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Opinion

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Boeing debuts new analytics

In April MRO Americas saw the gathering of aviation maintenance professionals to discuss and dissect a number of issues facing the MRO industry.

Of particular interest was Boeing's presence. The OEM used the occasion to announce five new products and services across its services portfolios, all geared towards continuing enhanced digital transformation and MRO value improvement. Boeing says these new service capabilities are driving lifecycle innovation in the form of faster flow times, lower operational costs, and enhanced end-to-end reliability.As these tools are introduced to fleets, platforms will become more efficient and less expensive to operate, its supposed. For instance, a new customer-requested capability called Self-Service Analytics by Boeing AnalytX allows subscribing customers to access their applications' data, using new analytics tools. The service, which provides millions of records, will enable customers to find new insights and opportunities to meet business goals. Select customers of Airplane Health Management, Flight Planning, Fuel Dashboard and the In-Service Data Programme will be able to use self-service analytics starting this month.

Boeing has also launched a rapid response capability that allows emergent parts and engineering modifications to be made quickly, delivering more affordable, fit-for-purpose modifications. Based in San Antonio, Texas the rapid response centre is in a 59,000-square-foot dedicated hangar that fits a 747-8 or C-5 Galaxy.

These are just some of the new services and it looks like the future certainly looks towards analytic intelligence.

Keith Mwanalushi
Editor

Photo: Joramco

Contents

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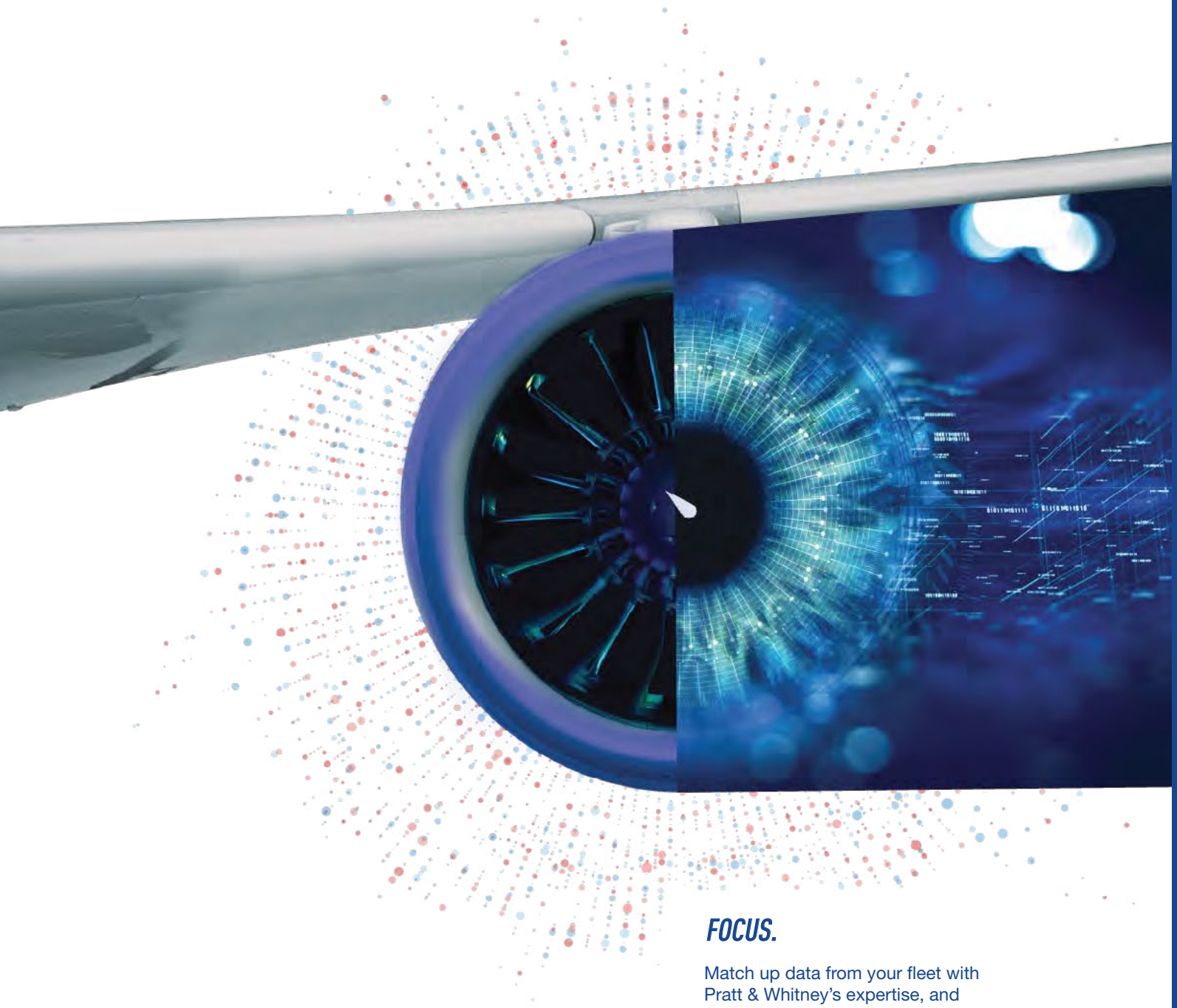

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Asian Airlines and LHT sign 10-year TCM contract
Photo: LH Technik

LHT and Asiana Airlines sign component services agreement for carrier's Boeing 777 fleet

Lufthansa Technik and Asiana Airlines from South Korea, have signed a new, long-term agreement for Total Component Maintenance (TCM). The contract has a term of ten years starting in April 2018 and covers the nine aircraft in Asiana's Boeing 777-200ER fleet. Component repairs will take place at Lufthansa Technik's workshops in Hamburg. Lufthansa Technik also helps its customer Asiana Airlines build up additional component repair capacities at its headquarters in the South Korean capital of Seoul. The necessary exchanges of information and initial events, like training courses, have already begun.

Mexico's Interjet and WOW air select Safran NacelleLife™ support services

Safran Nacelles has signed an agreement with Interjet to provide repair services and spares pool resources for engine nacelles that equip Airbus A320neo-series jetliners operated by the Mexican airline. The five-year agreement covers the A320neo family of aircraft, which are powered by CFM International LEAP-1A turbofan engines. Safran Nacelles' repair services and spares resources are part of the company's new NacelleLife™ support program, which ensures responsive, cost effective and high-quality services that keep airliners in operational condition while minimizing costs. Safran Nacelles also signed a contract with WOW air to provide repair and maintenance support for engine nacelles on the Icelandic airline's growing fleet of Airbus A320neo-series jetliners, which are powered by CFM-1A engines. The contract was signed for a five-year period and covers repair services and spares pool access for WOW air's fleet of Airbus A320neo family aircraft.

AerFin and GE Aviation sign material service agreement

Wales-based aftermarket supply specialist AerFin has signed a three-year TrueChoice™ Material agreement with GE Aviation for serviceable OEM parts, advanced repairs and technology upgrades for the CFM56, CF34 and CF6-80C2 engines. "Since its inception, AerFin has seen the value of OEM-centric material support," said Bob James, CEO of AerFin. "With the TrueChoice™ Material program, we can further enhance and strengthen our relationship with GE Aviation in the future." The TrueChoice suite of engine maintenance offerings incorporates an array of GE capabilities and customization across an engine's lifecycle. TrueChoice Material offers high-quality new and used OEM parts, advanced repairs and technology upgrades to enhance engine performance and support higher engine residual value. All TrueChoice offerings are underpinned by GE Aviation's data and analytic capabilities and experience to help reduce maintenance burden and service disruptions for customers.

SIA Engineering Company signs IFEC maintenance agreement with Thales

SIA Engineering Company has signed an In-Flight Entertainment and Connectivity (IFEC) maintenance agreement with Thales. Singapore Airlines (SIA) had selected Thales' AVANT IFE system and Ka-band connectivity solution for its fleet of A350 XWB aircraft configured for medium-haul operations. This IFEC maintenance agreement between SIAEC and Thales will support the SIA fleet for an initial term of 10 years and the scope of services will include line maintenance, software and media content loading, and support.

Mandarin Airlines adds Global Maintenance Agreement to partnership with ATR

ATR and Mandarin Airlines, a regional subsidiary of Taiwan's flag carrier China Airlines, have signed a Global Maintenance Agreement (GMA). This comprehensive support package covers the repair, overhaul and pooling services of Line Replaceable Units, along with a door-to-door service through which ATR is providing transportation of spares to the airline's facilities. This GMA covers the entire ATR fleet of the Taiwanese carrier, consisting of nine ATR 72-600s. Turboprop manufacturer ATR hereby reaches a key milestone of more than 300 in-service aircraft under GMAs. Through ATR's flagship maintenance offer, Mandarin Airlines will benefit from an a la carte pay-by-the-hour maintenance package, with a high level of flexibility that makes it possible to meet a wide range of specific needs, depending on the operator's local resources, fleet and expected operations. This maintenance agreement is part of a broader support from ATR who will be providing a full range of technical and engineering maintenance services, along with comprehensive training solutions for the airline's flight crew, mechanics and technicians. ATR is also supporting China Airlines and its subsidiaries to set-up in-house capabilities for ATR heavy maintenance, up to C-checks.

