down inventory faster, smarter, less expensive, while making their jobs easier.

Kellstrom Materials – a supply chain partner to the world's largest air transport providers and MROs – has announced that it is changing its corporate trade name and logo mark to **Kellstrom Aerospace**. Over the last two years, Kellstrom Materials has expanded its capabilities and product offerings to further support its customer base as a full-service provider to the commercial aftermarket. During this period of rapid growth, Kellstrom Materials has added over 30 supplier relationships to its new parts distribution product line, created OEM Service platforms, a whole asset trading and leasing offering, and has added several technical service capabilities for aircraft fleet managers. Kellstrom Materials will begin operating under the new trade name, Kellstrom Aerospace, effective as of April 24, 2017. Kellstrom Aerospace will officially be unveiled at the upcoming MRO Americas show in Orlando, FL, April 25 – 27, 2017. "I am excited to announce the new logo and branding to our customer base and the industry. This change now represents to airlines, leasing companies and MROs around the world that Kellstrom Aerospace represents full-service aftermarket solutions, from supporting new aircraft inductions to end-of-life solutions," said Jeff Lund, CEO, Kellstrom Aerospace.

Information Technology

AerCap, a global leader in leasing and aviation finance, has extended its contract for **AerData's** Corporate Management System (CMS). AerData's software and services improve efficiencies and enhance competitiveness for customers, including some of the world's largest airlines, lessors and MROs. AerData's Corporate Management System is a platform that supports all business processes in aircraft leasing and asset management. CMS provides a single platform that will facilitate the consolidation and management of data from various sources, enabling full control and oversight of asset value, maintenance reserve obligations, contract information and technical details. CMS is web enabled and accessible via a secure and encrypted Internet connection 24/7.

Pratt & Whitney has launched Engine-

Wise, a new service brand to better represent what it offers and how it is evolving to improve the predictability, reliability and health of customers' fleets. EngineWise encompasses all the initiatives Pratt & Whitney has to share intelligence including technical expertise, fleet data and business information with customers – so they can make smarter decisions that keep their engines, operations and businesses healthy. It covers all large commercial engine products services by Pratt & Whitney.

AerData has signed an agreement with **Emirates airline** for AerData's EFPAC (Engine Fleet Planning And Costing) software. AerData's software and services improve efficiencies and enhance competitiveness for customers, including some of the world's largest airlines, lessors and MROs. EFPAC helps customers optimize engine mainte-

nance planning, engine spares availability and budgets. By combining technical and operational data with lease requirements and fleet renewal constraints, operators can make the best decision for their operations. EFPAC utilizes algorithms to predict component life and create a visualization of the most optimized plan. The optimized plans predict engine component life, shop visit requirement details and reduces costs in both maintenance and downtime. Customers have reported that EFPAC reduces their annual engine maintenance costs by 10-15% or more, saving potentially tens of millions of dollars per year for a fleet. This is because EFPAC analyzes in hours what typically takes an airline weeks to examine using other methods.

Jet Yard, an FAA 145 Repair Station that specializes in end-of-life solutions for air-

craft, has selected **Quantum Control** MRO and software to enhance its inventory control and reporting.

"We chose Quantum because of its versatility and ease of use. We plan to implement it across all phases of our business, including aircraft disassembly and part sales," said Tim Zemanovic, general manager of Jet Yard. Jet Yard's 56-acre Pinal Airpark storage complex in Marana, Arizona includes aircraft storage, 112,000ft² of concrete ramp space for maintenance and disassembly services, and a 20,000-ft² warehouse. At its headquarters in Minneapolis, Minnesota, Jet Yards stocks aircraft parts sourced from teardown projects in its 5,000ft² warehouse.

Furthermore **Component Control** reported that it is collaborating with **OneAeroMRO**, an online repair management and tracking database provider, to create a seamless interface between the two companies' software systems. The comprehensive integration between Component Control's Quantum Control MRO and Logistics Software and OneAeroMRO's MRO-Tracker, a repair order management, monitoring, tracking and reporting system, will enhance automation and streamline the entire repair order management process for MROs and their vendors. OneAeroMRO's MRO-Tracker is an online status and communication information system that allows customers such as airlines, MROs and repair centers to monitor the external repair process. MRO-Tracker provides visibility of assets undergoing external repair thus helping to streamline communication, increase productivity, and shorten repair turn times.

MRO service provider **SR Technics** and **International Aircraft Associates (IAA)**, a global commercial aviation service provider specializing in engine materials, have jointly introduced Material.Monetary.Solutions (MMS), a new service to help SR Technics' engine customers reduce their material inventories. Combining the strengths of SR Technics and IAA, MMS is an integrated program where the two companies jointly manage all aspects associated with the material inventories of SR Technics' engine customers. The service includes a technical review of any excess material on customer stock to assess the marketability and reparability in case the material is unserviceable. The repair of unserviceable material is managed through SR Technics and its extensive vendor network. IAA then takes care of the marketing and sales of the materials to its worldwide customer base on behalf of the customer. This new service is avail-

able to both new and existing SR Technics engine customers. With MMS, airlines and leasing companies can reduce their stock levels and release the fixed capital tied up in engine materials. SR Technics Head of Engine Services Jean-Marc Lenz comments on the new service: "SR Technics is very pleased to partner with IAA. Together we will be providing a fully integrated material solution to our engine customers and also allowing them to capitalize on parts which are no longer needed."

IFS, the global enterprise applications company, has released that **PSA Airlines (PSA)**, a wholly owned subsidiary of **American Airlines**, has selected IFS Maintenix to support its enterprise-wide fleet maintenance management needs. This latest deal comes on the heels of other recent contracts with leading airlines such as **Copa Airlines**, **Cape Air** and **Southwest Airlines**, and reflects the IFS Maintenix software's expanding footprint among operators of sizes across the Americas. It is the first order to be announced since the IFS acquisition of Mxi closed in January 2017. Following an extensive market review, PSA selected IFS Maintenix as its maintenance IT system to deliver complete lifecycle MRO functionality across the engineering, planning, line maintenance and materials management departments. By enabling more real-time automated maintenance management, PSA Airlines is taking the necessary steps

to meet strategic objectives, while staying focused on their mission of safety, quality and compliance.