Rolls-Royce announces Jackson Square Aviation as new LessorCare customer

Rolls-Royce has announced Jackson Square Aviation as a new customer for LessorCare, the pioneering new service tailored specifically to the needs of lessors. Jackson Square Aviation will adopt LessorCare across its existing and future fleets of Trent-powered aircraft, drawing together a range of services under one simple, flexible and comprehensive framework. Rolls-Royce launched LessorCare in January with three customers. LessorCare comprises one single, comprehensive agreement for all Trent engine types, giving customers access to all the services that they need throughout the engine lifecycle. It allows lessors to pay for what they want when they need it. The benefits are faster and easier access, the incorporation of services today and for the future, and the maximizing of possible return on investment.

Nicolai Hertz, Head of Serviceable Parts, Satair (left) shakes hands with Tommy Hughes, Chief Executive Officer, VAS Aero Services
Photo: Satair

Satair and VAS Aero Services expand strategic services cooperation to include market-critical airframe and engine products

VAS Aero Services, a global leader in aviation logistics and aftermarket services, and Satair, an Airbus wholly-owned subsidiary, announced that they are expanding their strategic services agreement covering servicing, certification, warehousing and distribution of OEM excess parts inventory, with the addition of market-critical engine product types. The strategic services for used and surplus parts programs benefit Satair's global customer base, offering a wide range of opportunities for available parts with VAS' online parts sales platform and the Airbus Spares portal. Additionally, the agreement provides Satair customers with access to VAS-owned certified surplus new and certified serviceable / overhauled used components, and related operational support.

Arago and AVIATAR revolutionize aircraft overhaul processes by using artificial intelligence

Arago, an artificial intelligence (AI) company specializing in intelligent business process automation and AVIATAR, an integrated software platform for digital products and services in the aviation industry, are planning to work together on the progressive automation of the MRO (Maintenance, Repair and Overhaul) process. A pilot project will therefore be launched in the Base Maintenance division of Lufthansa Technik, using Arago's AI-platform HIRO™. The HIRO™ AI platform enables autonomous process automation by leveraging algorithms that apply human expertise to determine solutions, and by retaining that knowledge to solve similar new challenges. Users benefit not only from outstanding automation rates, but also from significant cost savings and the continuation of their expert knowledge. With the help of HIRO™, the planning and production expertise used for the current planning process is digitized and centralized in the pilot. This will enable the introduction of a newly automated planning approach with considerable potential for reducing the turnaround times for the entire Lufthansa Technik overhaul network.

Honeywell selects GKN Fokker as global channel partner

GKN Fokker has signed an agreement with Honeywell to provide customers with component maintenance, repair and overhaul services for avionics and mechanical components. Customers will have access to Honeywell's world-class avionics and mechanical solutions at GKN's Fokker Services' facilities in the Netherlands, U.S. and Singapore. As a long-standing member of the extended Honeywell family, GKN Fokker can now provide OEM based support with Honeywell's licensed parts and solutions for maintenance, repairs and overhaul, enabling customers to reduce turnaround time on maintenance. With this agreement, customers will benefit from first-rate experience with legacy and mature platforms and from a high standard of repairs as a licensed facility. Honeywell-equipped aircraft will receive high-quality Honeywell parts from local Fokker service centers at a competitive price, enhancing efficiency while reducing costs for operators. As an approved Repair Center, GKN Fokker will provide customers with flexible, reliable and competitive OEM solutions to airlines operating Bombardier, CRJ and Dash 8 families, ATR42/72 families, Airbus A300 and A320 families, Boeing 717/737/747/757/767 series families, as well as Fokker families.

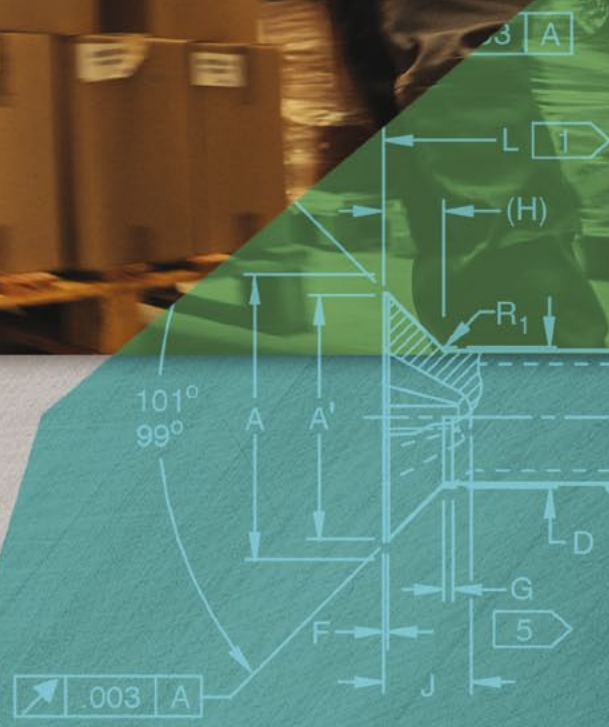
Alaska Airlines selects STG Aerospace for new cabin re-branding

STG Aerospace has been selected as the supplier for the photoluminescent emergency floor path marking system across Alaska Airlines' Boeing and Airbus fleets, as the airline begins to streamline the cabins of its Virgin America fleet. Alaska Airlines will install STG Aerospace's next-generation saf-Tglo® SSUL photoluminescent emergency escape path marking system (EEPMS) on 116 aircraft across its retrofitted and new Boeing 737-700, MAX9 and Airbus A320 Family fleets. Alaska Airlines will also replace the electrical emergency lighting system in the Airbus fleet, a change expected to realise significant operational cost savings due to the high reliability and fail-safe nature of saf-Tglo®. The retrofit program is due to commence in late 2018.

Av8 PMA expands operations with new dedicated engineering facility

Av8 PMA, a leader in the reverse engineering, certification and manufacturing of PMA aircraft parts, will expand its current operation by adding a 3,320 ft² facility in Dallas, TX, dedicated to the company's engineering activities. The new location is scheduled to be operational this month. The facility will act exclusively as an engineering facility, handling engineering and certification work for PMA. Additionally, the space will have on-site laser scanners, a 3-D printer, and other high-powered equipment that will increase efficiencies related to the reverse engineering process of parts and prototype development. The Dallas location will provide engineering work for clients within all segments of the aviation industry. "This facility is the culmination of almost a year's work to elevate our in-house engineering and certification capabilities to the next level and better position ourselves for future growth," said Yoel Arnoni, Principal, Av8 PMA.

So much more than hardware.



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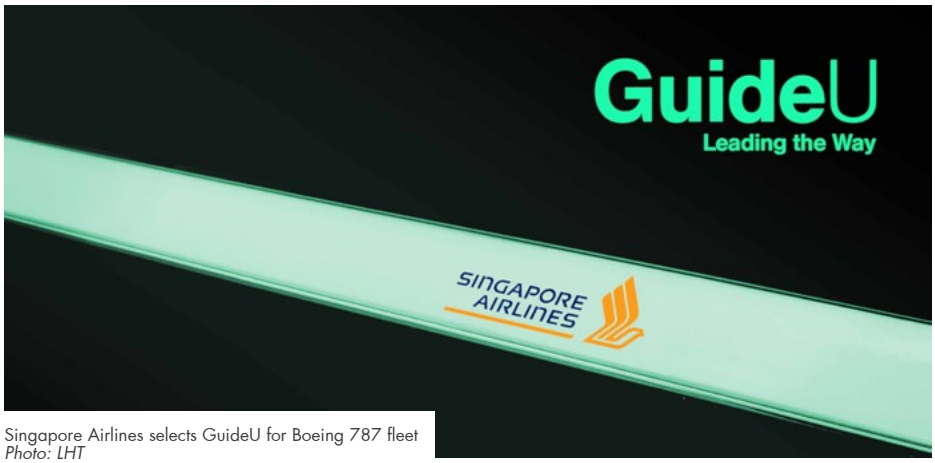


Singapore Airlines selects GuideU for Boeing 787 fleet
Photo: LHT

Singapore Airlines selects GuideU for Boeing 787 fleet

Singapore Airlines has chosen Lufthansa Technik's GuideU 1000-Series emergency floor path marking system to be installed into its new Boeing 787-10 fleet. A total of 49 aircraft of this type are scheduled to be delivered to Singapore's flag carrier from the first quarter of 2018. Singapore Airlines already relies on GuideU for its Airbus A350 fleet. The GuideU 1000-Series is the next-generation non-electrical floor path marking system, using photoluminescent strips to guide passengers to the exits if cabin lighting fails. GuideU 1000-Series is available in many different colors that can be integrated into any cabin design, making it almost invisible under normal lighting conditions. Fillers in various sizes allow adapting the light strip assembly height to different carpets.

Czech Airlines Technics receives maintenance certificate for aircraft operated by Chinese airlines

Czech Airlines Technics (CSAT), a daughter company of the Czech Aeroholding Group providing aircraft repair and maintenance services, has received the approval of the Civil Aviation Administration of China (CAAC) to perform Line Maintenance services for Chinese airlines. CSAT's employees can now verify aircraft post-maintenance airworthiness without having to request the presence of the official airline technician. At this point, the certificate covers the Line Maintenance of Airbus A330, Boeing 767 and 777 operated by China Eastern Airlines in general. This type of maintenance of aircraft is performed either on a regular basis (e.g. daily or weekly), or ad hoc. It includes a thorough aircraft check, the refilling of all fluids, the completion of minor repairs, the checking of individual aircraft parts and an evaluation of whether or not an aircraft is fully functional and flight ready. The certification process before the Chinese office took over a year and a half. During that time, it was necessary to draft and present the required legal documents pursuant to the Chinese legal system, which were then subjected to a thorough approval process.

Bombardier CRJ900 aircraft in American Eagle colours
Photo: Bombardier

Bombardier and PSA Airlines extend heavy maintenance agreement for CRJ Series aircraft

Bombardier Services Corporation and PSA Airlines of Vandalia, Ohio have signed a three-year extension to the parties' heavy maintenance agreement. Under this contract, heavy maintenance tasks for the airline's fleet of Bombardier CRJ200, CRJ700 and CRJ900 aircraft will be performed at Bombardier's West Virginia Air Center. Bombardier has conducted heavy maintenance for PSA Airlines since 2005. PSA Airlines, a wholly owned subsidiary of American Airlines Group operates a fleet comprised exclusively of 126 CRJ regional jets. The airline operates the aircraft under the American Eagle regional brand.

CAAC issues LEAP-1A Validated Type Certificate

The Civil Aviation Administration of China issued the Validated Type Certificate (VTC) for CFM International's LEAP-1A engine on March 30, 2018, a critical milestone that paves the way for the Airbus A320neo validated type certification and enabling aircraft operations in China. The document signed by the CAAC validates the original European Aviation Safety Administration (EASA) type certificate issued May 31, 2016 for all LEAP-1A thrust ratings. "This effort is a great example of true cooperation between several different entities," said Gaël Méheust, President and CEO, CFM International. "Teams from both our parent companies worked diligently with the CAAC and EASA to achieve this certification as quickly and efficiently as possible. We are looking forward to our many customers in China reaping all the efficiency and asset utilization benefits the LEAP-1A engine will bring to their operations."

Avianor receives dismantling contract for nine Airbus A310 aircraft

Avianor has been awarded a contract for the dismantling of nine Airbus A310 aircraft. While not part of its regular business of cabin integration and heavy maintenance, Avianor was approached by a long-time client for assistance and agreed to provide the needed support to dismantle these aircraft. Once dismantled, the remaining parts of the fuselage and wings are carefully recycled by Aerocycle, a local company specializing in aircraft demolition. The dismantling started earlier this year and will continue through the remainder of 2018 and into 2019 as the aircraft are retired.

Safran launches NacelleLife™ offering for full jet engine nacelle solution services

Safran Nacelles has unveiled the NacelleLife™ service offering, providing complete coverage of its jet engine nacelle systems – including thrust reversers. This new offering provides tailor-able nacelle services to the requirements of operators, involving any or all steps from preparations for a jetliner's service entry through its retirement from operation. NacelleLife™ is developed for responsive, cost effective and high-quality services that keep airliners in operational condition while minimizing maintenance costs. Focusing on a customer's fleet, the components of NacelleLife™ include initial provisioning assistance and hands-on maintenance coaching for an aircraft's pre-entry phase. This is followed by on-site presence and online access to technical documentation at entry-into-operation; fleet management for operational continuity, along with scheduled and unscheduled maintenance and proactive preparation for scheduled maintenance while in revenue service. Transition support for the phase-out is the last step. "NacelleLife™ brings together the expertise of a world-leading nacelle manufacturer with our proactive, optimized services that anticipate and respond to customers' needs throughout the lifecycle," explained Olivier Savin, Safran Nacelles' Vice President of Customer Support & Services. "It applies to our full range of nacelles, from legacy products to current production and upcoming nacelle systems – including those on the A380, A320neo and A330neo aircraft."

C&L Aerospace signs material support agreement with TAG Airlines

C&L Aerospace, a C&L Aviation Group company, has signed a material support agreement with TAG Airlines for their Embraer 145 and Saab fleet. This new partnership will allow C&L to better support its customers in the Latin American market. "We have seen that the regional airlines businesses are starting to have access to better aircraft in Latin America as market conditions have changed," said Carlos Ordonez, C&L's Director of Business Development in Latin America. "My commitment remains to be able to understand the customer needs in the region and to align them with the full regional aircraft support that C&L offers." C&L Aviation has been in the Saab 340 business for more than 20 years and is recognized as a world leader in the regional aircraft market. C&L entered the ERJ market several years ago and continues to see considerable growth in those areas. In addition to the material support agreement, TAG Airlines has also hired C&L for its paint services.

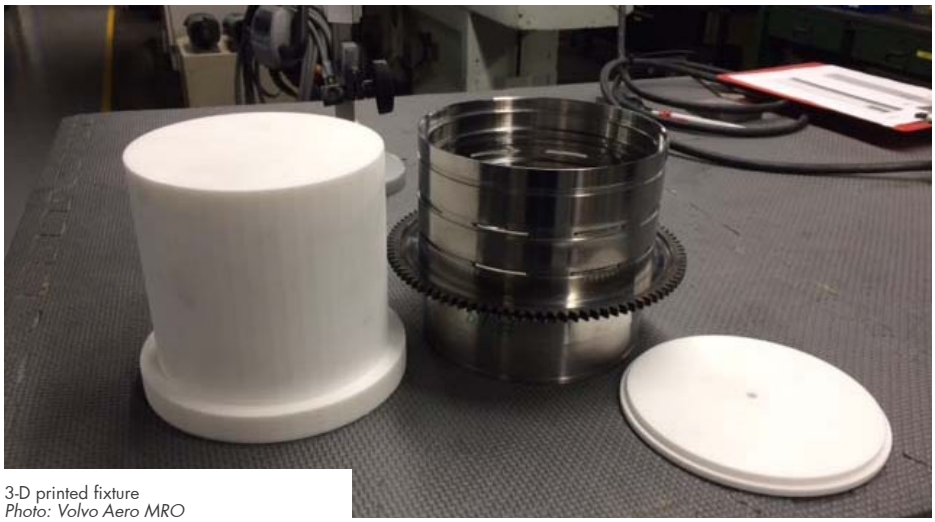
Universal Asset Management to fully recycle carbon fiber from commercial aircraft

Universal Asset Management (UAM) has completely recycled carbon fiber from commercial aircraft. This monumental milestone in sustainability firmly entrenches UAM as a

global leader in complete aircraft recycling. To illustrate this achievement, UAM will present a 3-D-printed engine stand manufactured from carbon fiber reinforced polymer (CFRP) from commercial aircraft at the three-day MRO Americas conference. The resulting second-generation carbon fiber material is fit as a raw resource for industrial use. As such, it becomes a feasible supply for advanced additive manufacturing supply chains, utilized by automotive and other manufacturing industries in need of cost-competitive carbon fiber. Of all the structural elements comprising an aircraft, carbon fiber is the most arduous to recycle. Efforts during the past fifteen years have not yielded a viable solution that wholly completes the circular economy of carbon fiber back into manufacturing. It is with vigor that UAM undertook the challenge. Now, its success opens the door to possibilities even beyond aviation, while paving the way to total aircraft recyclability. UAM's proprietary engineering in the use of CFRP from retired aircraft is a harbinger of future products under development by UAM's Innovation Technology Team. CFRP use is on the rise, as today's modern aircraft are now made of approximately 50% composite material, compared to aircraft from the 1970's which were manufactured with less than 1% of carbon-based materials. The increasing availability of composites in younger retiring aircraft is an opportunity that is leveraged with UAM's proprietary techniques. The UAM design team is led by Keri Wright, Chief Executive Officer. CFRP was collected through UAM's proprietary process, filtered for purity and refined into pellets, to therefore be used as raw material for 3-D-printing. The innovative and bold process applies material science and advanced manufacturing techniques pioneered by UAM's Innovation Technology Team. By proving that aviation components can be reborn out of composites from end-of-life aircraft, UAM has taken the technical to technology. Options for the >12,000 aircraft being retired in the next 20 years are boundless with this advancement. The successful delivery of the engine stand is tangible proof of the viability of using sustainable, digital manufacturing solutions in the aviation industry. UAM will be discussing recycling opportunities and benefits with both aviation and non-aviation companies in the months following MRO Americas.