Lufthansa Technik has presented AVIATAR, the initial product of its newly created division **Digital Fleet Solutions**. AVIATAR is an innovative and holistic platform that offers an extensive variety of digital products and services for Maintenance, Repair and Overhaul (MRO) by combining multiple web-based apps, in one place. Lufthansa Technik's new product division Digital Fleet Solutions was initiated on April 1, 2017. The new division drives the digital transformation within Lufthansa Technik, creating internal synergies and efficiencies. Furthermore, the unit will focus on creating additional value and benefits for and with customers by integrating as well as interconnecting new digital products and services. By 2025, more than 38,000 aircraft are forecasted to be in operation worldwide. Ultimately, 50 times more data will be produced by new aircraft types alone. More than half of the airline's total operating costs are directly or indirectly affected by MRO services. In aviation, especially for MRO suppliers, this means an increasing amount of data knowledge along with a growing complexity of their businesses. The available data volume does not only have to be collected, but sorted, analyzed, interpreted and integrated into meaningful MRO measures.



Lufthansa Technik Digital Fleet Solutions
Photo: LHT

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There is a cautious approach against taking an engine off-wing too early.
Photo: IFS

Keith Mwanalushi provides a detailed analysis of engine maintenance trends in addition to strategic profiling of key players in the market, comprehensively analysing their core competencies.

The global aircraft engine MRO market is expected to grow at a CAGR of around 7% during 2016-2021, according to recent market research. The key factors driving the growth are participation of engine OEMs in the MRO industry, growing demand from emerging market, and growth in aircraft fleet and engines.

Engine costs make up 40-45% of total aircraft maintenance expenditure, and reducing that cost is always a prime focus for aircraft operators.

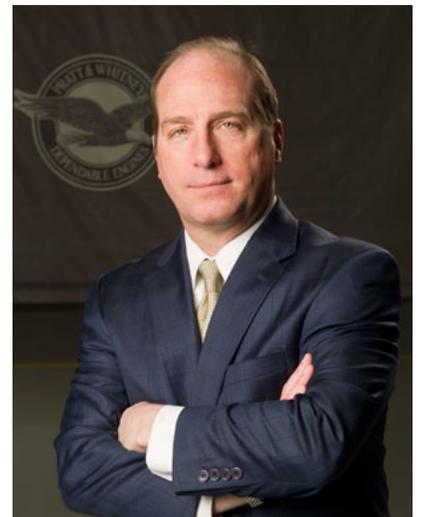
Pratt & Whitney for instance offers a variety of options for operators to reduce aircraft maintenance costs, two of which are fleet management programmes and material solutions.

"Fleet management programmes provide predictable maintenance costs, optimised engine performance and increased residual value," states Joe Sylvestro, VP Aftermarket Operations at Pratt & Whitney. "Engines maintained under fleet management programmes provide predictable, rate per engine flight hour maintenance costs, up to 20% longer time on-wing and 50% fewer unscheduled engine removals as well as higher residual value."

Also, the use of surplus material, including serviceable LLPs, has become a major force in recent years across the industry in reducing engine maintenance cost. Sylvestro observes that operators are demanding more services and support to efficiently manage their engine

fleets across the entire product lifecycle. "As the OEM, we are well-positioned to address their needs at each phase. For mature fleets, it is necessary to drive cost of ownership to a minimum to compete with the economics of new aircraft, so flexibility and tailored maintenance solutions are critical. Customers are now able to weigh a variety of service options as they evaluate fleet plans."

Leo Koppers, SVP MRO programmes at MTU Maintenance is aware that cost is indeed a big concern when it comes to MRO and MTU is striving to provide cost-effective services. "For customers with younger engines, the focus is on longer-term and cost-effective operations with increased on-wing times as a way of reducing costs.



Sylvestro says fleet management programmes provide predictable maintenance costs.
Photo: P&W

He explains that this can be achieved through services such as optimised fleet management – to ensure the optimal and most cost-effective removal time – customised workscoping, alternative repairs and engine trend monitoring.

When it comes to mature engines, this becomes even more pertinent, as older engines need regular maintenance and more replacement parts – driving up the costs. “But as the costs go up, so too does the range of alternatives, for and beyond maintenance,” Koppers points out.

MTU Maintenance has a mature engines programme for exactly such cases. The programme focuses on reducing costs for operators of ageing engines through cost-effective MRO alternatives (smart repairs, used parts, customised builds etc.) and alternatives to MRO (instant power solutions such as engine lease, sale and exchange).

“This diversity is aided by the amount of surplus material and engines becoming available on the market through retirements, which can be used to reduce MRO costs or substitute shop visits. This range of options can be considered the MTU “toolbox”. As each customer has specific operational and fleet planning needs, we look at each case individually and pick out the tools that make the most sense respective to the customer’s needs.”

Additionally, MTU Maintenance offers on-site and on-wing services and engine trend monitoring, which Koppers says can help plan and schedule maintenance and extend on-wing times. “We also provide spare engine and leasing support as well as 24/7 AOG support, which help minimise downtime.”

Pratt & Whitney has also developed innovative service offerings such as a mature engine portfolio which includes engine maintenance and asset management solutions that reduce costs while maintaining residual value with OEM standard parts and repairs. Targeted workscopes for specific time horizons and for meeting lease return conditions, material packages containing a combination of new and serviceable material, high used serviceable part fill rates and innovative LLP solutions with serviceable LLPs and buyback programmes drive down maintenance costs for mature engines.



Bradley says Magnetic MRO is looking to develop its engine line maintenance unit.

“The most effective strategy is planning the engine shop visit programme, calculating the optimum time for the shop visit to minimise down time during peak operational periods and based on when and if the engine has to be returned with the airframe to the lessor for redelivery,” Bradley mentions.