China Southern Airlines first to select business class humidification on A350XWB

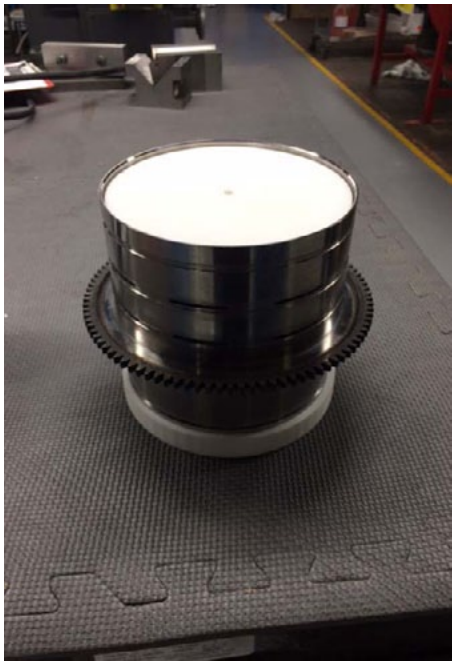
CTT SYSTEMS AB (CTT), a market leader of aircraft humidity control systems, has unveiled China Southern Airlines as the previously undisclosed airline that selected the A350XWB optional Inflight Humidification system, first ever to be fitted in business class. Increased humidity is essential in offering a cabin climate that makes passengers feel more balanced and at ease during long-haul flights. In the humidified business class cabin, passengers will more easily remain hydrated, aiding quality of sleep and reducing jet lag. China Southern Airlines has selected SFE humidifiers on all of its 20 A350-900 aircraft on order. China Southern pilots, crew and passengers will all benefit from a dedicated humidifier in the flight deck, in both crew rest stations and three in the large business class cabin. First entry into commercial service is scheduled for mid-2019.



3-D printed fixture
Photo: Volvo Aero MRO

Volvo Aero MRO to develop piece part fixturing from 3-D printed processes

Volvo Aero MRO has begun working with the University of Massachusetts Life Science Laboratories facility. Its Additive Fabrications department is to develop piece part fixturing from 3-D printed processes. The first fixture under development is being manufactured using the selective laser sintering (SLS) method. The aim of the project is to develop the process and knowledge of printing fixtures directly from CAD to end product within acceptable tolerances and with reduced time and costs compared to conventional fixture manufacturing. As a small business, Volvo Aero MRO is constantly looking at ways to use technology in an innovative way to improve its ability to compete in the global market.



Rolls-Royce selects StandardAero for 20-year MRO Services Agreement for AE 2100, AE 1107 and T56 Series IV engines

StandardAero has signed a 20-year Memorandum of Agreement (MOA) with Rolls-Royce to provide maintenance, repair and overhaul (MRO) services for the AE 2100, AE 1107 and T56 Series IV engine models through the year 2038. The MOA, with a projected value exceeding US$15bn over the twenty-year period, designates StandardAero as the primary provider of MRO services, following a competitive bidding process within the Rolls-Royce Authorized Maintenance Center (AMC) networks. The agreement significantly grows work currently conducted by StandardAero on the Rolls-Royce AE 2100 and T56 engines and provides a high level of new volume for the company on the AE 1107 engine. Overall, the new agreement also expands the scope of StandardAero's MRO support for Rolls-Royce military engine product lines and customers. StandardAero will service these engines at its San Antonio, Texas; Maryville, Tennessee, and Winnipeg, Manitoba Canada facilities. The extension into these locations also includes the modification of engine test cells to provide full-service MRO capabilities across the company's North America facilities.

New North American facility to focus on Aerospace sub-system testing

A new facility has been developed in Michigan to help the aerospace industry with specialist testing requirements. Developed and operated by Drive System Design Inc, the North American subsidiary of UK-based driveline engineering consultancy Drive System Design, the facility will offer a unique approach to the design, test and development of various sub-systems in the aerospace industry. "As aircraft become more complex, so does the testing required to validate it. As a result we have seen an increase in demand for specialist testing expertise," says Jon Brentnall, President DSD Inc. "Our parent company has developed what we believe is Europe's most advanced, commercially-available development center for gearbox efficiency, with many test systems designed in-house to ensure that areas that have not previously received sufficient attention can now be investigated. It is our intention to build similar test capability tailored to the North American market." The facility will initially house a loaded gearbox efficiency test rig and will be developed throughout the year to finally include three pieces of gearbox test equipment. The current rig, which is fully operational, is suitable for various applications, such as layshaft and planetary gearboxes for APU's and landing gear applications. Further expansion throughout the year will include a hydraulic test stand for hydraulic valve body development and a dynamic tilt rig, which provides enhanced lubrication flow analysis capability. "This will require a larger facility in the area, which we are already investigating," says Brentnall. "We are delighted to be offering this opportunity for the automotive industry in North America, but also for aspiring engineers looking for their next challenge – the initial expansion has already generated nine engineering vacancies." The new facility will also include extensive customer accessibility, allowing DSD's engineers to work closely with its customers throughout design, development and validation programs.

AAR signs agreement with AMETEK for civil aerospace markets

AAR has announced that its OEM Aftermarket Solutions group has signed an exclusive agreement with Power and Data Systems (PDS) of AMETEK Aerospace & Defense to be its exclusive global aftermarket distributor supporting commercial, regional transport and helicopter markets. The AMETEK products covered by the global agreement are specifically for foreign and domestic aircraft and include power distribution units, starter generators, generator control units, primary and secondary power distribution, solid-state power controllers and relays, remote control circuit breakers, arc fault protection, brushless motors, pump motors, actuators, cockpit instruments, data acquisition units, engine interface units, bus protocol converters, and engine monitoring systems. "We are excited to expand our existing military relationship with AMETEK PDS into a commercial market partnership as well," said Eric Young, Senior Vice President, AAR OEM Aftermarket Solutions.

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Vietnam Airlines and AFI KLM E&M have signed a long-term flight hour support contract covering GEnx engines
Photo: AFI KLM E&M

AFI KLM E&M and Vietnam Airlines sign GEnx support contract

AFI KLM E&M and Vietnam Airlines have signed a long-term flight hour support contract covering the GEnx engines equipping the Vietnamese flag carrier's fleet of Boeing 787s, which will grow to 19 Aircraft by 2021. The signing ceremony was witnessed by General Secretary of the Communist Party of Vietnam Nguyen Phu Trong and President of the National Assembly of France Francois de Rugy. Under this contract, AFM KLM E&M will handle maintenance of Vietnam Airlines' 787 GEnx engines for 12 years. AFI KLM E&M also provides spare engine access for Vietnam Airlines to guarantee seamless continuity of its operations.

Aero Mechanical Industries rebrands as AerSale Component Solutions®

AerSale®, a global supplier of mid-life aircraft, engines, used serviceable material, and maintenance, repair, and overhaul (MRO) services, has reported the rebranding of its Aero Mechanical Industries facility in Rio Rancho, New Mexico, to AerSale Component Solutions. Specializing in the MRO of composite and mechanical airframe components, AerSale Component Solutions provides a wide range of innovative, high-quality component overhaul and aircraft component repair solutions developed to meet or exceed OEM standards. These services are fully supported with a large inventory of aircraft spares, loaners and exchange units. The company is located in the Albuquerque area, New Mexico's largest city, and features a 100,000-ft^2 aircraft repair facility with five adjoining work stations. A team of over 35 aerospace professionals and mechanics handles airframe component and structures repair and overhaul, composite flight surfaces, sheet metal, structures, nacelles, mechanical component repairs, full Level III NDT services, certified welding, brush cadmium plating, and aluminum flame spray. AerSale acquired Aero Mechanical Industries in 2015.

Boeing expands services engagement in Latin America with GOL Airlines and Aeromexico

Boeing is expanding its commercial services capability in Latin America with new customer orders from GOL Airlines to use Boeing's Airplane Health Management for its 737 MAX fleet and from Aeromexico to use Boeing's landing gear exchange program for its 787 fleet. According to Boeing's 2017 Services Market Outlook, the Latin American commercial aviation services market is currently growing at five percent per year. Boeing expects the total aviation support and services market in the region to be worth US$530bn by 2036. GOL Linhas Aereas S.A., Brazil's largest domestic carrier, signed an agreement adding Airplane Health Management to its 737 MAX fleet. GOL will take delivery of its first new 737 MAX 8 starting this year. Employing Airplane Health Management will empower GOL to improve MAX fleet management, especially on its international expansion. Aeromexico, the largest airline in Mexico, operates one of the most technologically advanced fleets in the region and is a leading regional operator of the 787 Dreamliner. It will use Boeing's Landing Gear Overhaul and Exchange Program for 17 aircraft in its 787 fleet, as well as AOG access. Through the program, operators receive an overhauled and recertified landing gear from an exchange pool maintained by Boeing, with stocked components and supporting parts shipping within 24 hours. Aeromexico will also start using AerData's Engine Fleet Planning and Costing tool for its Boeing fleet, which helps customers optimize engine maintenance planning, engine spares availability and budgets. Using Boeing AnalytX capabilities, the tool analyzes in hours what typically takes an airline weeks to examine using other methods.

Spirit AeroSystems unveils fabrication center of excellence grand opening at McAlester, Okla., site

Spirit AeroSystems has unveiled its second center of excellence focusing on the fabrication of complex commercial and military aircraft parts. The facility, located at the company's McAlester, Okla., site, will support current customer contracts while accommodating new work in the global aerostructures market. "We announced plans last year to create a three- and four-axis fabrication center of excellence to support the growth of our fabrication capabilities to a billion-dollar business for the company," said Spirit President and CEO Tom Gentile. "Rather than moving work to Mexico, we imported 18 new machines from a shop in Juarez, Mexico. We began producing parts for customers in McAlester last year, and the site has capacity to bring in more machines as demand increases." The purchase and installation of new equipment began in 2017, augmenting the company's existing capabilities as one of the world's largest fabricators of aerospace parts. Since production began, more than half of the 1,000 parts scheduled for production in McAlester have been through their first article inspection. The new McAlester center specializes in small- to medium-sized parts and will generate millions of dollars in new revenue for Spirit.

FL Technics lands WOW Air as new client

FL Technics, a global provider of integrated aircraft maintenance, repair and overhaul services, has signed an agreement with WOW Air for base maintenance services. The first two Airbus A321 aircraft have already arrived at FL Technics facilities for the base maintenance projects. WOW Air is an Icelandic low-cost carrier focusing on transatlantic flights and based at Keflavík International Airport. It is a rapidly growing company, operating 15 Airbus A320s family and three Airbus A330s aircraft, having an average fleet age of around three years. The company also has four new Airbus airliners on order.

New brand: MTU Power
Photo: MTU

MTU Power: New brand for gas turbine business

MTU Aero Engines AG has launched a new brand to improve transparency in services for gas turbine customers. The new brand is called MTU Power and consolidates the existing gas turbine engineering, manufacturing and aftermarket expertise and services from the business units' Aero Solutions, Brush Seals and MTU Maintenance at MTU. The overall aim is to harmonize the extensive experience, in-depth knowledge and creative, never-give-up mentality within the company and bring its services even closer to the customer. MTU Power was launched on March 19, at the Western Turbine Users, Inc. (WTUI) in Palm Springs, California, the largest General Electric aero-derivative LM series conference and gathering worldwide. MTU has wide-ranging capabilities within the industrial gas turbine sector – from research and development to manufacturing and certification. At the WTUI, the focus is on the aftermarket, where MTU with its brand MTU Power is the largest independent provider for flexible and cost-efficient maintenance, repair and overhaul solutions for GE LM2500, LM5000 and LM6000 turbines and their packages. MTU Power, previously working as part of MTU Maintenance, has carried out more than 1,300 LM shop visits in its over-36-year history. Of all licensed depots, MTU has under its brand MTU Power, the widest range of GE LM sub systems in its portfolio (47) and tests under real load conditions.
The business unit known as Aero Solutions is specialized in development, testing, design optimization and manufacturing of turbines and compressors for original equipment manufacturers. Aero Solutions markets MTU's engineering and manufacturing facilities to third-party customers, allowing them to benefit from industry leading experts and cutting-edge technological expertise in their own projects. Aero Solutions will also become part of the MTU Power brand. In addition, MTU has a dedicated, and world-leading brush seals team that has been developing innovative turbomachine seals for over thirty years. The unit will also belong to the range of services offered under the brand MTU Power. Brush seals are made up of thousands of thin bristles fixed together using core wire and a clamping tube to form a flexible seal. This method greatly outperforms conventional sealing systems, such as labyrinth seals. MTU has established itself as a global leader in the field. Brush seals are used, for instance, in bearing chambers, shafts, inter stages, balance pistons, and as static seals in gas and steam turbines and compressors – including, more recently, for Organic Rankine Cycle (ORC) turbines, subsea compressors and unusual applications such as Formula 1 race cars and 3-D Selective Laser Melting (SLM) machines. As part of the MTU Aero Engines Group, MTU Power is at home in the aviation world, where the highest technological and quality standards are the norm. The company group operates a global service network with locations in the Americas, Europe and Asia-Pacific. More than 10,000 employees from over 50 nationalities are dedicated to serving MTU's customers. The business units mentioned will present as a brand, but will continue to operate under their existing legal entities and segments in financial reporting.

CAAC approval for maintenance work on Boeing 737-700s and 737-800s for LHT in Hamburg

Lufthansa Technik AG's Hamburg site has received approval from the Civil Aviation Administration of China (CAAC) as a maintenance organization for Boeing 737-700 and 737-800 aircraft. This decision means additional order potential for the VIP & Special Mission Aircraft Services division, since the very popular Boeing Business Jets are based on these aircraft types. With this CAAC approval, both classic BBJs (Boeing 737-700) and BBJ2s (737-800) can be looked after in Hamburg in the future, from simple maintenance tasks to aircraft modification and all the way to major overhauls. For instance, these aircraft can now be equipped with state-of-the-art communications technology.

C&L Aerospace signs distributor agreement with CSI Tubes

C&L Aerospace, a C&L Aviation Group company, has signed an agreement with CSI, a HEICO company, to serve as a distributor for Saab 340 Pitot Static Tubes overhauled to like-new factory specs. This new offering will bring significant cost savings to Saab 340 operators. Restored Pitot Tubes come with the same 18-month warranty and reliable performance. To overhaul the Pitot Tubes, CSI replaces all major components, disassembles the probe using a specially developed process, and installs newly fabricated parts before reassembling the probe. The resulting airworthy conditioned Pitot Tubes come with dual release 8130 tags.

AAR signs component Repair, License & Parts Supply agreements with Honeywell

AAR, a global leader in aviation services, has signed a long-term Repair and Overhaul License agreement along with a Parts Supply agreement with Honeywell Aerospace. AAR will be providing repairs of over 1,800 Honeywell base part number and line replacements unit (LRU) repair items in AAR's New York and Amsterdam component repair

shops. To support those component repairs, AAR will source over 4,000 material supply piece part items from Honeywell, who will also provide repair and overhaul of LRUs to support AAR's growing flight-hour component support programs for airline fleets worldwide. The agreement covers various platforms including pneumatics, hydraulics, and power generation for Boeing, Airbus and regional commercial fleet types. These combined agreements make AAR a long-term Channel Partner to help grow and maintain the Honeywell products throughout the globe.

Tunisair selects AFI KLM E&M for CFM56-5A, -5B & -7B engine support

In late December 2017, AFI KLM E&M and Tunisair signed a new Time & Material engine support contract covering the CFM56-5A, CFM56-5B and CFM56-7B engines powering the Tunisair fleet of sixteen Airbus A320s, four A319s and seven Boeing 737s. The Tunisian flag carrier had launched a call for tenders in late 2016 aimed at selecting two MRO suppliers for each engine type. Following the consultation, AFI KLM E&M was the sole candidate to be selected to handle all three engine types simultaneously. In the framework of the contract, AFI KLM E&M again demonstrated its adaptability and ability to offer its customers tailored, rapid-turnaround solutions. For example, at the request of Tunisair, the MRO was able to deal with a one-off commission to return four CFM56-5A engines (to be used in support of the Tunisian carrier's summer season schedule) to serviceable condition. A first engine has already been returned to service thanks to the intervention of an AFI KLM E&M technical team in Tunis. Two others are now undergoing repairs at the AFI KLM E&M shop in Paris, and the fourth is currently being transported to the facility.

Magnetic MRO enters into wide-body aircraft maintenance market

Magnetic MRO has completed a major milestone and is fully authorized to provide line maintenance services for the Airbus A330 family of aircraft. The total technical care, maintenance and asset management organization has further expanded its line maintenance capabilities following its Part 145 Approval being upgraded on March 22, 2018. The approval covers all three engine types used on Airbus A330 Family aircraft: Rolls-Royce, Pratt & Whitney and GE Aviation. Magnetic MRO, along with its sub-brands and group companies, is continuously expanding their market presence and competence range. "It is a long-awaited and meticulously planned first of many steps in our wide-body capability plans," said Risto Mäeots, CEO of Magnetic MRO. "Our recent expansion to East Asian markets and already existing line maintenance stations in certain strategic European airports give us a strong competitive advantage supported by our total technical care partner attitude." The company will keep investing in the wide-body market in order to provide an even more comprehensive and flexible technical support service to its customers at large international airports. Along with the latest addition, Magnetic MRO line and base maintenance capabilities now cover A330 Family, A320ceo/neo Family, Boeing 737CL/NG, CRJ-700/-900NG, ERJ-170/-190, SAAB 340 and ATR 42/72 aircraft.

SSAMC inaugurates new MRO facility

Sichuan Services Aero Engine Maintenance Company (SSAMC), the joint venture between Air China and CFM International (CFM), has inaugurated a new 43,880 ft² facility expanding its maintenance, repair, and overhaul capability for CFM56 and LEAP engines to 300 engines per year. The brand-new facility, located in the Chengdu Free Trade Zone, benefits from the latest standards in terms of equipment and layout, is the largest CFM engine maintenance facility in Asia. SSAMC was officially established as a 60/40 joint venture between Air China and CFM in 2010. Since then, the company has serviced more than 1,000 CFM56-3, CFM56-5B, and CFM56-7 engines for more than 40 customers throughout China and Asia.

Lufthansa Technik expands component maintenance for Jet Airways

Lufthansa Technik AG and the Indian international carrier Jet Airways have expanded their cooperation. Representatives of both companies signed a Total Component Maintenance (TCM) contract for Jet Airways' narrow-body fleet of 80 Boeing 737NGs, with single components repaired in a closed-loop and flat-rate-based process. In addition, the existing Total Component Support (TCS®) contract for Jet Airways' wide-body fleet was extended by another seven years. The contract comprises an extensive component pooling-based support for ten Boeing 777 and eight Airbus A330 aircraft. Amit Agarwal, Deputy Chief Executive Officer, Jet Airways said: "As India's premier international airline, Jet Airways follows a stringent selection process for service providers. We are pleased to expand the scope of our ongoing relationship with Lufthansa Technik to include our Boeing 737NG fleet, in addition to our A330 and 777 fleets, for which they have been a reliable component supplier for many years. We look forward to an excellent partnership with them."