AJW Aviation say airlines should look at purchasing more used, surplus material in advance of their ESV to allow for potential repair and



Martson says its important to have a long and medium term engine maintenance plan. Photo: Aero Norway

overhaul lead times. “Proactivity rather than reactivity,” stresses Sam Rice, Director of Engines, AJW.

Rice is of the opinion that airlines and/or lessors with smaller power-plant teams should also look to take advantage of engine shop visit management schemes such as the service that AJW provides, which offers total support solutions for shop visits.

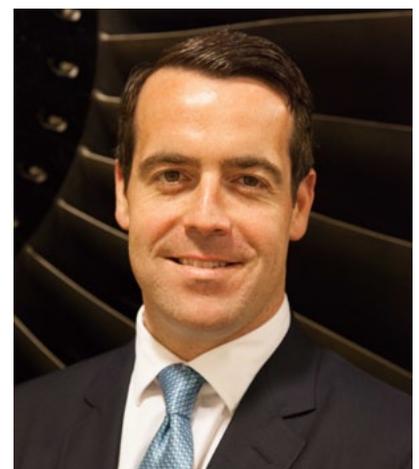
Relating to cost, Cliff Topham SVP, Sales and Business Development at Werner Aero says there are many strategies that can be adopted. He suggests overall better planning as the most consistent way – “Planned removals and a planned shop visit that can be converted to PBH agreements for example. To reduce the risk of premature removal and lower maintenance cost by operation to greatest de-rate will pay benefits,” he states.

It’s fair to say though that over the past twenty years, airlines have done a very good job at rationalising their cost structures at all levels, including engine maintenance costs.

Brian Neff CEO at CTS Engines recalls twenty years ago, there being no such thing as a “green time” engine lease, whereby an airline operated a half-life leased engine at a reduced price until it reached its life limit and torn down. “Another example would be with respect to the supply of spare parts in support of an airline’s engine overhaul requirements. Today it is very common for airlines to be involved in the supply of spare engine parts during an overhaul, at a reduced cost to the airline. This was not the case 20 years ago.”

Andrew Walmsley, President at Volo Aero also observes that the past couple of years has seen airlines burning green time off engine assets as a cheaper alternative to overhauling engines. “Whilst this works for lower utilisation airlines it’s not a long term fix, and we can see an upturn in shop visits as these assets have become scarce.”

As in independent MRO Volo Aero is more aligned to the classic mature aircraft and engine fleets.



Brian Neff Chief Executive Officer at CTS Engines



The CFM56 line should see considerable support.
Photo: Boeing

"We see the usage of serviceable material sourced from the secondary (non-new OEM supplied material) as an effective strategy not just for scrap replacement but also as a replacement for expensive repairs," Walmsley indicates.

It is crucial for airlines, OEMs and MROs to find solutions in engine maintenance procedures to keep AOG situations to a minimum.

There are several different scenarios that can cause AOGs and as Glenford Marston, General Manager for Aero Norway notes most operators will know where they are most vulnerable for to issues such as bearing failures, oil leaks, and over-heating.

As a CFM56 series engine MRO specialist, Aero Norway recommends some extra work due to the CIs/Hrs of the engine to expose areas that would not necessarily be exposed in a general inspection to prevent AOGs. "However even though it is possible to offer preventative measures on any of the aforementioned scenarios and reduce potential AOGs while the engine is in the shop for maintenance, customers may not want to pay the extra costs associated with visiting some of these areas," Marston highlights.

As engine and information technology has improved over the past decades, OEMs and MROs have been collaborating to move from reactive to predictive maintenance strategies. "Several decades ago, when an engine would not start, the maintenance team would go

through a standard trouble shooting tree with not much information," recalls Basil Papayoti, President and Director at GA Telesis Engine Services (GATES).

"As we started digitising our engine controls and we have more specific information at our finger tips, we have been able to quickly isolate and address engine issues to either avoid or limit AOG instances or time." Further, Papayoti emphasises that technology today allows the industry to monitor the engines in real time or have algorithms watch specific data full time during engine operation.

"This engine monitoring has enabled us to move from reactive maintenance to predictive which results in scheduling engine LRU or specific on-wing maintenance and not go AOG which disrupts the airline schedule. The maintenance event may also include scheduling an engine change in a timely manner with logistics that do not allow the airline to go AOG, especially at an out station. Besides us working with the OEM and airlines when it comes to specific findings during our shop visits which in turn builds our overall knowledge of avoiding AOGs, we have a GO (GATES On-wing) team that travels the world doing reactive to proactive maintenance that either reduces AOGs and or AOG times."

Through data analytics, Pratt & Whitney can create customised, intelligent worksopes, provide early warning detection focused on preventative maintenance and improve visibility into the overall health of the fleet.

The company's eFAST data ecosystem, is able to capture thousands of engine and aircraft data parameters throughout the full flight cycle instead of snapshots at take-off and cruise, "this allows us to better monitor engine performance, minimise disruptions and predict future maintenance visit," Sylvestro reports. eFAST is the exclusive data system on Bombardier C Series aircraft.

CTS has a fleet of spare engines that support AOG requirements. Neff believes this is a "must-have" for any top-tier MRO. In addition CTS offers emergency field support to its blue-chip customers in cases where they have an immediate need.

Figures from Pratt & Whitney shows that PurePower® Geared Turbofan™ (GTF) engine incorporates 40% more sensors than the V2500, and can generate approximately four million data points per engine per flight, enabling significant improvements in addressing unplanned maintenance.

"Our data analytics platform, ADEM (Advanced Diagnostics and Engine Monitoring), employs a suite of web-enabled software tools to provide expert analysis of real-time health data for more than 7,000 engines in service. ADEM capability has been enhanced to support analysis of this additional data enabling us to better identify any adverse events affecting performance," Sylvestro adds.

When it comes to engine maintenance concepts and procedures an issue that often arises are the circumstances in which to consider taking the engine off-wing for performance restoration work and what the implications are for airlines.



Basil Papayoti, President and Director, GA Telesis

"The health, with regards to an engine is basically down to the measure of its performance and most customers use Engine Gas Temperature (EGT) to measure that, the more margin you have the cooler the engine needs to be to produce the required take-off thrust, says Marston.

He explains that this means the more EGT margin operators have, the better chance there is to utilise the full value of their Life Limited Parts (LLPs) and enjoy a better yield from their aircraft/engine asset when they are repaired. "Aero Norway strives to maintain its reputation for delivering 15% higher EGT margins than the industry standard," he says.

Koppers also points to the EGT margin as a significant factor in performance restoration visits. He stipulates that these visits are part of complex decision making. "This is something we like to plan through a partnership approach between our airline customers and us as the engine services provider."

On the one hand, Koppers warns against taking an engine off-wing too early, especially if it means replacing LLPs during the visit even though they have remaining LLP life. "This can cause unnecessary costs."

On the other hand, it's also crucial not to keep an engine on-wing longer than is ideal, as this could lead to greater damage that could have been avoided, Koppers says. "It is about finding that optimal balance – a decision that is aided by tools such as ETM, fleet management programmes and the expertise MTU Maintenance has gained from over 35 years of MRO experience."

Bradley from Magnetic MRO weighs in: "The three main cases to take an engine off-wing for performance restoration include LLP reaching its life limitation, a low EGT margin recorded on the engine and in extremely odd cases, if you do not receive any signal from sensors. The airlines have options to exchange their engine, lease an engine for 60 days whilst the restoration is carried out, or time the restoration during the base maintenance visit."

Mr Papayoti also says this comes down to factors that would vary from how much margin one needs to the next engine removal action, to what can be done to push out the performance restoration.

"Several operators today are able to maintain engines on-wing until a LLP needs to be replaced. This is desirable as long as one has a sound overall LLP replacement strategy that optimises off-wing times and shop time.

"There are many strategies that operators utilise to avoid engine performance restorations which include derating engines before they go EGT critical, utilising de-rated take-off thrust programmes and engine wash and hot section on wing programmes. When an operator has exhausted all on-wing remedies, then it's time to plan for the performance restoration. Implications for the airline are cost and time for the repair, removal and installation of a spare or lease motor along with all the logistics that come with engine changes," Papayoti describes.



Rice - Proactivity rather than reactivity.
Photo: AJW

Topham from Werner Aero advises that unless covered by a PBH agreement the most efficient use of an engine is to continue with the engine on-wing as long as possible unless removal is driven by unserviceability or operational performance.

Looking ahead and in terms of engine MRO strategy, the folks at AJW Aviation see Asia and LATAM as markets with huge potential, even though these regions are more OEM focussed at present. "We expect to see more opportunities when these markets mature," says Rice. The main focus at AJW is on CFM56-5B / 7B and V2500-A5 engines as they will continue to be a large demand for many years. "We are also preparing for new engine types including the CFM LEAP and P&W GTF and have already started the process of procuring LRUs for these new engine types, in order to be able to offer component PBH programmes to support our customers."



Cliff Topham, SVP, Sales & Business Development at Werner Aero

GA Telesis will continue to update its portfolio of products which include the CF6-80C2, CFM56-5B and 5C along with the newest product line of the 7B. In the medium term Papayoti confirms the company will continue to develop engine cost saving strategies for customers using existing engineering and new technologies available and in the long-term evaluate new engine product lines to launch.

At Magnetic MRO they are looking to develop the engine line maintenance unit. "We have recently acquired and extended our capability for CFM56-5 and CFM56-7 engines.

"Our medium term focus is on the current mature engines (CFM56-7, CFM56-5 and V2500), with long term focus dependent on the support we will obtain from the OEMs in order to acquire repair licenses on the future engine types," says Bradley.

In April, Pratt & Whitney launched 'EngineWise', a new commercial engine service brand platform to better represent what the company offers, and how it's evolving to improve the predictability, reliability and health of aircraft fleets. The focus over the medium and long term is to grow this new initiative.

The overall goal at MTU is to create customised approaches that meet the needs of its customers individually – "for us this is a continuous process and part of who we are now and will be in the future," states Koppers.

Over at CTS Engines Neff expects to more than double throughput over the next 12-18 months as the result of recently announced programme wins, "mostly at the expense of MTU Aero Engines, our largest independent competitor. And we expect this trend to continue."

He says the biggest challenges are to manage this growth in a way that not only supports these new customers, but also keeps existing customers happy. "We are confident that we will be successful, and are excited about the future."

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Cabin fever

A number of factors are considered before a new interior is executed.
Photo: Boeing

In the second instalment of our cabin solutions feature, **Keith Mwanalushi** continues to analyse the aircraft interiors market with the key players.

In the April edition of *AviTrader MRO*, a number of issues affecting the cabin interiors sector were discussed and various opinions have continued to trickle in. In relation to any given cabin reconfiguration project, Dave Jackson, Managing Director of 328 Support Services stresses that aircraft operators will often focus on the project cost, initially. "Companies tend to work with a number of different suppliers in order to get prices down, but they often forget that adding multiple sources to the project may create unexpected delays."

Jackson stresses the main issue is dealing with too many companies for the project. He warns that co-ordination between the parties can sometimes be difficult especially if one is involved in manufacture, another one in certification and a third one with installation.

"You need always to make sure that all parties involved will meet their respective deadlines otherwise the entire project could be delayed. The perfect option would be to have a single company capable to deliver the entire project by itself, including part 21G design approval, part 21J production approval and part 145 maintenance and completion approval," he reckons.