HAECO ITM signs agreement with ASL Airlines for inventory technical management support

HAECO ITM, a member of the HAECO Group, has reached an agreement with ASL Airlines (Ireland) to provide inventory technical management support for the company's three Airbus A330-300 passenger-to-freighter (PTF) aircraft operating out of Hong Kong. The scope of the agreement includes access to HAECO ITM's component pool, component exchange, component repair management, component engineering and AOG support in accordance with the guaranteed delivery time and service level. Thanks to HAECO ITM's commitment to providing customized and cost-effective solutions, ASL Airlines will benefit from a tailored inventory management program, allowing them to focus on their operations. Brendan Smyth, Director of Engineering of ASL Airlines, said: "The entry-into-service of the first A330-300 PTF conversion is a very exciting project. We are delighted to have the support of HAECO ITM in making it a success."

FL Technics lands Corendon Dutch Airlines as a new client

FL Technics, a global provider of integrated aircraft maintenance, repair and overhaul services, has signed an agreement with Corendon Dutch Airlines for base maintenance services for their fleet of three aircraft. Corendon Dutch Airlines is the Dutch airline of the Corendon Travel Group which started operations under its own air operator certificate in April 2011. It takes passengers to destinations in Europe and North Africa.

StandardAero achieves EASA AMO certification for South African PT6A engine MRO facility

Vector Aerospace Africa, a StandardAero company located in Lanseria, Johannesburg, South Africa, has secured European Aviation Safety Agency (EASA) aircraft maintenance organization (AMO) certification for its engine maintenance, repair and overhaul (MRO) facility. Opened in 2010 and located at Lan-

seria International Airport, the shop is a Pratt & Whitney Canada (P&WC) PT6A Designated Overhaul Facility (DOF) with distributorship rights. The newly awarded AMO certification from EASA adds to a long list of existing approvals for the Lanseria facility, which already holds authorizations from the South Africa Civil Aviation Authority (CAA) and Transport Canada (TCCA). The facility also holds local AMO approvals from the civil aviation authorities of Angola, Botswana, Kenya, Namibia, Zambia and Zimbabwe.

MTU Maintenance and Tunisair Technics sign CFM56 engine maintenance contract

MTU Maintenance and its new customer Tunisair Technics, have signed a five-year maintenance agreement for the airline's CFM56-5B/-7B engines. The contract covers maintenance, repair and overhaul, on-site services and spare engine leasing support. Tunisair is the Tunisian flag carrier and Tunisair Technics is part of Group Tunisair. The airline operates a fleet of 29 aircraft and routes within the Middle East, North Africa, West Africa and Europe, as well as an international route to Canada. Tunisair was founded in 1948 and operates out of Tunis Carthage International Airport. MTU Maintenance has been overhauling CFM56 engines for over 18 years. The company performs around 175 shop visits per year on the engine family at its locations in Hannover (Germany), Vancouver (Canada) and Zhuhai (China).

Finance News

Jet Aviation acquires Hawker Pacific in US$250m deal *Photo: Jet Aviation*

Jet Aviation agrees to acquire Hawker Pacific in US$250m deal

Aviation has signed a binding agreement to acquire Hawker Pacific for US$250 million. Commenting on the deal, Rob Smith, president of Jet Aviation commented: "The acquisition of Hawker Pacific represents a significant step in expanding our footprint, capability and customer offer across Asia Pacific and the Middle East. Hawker Pacific has a wide range of services including Civil MRO, Fleet Services, FBO Network and Aircraft Sales, enabling Jet Aviation to further expand its current portfolio, enter new markets, and reinforce the company's position as one of the world's leading business aviation service providers." Jet Aviation is a Basel-based business aviation services company and a wholly owned subsidiary of General Dynamics, employing over 4,000 staff in 30 airports throughout North and South America, Europe, the Middle East and Asia. The company is involved in aircraft maintenance, completions and refurbishment, engineering, fixed-base operations, along with aircraft management, charter services. It's U.S. and European charter divisions operate a combined fleet of over 250 aircraft. Hawker Pacific is the market leader in integrated civil and military aerospace sales and product support in the Asia Pacific and Middle East. It operates established businesses in Australia, New Zealand, Singapore, Malaysia, Philippines, China and the United Arab Emirates. It supports a wide range of fixed wing aircraft and helicopters for corporate, charter, defence and special mission operators.

Safran and GO CAPITAL invest in Turbotech

Safran, through its subsidiary Safran Corporate Ventures, and GO CAPITAL have taken a stake in the company Turbotech. Turbotech offers a range of turbine engines for light aircraft (turboprops and turbo-electric generators), based on innovative regenerative cycle turbines. Featuring its patented heat exchanger technology, Turbotech's products combine reliability, exceptional performance, low fuel consumption, low acoustic signature and minimal operating costs. Turbotech has facilities in Brittany and the greater Paris area. It was founded by four partners, all former employees of Safran, and is directed by Damien Fauvet. Another company, Le Guellec Tubes & Profilés, is also a shareholder and provides industrial support.
Safran Corporate Ventures took part in a round of funding worth €3m, alongside GO CAPITAL Amorçage II, a technology seed fund for western France. Along with this investment, Nicolas Franck of Safran Corporate Ventures and Jérôme Guéret of GO CAPITAL will be joining the company's Strategy Committee. This round of funding will enable Turbotech to finalize the development of its products and introduce them on the market starting in 2019. Turbotech will be the first company to sell a high-performance hybrid propulsion system in the general aviation, heavy drone and on-demand air mobility markets. The electric version will give hybrid propulsion aircraft several hours of endurance.

Woodward buys L'Orange from Rolls-Royce in £610m deal

In a move to further shore up its balance sheet, Rolls-Royce has agreed to sell its subsidiary fuel injection technology firm, L'Orange, to Colorado-based Woodward in a £610m (US$860m) deal. The transaction should be completed by the end of September this year. According to Rolls-Royce, the sale of L'Orange will "improve resilience" of the balance sheet, with the extra capital being used "to pursue opportunities that will drive greater returns". With a workforce of over 1,000 employees, L'Orange is responsible for manufacturing fuel injection products in areas including marine power and propulsion systems. Last year the operation achieved sales in the order of £212m (US$299m).
Colorado-based Woodward designs and manufactures control systems and components for the aerospace and industrial sectors and, on the basis the deal is approved by regulators, the new company will be called Woodward L'Orange. Rolls-Royce, which employs approximately 50,000 staff spread out through 50 countries, an-

nounced a return to profit in March. It recorded a pre-tax surplus of £4.9bn for 2017, predominantly thanks to a £2.6bn (US$3.67bn) accounting boost from the strengthening of the Brexit-hit pound.

Liebherr Group posts 2017 net income of €331 million

In 2017, the Liebherr Group achieved the highest turnover in the Group's history, with total sales of € 9,845 million. Compared to the previous year, the family-run company increased its revenue by 9.3%. The Group is expecting further sales growth for 2018. The Liebherr Group posted a net result of €331m for the year. Compared to the previous year, this represents an increase of €33m or 11.1%. In the reporting year, there was a significant improvement in the operating result. Following the positive effects of currency movements in the previous year, the financial result, on the other hand, fell sharply. (€1.00 = US$1.23 at time of publication.)

Elbit Systems completes acquisition of Universal Avionics

Elbit Systems has announced the completion of its acquisition of Universal Avionics Systems Corporation (UA). As a wholly owned subsidiary of Elbit Systems, the company will lead commercial sales in North America for Elbit Systems' Aerospace Division's Commercial Aviation Business Line. "Combining our product offering with Elbit Systems' strengthens our position in the market," said Paul DeHerrera, UA Chief Executive Officer. "Our vision is to be the premier cockpit avionics supplier for the commercial aviation market, providing a fully integrated 'heads-up' and 'heads-down' experience for pilots by combining Elbit's commercial HUD (Head-up Display) technology with UA's FMS and display systems," he added. "Our complete solution will support forward-fit and retrofit aircraft including fixed-wing and helicopters." Elbit Systems' acquisition of UA brings forward an innovative opportunity to the market that until now, hadn't existed. The marketplace can expect new commercial avionics technology offerings as two product lines combine to create some of the most forward-thinking technology in cockpit avionics.

SR Technics closes US$110m senior multicurrency revolving credit facility

MRO service provider SR Technics has successfully closed a US$110m senior multicurrency revolving credit facility (RCF) in cooperation with a group of leading Swiss banks. The RCF contains


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the option to increase to US$150m. SR Technics is ready to seize the current strong momentum in the MRO market and is exploring opportunities to expand its services further, especially in engine services. The ring-fenced RCF will be used to provide the required liquidity for capital expenditures and to finance further growth in the working-capital-intensive business that SR Technics is engaged in. Sven Kussmann, Chief Financial Officer, said: "The deal was underwritten by four major Swiss banks which have been cooperating with SR Technics for many years and is proof to us of mutual trust and partnership. Our strong brand with decades of Swiss-made MRO experience, our well-known capabilities and experienced employees are the grounds to this partnership. The capital secured is important to strengthen our position as a leading global MRO provider offering world-class total care capability."