328 Support Services has recently worked on several Bombardier 50-seater CRJ-200s, including a conversion from a regional airline configuration to a state-of-the-art 10-seat VIP layout. The aircraft was fitted with the latest CMS/IFE technology based on Emtec's eConnect & eEquation Cabin Power®, a system which allows passengers to use their own personal electronic devices (PEDs) to con-

nect and control the cabin systems. The technology also offers LED cabin lighting, window shades and entertainment and provides 220VAC for power to recharge PEDs during the flight. Video and audio content is streamed via WLAN. "As an OEM, we are also constantly improving the Dornier328 with the use of new technology or material to continue the legacy of this aircraft that are still currently in service globally," Jackson indicates.

MAC Aero interiors Ltd (t/a MAC Interiors) has been offering interior solutions to the Aerospace market for more than 50 years including lavatory upgrade kits. Mark Radford Sales and Marketing Director feels the key issues before initiating a project are the time frames which are given to work on it. He says it's vital to determine the location where the cabin reconfiguration process will be taking place, either in-house [at the company's UK base] or in a different location preferable to the client.

"Also technical issues which may already surround the project, and taking into account any other technical issues which may develop throughout the project. Another key issue is the competence of the workers, depending on their skill level which will secure the work be completed on time and to a high quality," Radford explains. Mac Interiors possess certifications including EAS145, EASA21J and EASA 21G.

In terms of lavatory kits MAC Interiors provide kits to enhance and upgrade the interior of aircraft lavatories. The kits include components that replace the OEM's parts. Parts include, replacement

lightweight mirrors, corian worktops, LED lighting, new faucets, new cabinets, and amenity racks, replacement doors, Schneller panguard. Radford says all kits can be manufactured to reflect the customer's specific requirements which include colour, finish, and brand style. All kits are manufactured at MAC's UK facility based near London Gatwick Airport and come complete with all certification, installation and approval documentation.

"Every operator needs to know that reconfigurations take time depending on how involved the reconfiguration is," adds Debi Cunningham Vice President Marketing and Interior Design at West Star Aviation – a company specialising in airframe maintenance and interior refurbishment among other activities.

She says numerous steps must be taken in the process when working on a reconfiguration project and many questions must be asked. "It is important to know if the floor plan requested is a standard configuration from the manufacturer or if it requires structural changes and/or an STC. Secondly, the switching, oxygen, emergency equipment, 16g requirements, all are factors in determining whether the modification requires a floor load analysis."

Cunningham states the importance of choosing a completion facility that has a knowledgeable and experienced engineering team and DAR/DER to verify that the job can be done safely, and meet certification. "Finally, when choosing a facility, some completion shops such as ours at West Star Aviation have an ODA designation, which means they can accomplish STCs on behalf of the FAA." [Federal Aviation Administration].

Many floor plan reconfigurations can be done as a major alteration. Cunningham mentions. "If the reconfiguration requires an STC, then the downtime for the project will be extended in most cases. Looking for a one-stop shop will speed up the reconfiguration process by accounting for certification and regulation realities in the pre-planning and reconfiguration blueprint early on."

West Star Aviation has completed many different cabin floor plan changes, most recently, a Falcon 2000 to a 13 passenger cabin. "We customised cabins to our customer's specific requirements.



Jackson feels the best option is to have a single company capable of delivering the entire project itself.
Photo: ©328SSG

We have done child and family friendly interiors, corporate office in the sky interiors, as well as pet friendly interiors, each request is custom and unique to our client's taste and needs."

Complexities can often creep up with cabin interior changes, Jackson highlights adherence to legislation and to OEM's initial design and substantiation of the aircraft. "Dealing with vendors to ensure quality is maintained and finally dealing with customers who always have 'new thoughts' on what they require."

Cunningham points that modification salespersons and designers know that changing interiors goes beyond look, seat configuration or adding to seating for a cabin. "The specialist's job is to confirm the emergency equipment is taken into consideration, re-route wiring to where it's needed, and update switches to accommodate lighting and oxygen for the new arrangement.

"It is also important for the completion facility to review the structure under the floor and verify it is able to support the modifications. If it's not, figure out what needs to be replaced and installed to make the completion FAA compliant."

Integrating flammability properties of fabrics, protecting fabric colour and preserving brand projection is not an easy task.

Cunningham says West Star only uses fabrics that they know will pass a flammability test, which is the natural fibre materials such as cotton, wools, linens, and so on. "Everything we use at West Star including all wood, carpets and leathers are treated properly, go through a flame test and have to pass before we install in the aircraft, including wood cabinetry."

Radford acknowledges that integrating these properties and protecting the brand projection is not easy but what is essential is having constant dialogue with clients, and including sections of approved materials that reflect the brand image.

He says MAC Interior's will be expanding its base in the UK and will be investing in new flammability testing at its new UK site. "This will ensure that materials are able to be flammability tested in-house, which will enable projects to run quicker."

328 Support Services have their own internal laboratory that can conduct "pre-certification" tests prior to items being sent for formal approval. Jackson explains that this allows them to save time and effort in order to get the final certification more quickly. "In addition, working with recognised suppliers within the aerospace industry brings us even more confidence as we use their experience and knowhow in their respective fields of activity."



Debi Cunningham Vice President Marketing and Interior Design at West Star Aviation

AerFin goes beyond support



James - We are well positioned to play a key role in supporting OEM's, MRO's and airline operators.

AerFin CEO Bob James, explains the evolution of AerFin since its 2010 inception

When you founded AerFin in 2010, did you imagine the company would be operating the way it is today?

James: In short, no. Looking back, we imagined a different set of services and a significantly smaller operation. Our focus on giving a great service encouraged our customers to speak to us about helping them with more and more of their engine requirements. This changed our outlook very quickly and with committing to undertake engine disassembly and relocate to the former GE Wales facility, we realised there was a significantly bigger opportunity.

How has the market changed since AerFin launched in 2010?

James: Many of the core fundamentals have not changed such as the demand for, quality, on time delivery and sustainability of material supply, and these will always be the bedrock of the Aviation MRO industry. All the investment we have made in our facilities, systems and inventory management processes and procedures underpin these requirements. However, the trading and MRO spares market has changed dramatically and is likely

to continue to be under significant pressure for some time to come.

The increase in new aircraft deliveries, low interest rates, lower oil prices, demand for air travel and investors chasing yield, has created a seller's market where aircraft that once may have been destined for disassembly have been returned to service through extension of aircraft lease agreements. The lack of available aircraft for disassembly at pricing which enables a reasonable return given the risks and investment required, continues to put significant pressure on building a sustainable MRO supply chain business.

Where there once may have been 3 or 4 competitive entities looking at an aircraft acquisition, there will now be more than a dozen equally willing participants, of which at least 50% will be companies that did not exist a year ago each backed by private equity looking at flipping the airframe and engines without having any infrastructure or technical ability themselves to handle a teardown or manage piece part inventory repair and sales.



James says there is a growing trend towards flight hour usage agreements.

Furthermore, the fact that capital from China is shifting towards USD investments in aviation assets has put significant downward pressure on aircraft and engine Lease Rate Factors. The ability for new airlines to enter the market by leasing, new aircraft, engines and components under comprehensive Flight Hour Agreement programmes has become far more prominent. I have never seen such a competitive market situation in the MRO landscape throughout the entire supply chain. Taken together, the entire industry has been forced to innovate, while delivering an increased passenger experience without compromising safety and security at an increasingly lower cost.

Why did you take AerFin from a small engine support company into complete nose-to-tail strategic partnerships with major airline operators?

James: That transition is not something that happened overnight. The need to innovate in an increasingly competitive market required we maximise the residual value from our acquisitions and cost effectively manage the entire aircraft to meet the requirements of our strategic shareholder CarVal Investors. When CarVal invested in AerFin, it created new opportunities for the business. Firstly, by acquiring the assets and interests of Airline Service Components limited (ASC), a Gatwick airframe distributor, AerFin acquired an excellent and experienced team of airframe component distributors. CarVal also gave us the financial muscle to go to the market and acquire a significant number of available aircraft, rather than “picking off” single aircraft or engines. This has given us the leverage to support end-users on a larger scale and allowed us to grow our leasing operations, whether aircraft, engine or component packages.

Additionally, we have been both very reactive and proactive in the manner that we have operated in the market. For instance, when we acquired Cathay Pacific’s fleet of eleven A340 aircraft

commencing in 2014 it would have been incredibly difficult to finance the assets without an equity shareholder such as CarVal, we knew that despite the declining interest in four-engined aircraft there was still a lot of opportunity to support the remaining aircraft in service and the commonality of parts across the Airbus and CFM56 platforms would allow for effective remarketing. Furthermore, AerFin’s solid relationship with SR Technics enabled us to launch our Beyond.Fleet.Services™ programme which allowed us to expand our airline support activities with such profile operators as Philippine Airlines.

Perhaps more importantly, these factors underpin our continued roll out in to new geographic and service markets. I’m tremendously proud of how far we have come, but so much more confident about the years ahead.

Do you see more demand from airlines for PBH programmes to support older aircraft types?

James: We are seeing a growing trend of airlines shifting towards Flight Hour usage agreements. These programmes provide operators with more stability of their maintenance and support costs and in the current market they have been able to secure extremely attractive rates. We see Flight Hour programmes being core to the future of the airline industry and increasingly provided by the OEMs and their preferred network partners on both new and mature aircraft and engine types. AerFin is truly well-positioned to play a key role in supporting OEM’s, MRO’s and airline operators in both Flight Hour programmes. Our recent acquisition of fifteen Embraer E170R aircraft will strategically position AerFin to be the preferred partner of choice for all Operators seeking to optimise their maintenance cost on their Embraer products.

Big data takes off... with predictive maintenance

Big data has the potential to transform the MRO supply chain.
Photo: Lufthansa

In aviation, downtime is money. Whether it's a plane that's not performing any functions while waiting for a part to come in, or it's overtime pay to get that part installed when it finally does come in, the time it takes to replace parts (from sourcing it at the right price to receiving and installing it) comes with a hefty price tag.

Predictive maintenance for the supply chain, however, is a big game changer. Predictive maintenance harnesses the power of big data to get customers the parts they need when they need them and at the price points they want. Accessing data around certain parts and aircrafts, this data-driven approach is able to predict when a part will be needed.

Clearly, it has the potential to transform the MRO supply chain. Before big data entered the picture, MRO managers were left to beg, borrow or steal to ensure the right parts were available at the right time. The

goal was always to keep planes in the air and not in the repair cycle - but without a predictive understanding of which parts would need replacement and when - the goal wasn't always achievable.

For companies who want a competitive advantage within the aviation industry, tapping suppliers who use big data gives them an edge. From keeping repair cycle time at a minimum to sourcing the best pricing for a part, reliably fast access to spare parts at competitive pricing has the potential to transform operating costs.

Exodus Aviation, a commercial aviation asset manager specializing in Airbus and Boeing parts, uses the Talend software to predict maintenance trends on specific part numbers for a given aircraft and, in turn, orders repairs on units.

According to Chris Santana, Exodus Director of Sales and Strategy, his company saw the potential ROI that big data could bring to customers and jumped on it. "This data-driven approach to parts ordering reduces the mean-time-to-repair while keeping costs down for our customers. There's a shift happening and it's about time."

Using predictive maintenance, Exodus has the units their customers need ready to go as soon as they need them. No need to park or down the aircraft waiting for a certain part to come in; instead, the aircraft is kept flying and the maintenance schedule isn't side-lined.

Beyond just having parts ready at competitive prices, customers who use Exodus for parts sourcing are able to better plan ahead for repairs that will be needed and, in doing so, allocate resources appropriately.

"The ability to predict which parts our customers will need not only gives our customers an advantage; it gives us a big one, too." Santana remarked. "It's really a win-win...thanks to big data, we are able to offer unparalleled service and pricing that's made us a go-to within our niche."



Data-driven approach is able to predict when a part will be needed.
Photo: Boeing

In the hot seat.....