Willis Lease Finance Corporation reports 50% growth in annual pre-tax profit to US$36.0m

Willis Lease Finance Corporation has reported 50.4% growth in annual pre-tax income to US$36.0m, from US$23.9m in 2016, and recorded total revenues of US$274.8m. The Company's 2017 pre-tax results were driven by solid revenue growth in the core leasing business and a significant increase in spare parts and equipment sales. Aggregate lease rent and maintenance reserve revenues of US$210.6m were driven by a 90% average utilization of a lease portfolio that grew 18.1% to US$1.34bn at year-end. Spare parts and equipment sales grew 189% on a year over year basis. Net income attributable to common shareholders grew 338% to US$60.3m for the year, or to US$9.69 of diluted weighted average earnings per common share. The positive tax effects of the Tax Cuts and Jobs Act of 2017 contributed US$43.6m to its 2017 after-tax income. "2017 was our most profitable year on a pre-tax basis since 2008, with record revenues" said Charles F. Willis, Chairman and CEO. "Utilization of our lease portfolio remains high due in part to robust maintenance activity on engine types we support, including some older engine types many thought would have been retired long ago. Last year was also important for us from a capital perspective as we were successful in closing our WEST III asset-backed securitization and a second round of preferred equity."

Avolon announces closing of US$768.4m Fixed Rate Secured Notes

Avolon, the international aircraft leasing company, has released that Sapphire Aviation Finance I Limited and Sapphire Aviation Finance I (US) LLC (collectively the "Issuers" or "SAPA 2018-1"), newly established special-purpose companies, closed a total of US$768.4m of Fixed Rate Secured Notes (the "Issue"). The Issue comprised US$633m of 4.250% Series A Fixed Rate Secured Notes (the "Series A Notes") issued at a 4.30% yield; US$97m of 5.926% Series B Fixed Rate Secured Notes (the "Series B Notes") issued at a 6.00% yield; and US$38.38 million of 7.385% Series C Fixed Rate Secured Notes (the "Series C Notes") issued at a 7.50% yield (collectively, the "Notes"). The Issuers also offered E Notes and S Certificates (together the "Equity Notes") representing the equity interest in SAPA 2018-1, the majority of which were purchased by a third party and a minority of which were purchased by Avolon. The Notes are backed by a portfolio of 41 aircraft, with an appraised value of US$962.4m, which will be acquired by SAPA 2018-1 from Avolon using the proceeds of the issuance. The Portfolio comprises a mix of narrow-body and twin-aisle aircraft leased to 30 lessees based in 19 countries. As of February 9, 2018 the Portfolio had an average weighted age of 12 years. Avolon will act as servicer with respect to the Portfolio and any additional aircraft acquired by the Issuers.

RUAG reports growth in sales and order backlog, but lower profit

RUAG has reported net sales of CHF1,955m (previous year: CHF1,858m) and once again topped its record prior-year performance – this time by 5.2%. However, the international technology group was unable to uphold last year's record result. Earnings before interest and taxes (EBIT) fell to CHF119m (CHF151m) and net profit to CHF89m (CHF116m). The order backlog at the end of 2017 was a high CHF1,607m (CHF1,556m). RUAG is proposing that a dividend of CHF40m (CHF47m) be paid to the Swiss Confederation. (CHF 1.00 = US$1.06 at time of publication.)

Component Control has released Quantum MobileTech™ v2.1 which will extend the Mobile Solution Suite of the Quantum Control family of aviation software solutions for MRO's, distributors and logistics management companies. The new release of MobileTech adds upgraded features to the core functionality of Labor Recording, Reserving Inventory and Managing Work Order Tasks by adding Electronic Signoff and the Mobile Management of Non-routine Tasks, Work Instructions, BoM's, Notes, and Statuses. "The real-time data provides us with accurate forecasting as to labor cost and enables us to better queue our work groups so that we know precisely when material will move from station to station," said Ken Wierzba, a 16-year veteran of aviation MRO services at **SAFRAN**. "This also helps with overall planning for work in process, materials and issuing to jobs. Another advantage is being able to know exactly where on the floor the product is located, who is working on it and its current status."

China Eastern Airlines (CEA) and **GE Aviation** have reached an agreement to provide a comprehensive digital analytics solution for the CEA fleet of more than 700 aircraft over the next three years. GE Aviation and CEA started their digital collaboration in 2013. As part of the agreement, GE Aviation will provide digital analytics based on GE's big data platform that will define in-depth digital cooperation between the two companies for the next three years. The agreement covers more than 50 digital service projects spanning engine and aircraft maintenance, flight safety, operational efficiency, and marketing/revenue analytics.

easyJet has signed a five-year agreement with **Airbus** to provide predictive maintenance services for its entire fleet of approaching 300 aircraft. The technology relies on Airbus' Skywise data platform which will allow easyJet's engineers to intervene early and replace parts before a component's failure, thereby preventing passengers from experiencing flight delays and cancellations. Tom Enders, Airbus Chief Executive Officer, commented: "Our Skywise trial with easyJet over the past three years has been tremendously successful, demonstrating significant gains in operational performance through predictive maintenance. We are delighted to further cement our collaboration by extending this trail-blazing technology to easyJet's entire A320 Family fleet." The new technology builds on extensive trials of the Skywise platform allowing easyJet to remove components before faults occur, thus enabling more flights to operate on schedule. Skywise can now analyze data from other components on easyJet's aircraft thanks to the installation of Airbus' newly released flight operations and maintenance exchanger FOMAX – which collects 60-times more data than existing systems. The new equipment will be fitted on the whole of easyJet's fleet by summer 2019.

With billions of dollars in transactions under our belt, GA Telesis has become world renowned for its creative and flexible lease and transaction structures.

Whether you are seeking an operating lease of one of our aircraft or engines, or perhaps you are seeking a sale/leaseback of one of your aircraft, engines or rotable inventory; contact one of our industry experts and ask them about our custom tailored financial solutions.

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Getting smart, with parts

Smaller, leaner inventories offer savings for both new and ageing aircraft. *Photo: CSAT*

Aircraft operators are increasingly seeking solutions that will make spare parts management more efficient and cost effective. **Keith Mwanalushi** looks at how the industry is responding to calls for reduced inventory levels.

Spare parts inventory management is central to the operational efficiency of an airline, and it is critical to have the right part at the right time and to plan the inventory accordingly.

Via dedicated sales and customer service teams, AJW for instance offers fully flexible and competitive supply options, power-by-the-hour (PBH) agreements and component repair solutions that allow airlines to minimise their own spare parts inventory.

Darren Spiegel, VP OEM Aftermarket Solutions at AAR

"One trend we have observed is airlines working towards reducing and maintaining smaller inventories without impacting on service levels," states Tom De Geytere, Chief Sales Officer, AJW Group. "Airlines are also using new technologies for the tracking of repairs and logistics, to manage their inventory more effectively."

Airlines have also turned to AAR for onsite consignment stock and assistance with inventory planning. Darren Spiegel, Vice President, OEM Aftermarket Solutions, AAR says on select components, AAR can either provide stock on site, or at one of their global distribution sites for just-in-time support.

"For airlines that want comprehensive component support for specific fleets, third-party providers like AAR also provide integrated solutions that offer not just access to rotable parts pools but also management of component repair and warranties," Spiegel tells.

The traditional airline model has in the past meant that capital was locked-up in slow-moving and expensive inventories.

"Inefficiencies occur for airlines when their supply chains and inventories are managed in isolation. Over inflated RSPL's (Recommended Spare Part List) and key performance indicators around dispatch reliability can lead to excess inventory holding. The larger the inventory, the safer management teams feel. This has a ripple effect financially and leads to significant capital expenditure and bloated balance sheets," De Geytere continues.

Tom De Geytere, Chief Sales Officer, AJW Group

Airlines face the greatest cost increases due to the lack of spares. *Photo: CSAT*

He adds that the concept of owning and controlling their own inventories is part of a legacy mind set - "It is also an expensive and inefficient way to support a fleet."

Martin Houska, Head of Procurement at Czech Airlines Technics

Martin Houska, Head of Procurement at Czech Airlines Technics feels that, at this point, new solutions and digitalisation are of utmost importance, commonly referred to as Industry 4.0. New technologies, such as RFID, can track inventory.

He says automation of every individual procedure in the managing parts area, starting from receiving and stocking inventory to the final expedition is a challenge.

Airlines want to reduce cost by having smaller inventories, he states, there are certain ways, such as VMIs (Vendor Management Inventory), of achieving this goal. "However, I believe that airlines face the greatest cost increases due to the lack of spares and aircraft on ground (AoG) as a result. Using new technologies for predicting future consumption, airlines are able to optimise stock to a point where they can avoid additional cost," says Houska.

Moreover, inventory cost must be calculated based on total cost of ownership (TCO) as there are different results of calculations focused on cost of inventory from cashflow point of view and yet different, when you calculate cost of parts including the risk of grounding the aircraft. "Most vendors propose the mentioned programme for high removals of parts, but the key issue remains the question of how to manage parts with low utilisation or no movement but high risk of AoG situations," Houska adds.

In terms of trends in spare parts inventory management, Abdol Moabery President and CEO at GA Telesis (GAT) reckons there are three distinct strategies at play here that are operationally, financially, and digitally or rather data driven. He says the airline industry has lagged other industries as it relates to managing inventory levels for a multitude of reasons, but primarily because many airlines have had legacy systems and procedures that are unique to each operator and for a long time they were hamstrung by this.