Todd Lewis, President, Component Control

AviTrader MRO: Can you tell us about Component Control and the link with Quantum Control?

Lewis: Component Control is the leading developer and provider of fully integrated business software solutions for the aviation market. Our core product is Quantum Control MRO and Logistics Software. It's designed for the specific needs of aviation repair, distribution and manufacturing companies. The FAA's certification rules are complex. Quantum Control helps streamline the compliance process for businesses by promoting comprehensive, ongoing and safe adherence. It steers a company's best practices toward rigorous quality guidelines while optimising its operational performance.

AviTrader MRO: What sort of MRO software do you provide?

Lewis: The software includes 18 core logistics and business modules that help companies with all aspects of their business, such as, inventory control, purchase management, receiving, quoting, sales orders, repair management and a fully integrated

accounting package. Quantum Control operates on a highly scalable and secure Oracle database. The exciting thing is users can expand the software's functionality based on their needs by adding any of our dozens of optional modules. Some of the additional capabilities include such functionality as mobile applications, dash boards, web portals, barcoding, lot costing, credit card processing, time and attendance, and more. Companies can use the software as a dedicated in-house system or have it hosted via a third-party cloud provider for integration among multiple sites.

AviTrader MRO: How does Stockmarket.aero fit into the business?

Lewis: Stockmarket.aero is Component Control's comprehensive search engine that gives users access to real-time updates from vendors on parts in stock, part alternatives, and MRO capabilities. It's the world's largest free open marketplace for aircraft spares. Stockmarket.aero currently lists more than 100 million qualified line items of inventory and capability from more than 3,000 aircraft parts vendors.

We offer an iOS app so users have easy access to the marketplace anytime, anywhere. We've also integrated Stockmarket.aero with Quantum Control via a specialised module, which gives companies a centralised database to source and sell their inventory directly from Quantum. The software automatically posts and updates the StockMarket.aero database, creating a real-time trading environment with no user action needed.

With Quantum Control's inventory module, users have enhanced search capability in Stockmarket.aero. It cross-references both vendor and manufacturer data to provide more information on the part. Users can even view documents and images that are attached to the part.

AviTrader MRO: The MRO software market is getting quite competitive. How are you staying ahead of the competition?

Lewis: At Component Control, we focus on giving our customers the best overall value. With Quantum Control, companies get more than an install-it-and-forget-about-it software programme. Quantum Control is a true integrated business solution that expands as users' needs change. What's more, we continually add new features



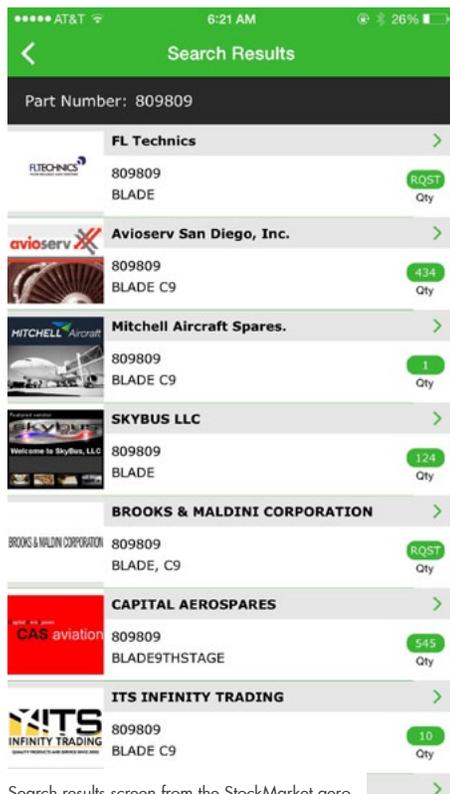
Todd Lewis, President, Component Control

and new integration options, and adapt to emerging technologies. Even with all of that, Quantum Control's cost of ownership is still half that of most competitors due to the shorter implementation timeline to go live.

For any software, you can't understate the value of an active, involved user base. Quantum Control's user base is incredibly active with its own user-managed, non-profit organisation called QUE Group. They maintain an online forum and host an annual conference to help users master the software and learn tips and best practices. They provide valuable feedback and suggestions to our engineers and support teams for making Quantum Control even better. Our customers see all of this, so in turn the referral effect is amazing for us.

AviTrader MRO: In terms of solutions for the aviation sector, what's next in the pipeline at Component Control?

Lewis: Quantum Control has over 1,500 installations in more than 60 countries. In support of our customers, we are developing additional mobile apps to make our software solutions and our customers' data even more accessible from more places. Because managing a business means having the right information at the right time, we're looking at ways Quantum Control can provide more business intelligence and insight for all of our users. Also, our software integrates with a variety of partners such as Cessna, CAMP, Avref, FedEx and UPS. We'll be expanding our partnerships as well as adding to the capabilities of our current partners.



Search results screen from the StockMarket.aero



FAI completes new hangar

Hangar 8 is capable of storing up to three A320s.
All photos by Keith Mwanalushi

Following a site visit to FAI Aviation Group's headquarters in Nuremberg, Germany in April, *AviTrader MRO's* editor **Keith Mwanalushi** reports that FAI has now completed a brand new 4800m² carbon neutral maintenance hangar known as Hangar 8.

The facility is located at Albrecht Durer Airport (NUE) in Nuremberg and represents an investment of €7 million, the new hangar has created at least 10 new local engineering jobs, in addition to other support positions.

"We are delighted to complete our new carbon neutral Hangar 8 development on time and on schedule," said Siegfried Axtmann, the group's Chairman. "We are also pleased to be bolstering our 60-strong engineering team with new local jobs in Nuremberg."

The facility took just eight months to complete, which coincidentally, was designed by Axtmann and mirrors the existing FAI facilities in terms of style. Hangar 8 was built by German contractor Maisel Bau, which also built FAI's Hangar 7.

FAI stated that the hangar's carbon neutral status was achieved by purchasing carbon credits from the European Union emissions trading system. These credits are being used to support worthwhile projects around the world to neutralise greenhouse gas emissions. The new hangar compliments FAI's existing Hangars 6 and 7, both of which are certified carbon neutral and will continue to serve base maintenance needs.

FAI Aviation Group consists of three entities: FAI rent-a-jet AG, the general aviation operator, active in the field of air ambulance, spe-

cial mission services and VIP charters. There are 20 aircraft in the fleet while another four are operated under management contracts.

Fly Alpha is a small operator holding its own AOC and currently flies two aircraft on behalf of third party owners, and FAI Technik



Siegfried Axtmann FAI's Chairman



FAI Technik offers a full range of technical services

is the MRO division that is a 100% subsidiary of FAI rent-a-jet AG.

FAI Technik will use the new hangar space to provide line maintenance work across a range of aircraft, including its own fleet. Significantly, the new space will also be utilised for aircraft storage to meet the growing demand for hangar space in Europe. Axtmann stressed the importance of the growing storage business. "With the number of aircraft for sale in Europe increasing, there is need for air conditioned hangar space to keep them in mint condition prior to a sale. We hope our new hangar will help meet this need."

Hangar 8 is cable of storing up to three Airbus A320 or five Bombardier Global Express aircraft.

FAI's facility also incorporates administration offices, a fully serviced FBO, FAI's round the clock air ambulance operation, component shops and training facility.

FAI Technik offers a full range of technical services that include line and base maintenance, modifications, interior refurbishments, polishing, return inspections and evaluations. It holds an EASA Part 145 approval and can accommodate aircraft up to 737/A320 size.

In 2016 FAI Technik completed the first civilian conversion of a BD 700 (global Express) into a quick change ambulance configuration with up to 3 ICU's, allowing non-stop ultra-long range air ambulance missions in future.



Air Ambulance makes up a considerable part of the FAI business



The new facility took just eight months to complete



Jimmy Lui

Werner Aero Services has released that **Jimmy Lui** has joined its team as Vice President and General Manager of Asia Pacific operations based in Singapore. He will be responsible for managing the daily operations and expanding Werner Aero Services' imprint in Asia Pacific. The Asia Pacific market is incredibly important to Werner Aero Services and it is thrilled to have a seasoned aviation expert at the helm of its Singapore office.

Jim Clarke will be joining HAECO Americas' leadership team as its new Vice President, Planning and Performance. In that role, he will lead teams that conduct all maintenance event planning, cost and pricing analysis and customer performance reporting across the company's North American operations. Mr. Clarke has had an accomplished career in aviation maintenance planning, forecasting and supply chain management, including 22 years in various roles of increasing responsibility with FedEx Express.

AAR has promoted **John M. Holmes** to President and Chief Operating Officer, AAR Corp., effective June 1, 2017. AAR's Board of Directors also approved Holmes appointment to the board, effective at its July 11, 2017 board meeting. Holmes will continue to report to **David P. Storch**, Chairman and Chief Executive Officer AAR. Holmes joined AAR in 2001 as Director of Mergers and Acquisitions, became General Manager of AAR's parts trading business in 2003, and progressively assumed responsibility for the other solutions that comprise Aviation Services – Integrated Supply Chain, OEM Aftermarket Solutions, Intelligent Solutions and MRO Services.



Jeff Hutchinson

Bombardier has appointed **Jeff Hutchinson** as Chief Information Officer, reporting to **John Di Bert**, Senior Vice President and Chief Financial Officer, Bombardier. In this position, Mr. Hutchinson will be responsible for leading Bombardier's global IT, digital asset, and cyber security functions. He will assume responsibility for establishing a strong portfolio of world-class IT strategies, services, and offerings, in support of Bombardier's 2020 goals and longer-term strategic plan.

GA Telesis Composite Repair Group (CRG) and GA Telesis Component Repair Group Southeast (CRGSE) has announced the addition

of three veteran sales executives to expand their global sales and solutions footprint. **Richard Eusebio** will serve as Vice President of Sales for CRG and **Phil Nardini** will serve as Vice President of Sales for CRGSE. Additionally, **Ryan Heath**, former VP of North American Sales for the company's Component Solutions Group (CSG), has accepted the newly created position of Vice President of Strategic Support Programs at CRG.



Photo Lr: Adam Palmer, Ryan Miller, Steve Buesing

Rockwell Collins has appointed **Adam Palmer** as Vice President, Investor Relations. He succeeds **Ryan Miller**, who will be transitioning to vice president and controller of the company's Commercial Systems business as part of a leadership rotation. Miller will continue as the lead Investor Relations executive for Rockwell Collins until the appointments become fully effective May 1. In his new role, Miller succeeds **Steve Buesing**, who has been appointed vice president and controller of Rowell Collins' new Interior Systems business, which became effective on Rockwell Collins' acquisition of B/E Aerospace last week.

NORDAM CEO Meredith **Siegfried Madden** has announced organizational changes in the company's Tulsa- and Wales U.K.-based repair divisions. **T. Hastings Siegfried**, vice chairman of the company's board of directors, chief operating officer of its Transparency Group, and sales development leader for Asia-Pacific, is now also responsible for the firm's repair facility in the U.K. A joint venture of NORDAM and GE Aircraft Engine Services, NORDAM Europe, repairs or overhauls thrust reversers, nacelles, engine and exhaust components. **Phil Marshall**, vice president and general manager of the NORDAM Interiors & Structures Division, is now also responsible for its Repair Division. The Tulsa facility repairs a wide range of aerospace parts, including thrust reversers, nacelles, flight control surfaces, engine and exhaust components and radomes. Customers include commercial airlines, air-freight carriers and the military.

InTech Aerospace, an aviation technical services firm specialized in commercial and government airplane interiors and components, has promoted **Mr. Scott Mowery** to Chief Operating Officer. Mr. Mowery previously held the position of Vice President-Operations for InTech Aerospace and now in the expanded role as COO. He will oversee all technical and business operations of InTech and will be the responsible officer for the company's performance for its customers, and FAA compliance.