"Then you couple in airline consolidation and the complexities became even more of a burden inventory-wise. However, over the past five or six years there has been a quantum leave as it relates to inventory management."

Abdol Moabery, President and CEO at GA Telesis

Moabery says the efficiency of cost-per-hour type programmes, inventory leasing and data driven just-in-time inventory management are the key drivers that will dominate the future of airline inventory management.

When it comes to airlines wanting to reduce costs by having smaller inventories Moabery argues that it isn't a question of having a small inventory, it is rather a question, of how an airline manages its operation with little to no inventory cost.

"Remember, it isn't owning the inventory that matters, but rather having access to it when the airline needs it.GA Telesis has made significant advancements in this regard and continues to lead the market with these innovations."

Daniel Stromski, Executive General Manager at Haeco ITM

Daniel Stromski, Executive General Manager at HAECO ITM Limited feels the key for efficient parts inventory management is controlling the supply chain of turning unserviceable components into serviceable components – "There are many factors which play a critical role."

Stromski explains that while the shop processing time ('SPT') of repair shops and OEMs is crucial and needs to be constantly monitored, the industry tends to neglect the transit time of components. "Transit time is not only the time the component is being shipped to or from the repair shop but should also consider the time needed to make the component ready for shipment or the time for the receiving process of the serviceable component."

He says the industry is constantly pressuring the repair stations to reduce the SPT to a minimum but if airlines or pooling providers do not control the transit time, especially their own dispatch and receiving processes, the advantage of a swift SPT is quickly absorbed by inefficiencies in the remaining supply chain. "I believe that there is still a lot of value to be gained within the industry."

Stromski emphasises that pooling is an ideal way to reduce inventory costs. He says Line Replaceable Units [LRUs] are getting more and more capital intensive. "Inventory management is not rocket science but if airlines want to keep control of their inventory I strongly suggest putting the right amount of resources and know-how into this task to control the supply chain, component engineering, float management, and so on."

Daniel Adamski, Executive Vice President – Distribution at Kellstrom

Daniel Adamski, Executive Vice President – Distribution at Kellstrom says airlines can achieve meaningful inventory reductions through partnership with an aftermarket channel partner, with whom they can contract for a performance-based outcome given forecasted inventory demand and a contractual commitment to purchase.

"The key to a successful partnership is the ability of the airline to share master consumption data and forecasting information allowing the aftermarket channel partner to make good material provisioning decisions," says Adamski.

Kellstrom Aerospace applies a practical approach to ensure the right blend of inventory whereby OEM parts are often supplemented by rotable components in OHC condition with exchange options to give operators choice and cost saving options while enjoying OEM quality repairs and exchanges. Adamski indicates that Kellstrom Aerospace 's approach is to offer complementary products and services and customer-focused solutions in every area of the aftermarket.

Tinalee Smallhorne, Senior Director Aftermarket Sales Americas & Israel, KLX Aerospace Solutions.

Historically spare parts inventory management has been a highly reactive business. KLX Aerospace Solutions is experiencing an industry wide trend in proactively managing spare parts with improved data from new tech aircraft and much improved analytics comments Tinalee Smallhorne, Senior Director Aftermarket Sales Americas and Israel at KLX Aerospace Solutions. "KLX has 40 years of MRO and airline historical data that is used to do predictive analysis to better prepare for change in industry trends."

Smallhorne highlights that a great way to help reduce cost and working capital is better inventory management and that KLX has numerous services and solutions to support the aftermarket. With these solutions in place, KLX can reduce on hand inventory for an airline or MRO to as little as 30 days and take over the responsibility for part planning.

She reminds that an excess of spare parts inventory leads to a high holding cost and impedes cash flows, but inadequate spare parts can result in costly flight cancellations or delays with a negative impact on airline performance. "It is important to find an appropriate inventory model to achieve a right balance."

David Rushe, Director, Sales & Marketing, Europe at Magellan

One of the key trends observed in the aftermarket over the past few years has been the use of "Big Data" as a tool to incorporate more efficient inventory management strategies. As David Rushe, Director, Sales and Marketing, Europe at Megallan states, aircraft spare parts, depending on several reliability factors, have either on-condition or hard-time maintenance intervals.

"The huge volume of data being fed back to operators, OEMs and MROs from modern aircraft, such as the Boeing 787 and Airbus A350 and A380, is helping to determine the most efficient removal intervals for spare parts," declares Rushe.

In time, Rushe predicts such data will get assimilated into revised maintenance check intervals, contributing to more efficient aircraft utilisation and minimised downtime. "What operators ideally want is reduced, predictable spare parts spend. Whereas aftermarket rota-

ble parts can generate savings of up to 50% versus new parts in an airframe heavy check, operators are seeking further savings through minimised stock holdings."

A trend also developed in the last decade or so as Rushe describes, is whereby operators, OEMs and MRO organisations are disassembling aircraft themselves. He says operators such as British Airways, Delta and Turkish Airlines have torn down aircraft to support or "harvest" their own internal spare parts requirement. Airframe, engine and component OEMs as well as independent MROs have also pursued this strategy as a cost-effective way of supporting their customers.

Smaller, leaner inventories offer savings for both new and ageing aircraft, best evidenced by the flight hour agreement and pooling strategies. "In a scenario where five operators have small A320 fleets in the same geographical region, it clearly makes sense to pool the spare parts requirements of the individual operators at one location. Obviously, operators will want to keep certain stock at their main base and outstations. It must also be noted that in such combined pool locations, the reliability of AOG support is of paramount importance," notes Rushe.

Gintautas Gruodis, Head of Sales, Magnetic MRO

Gintautas Gruodis, Head of Sales at Magnetic MRO has similar views saying new model aircraft come together with the "Internet of Things" industry, which together with smart IT solutions and analysis tools allows aircraft owners predict future needs of spare parts, by not keeping them in stock for long periods at the same time freezing money.

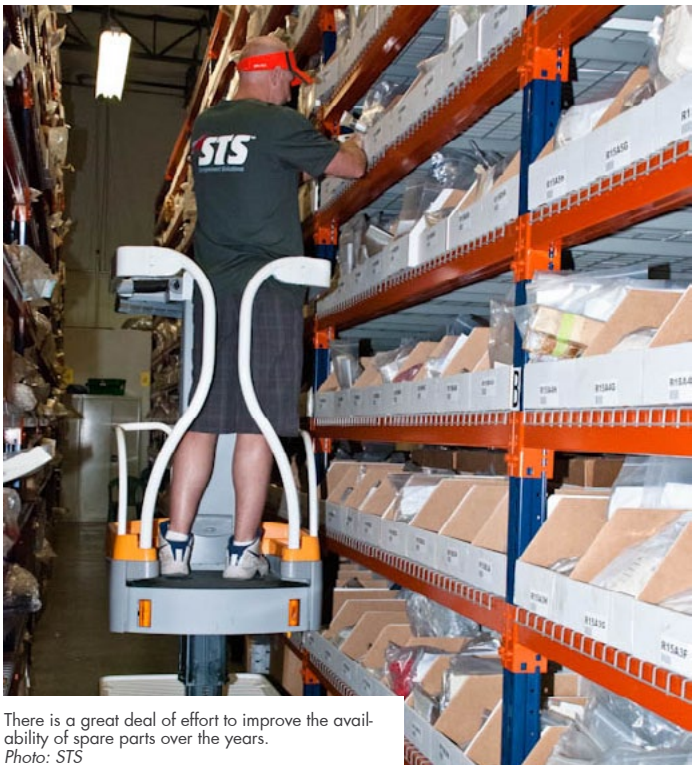
"Furthermore, OEMs now also offer solutions where together with purchased aircraft you get long service agreements in some cases for 10 years or more, so new aircraft owners can concentrate only on their core business, carrying passengers or delivering goods, by leaving the rest to manufacturers. These trends also influence independent spare parts suppliers."

Gruodis insists its also vital for suppliers to invest in IT solutions to be able to manage inventories effectively, for example allowing their customers place quick orders online from any part of the world.

Tom Covella, Group President of STS Component Solutions

There has been a great deal of efforts to improve the availability of spare parts over the years, agrees Tom Covella, Group President of STS Component Solutions. "We have seen specific trends on both ends of the spectrum" he notes.

The most obvious has been the paradigm shift whereby the airlines have transferred a great deal of the ownership to the OEMs and third-party suppliers. "This is a trend that has continued to grow over the past 3 to 5 years and I do not see this changing anytime soon."



There is a great deal of effort to improve the availability of spare parts over the years.
Photo: STS

The second trend as Covella explains, is the increased involvement in the airframe and engine OEMs and "system integrators" to support these spare parts requirements. He says both Airbus and Boeing have implanted themselves in this market and have established stand- alone entities to support this market and have taken a greater initiative to being engaged.

"The last major trend that we have seen is the growing importance of data analytics in the forecasting and trending in spare parts management. This is an area that STS has made a great deal of investment in and we utilise these tools to develop our inventory and forecasting models."

Covella says there are several ways in which airlines can reduce inventory costs. "Obviously the most effective is to drive this cost of ownership down to the OEMs whenever possible." He reveals that the second approach is to establish Consignment Stock via Vendor Managed Inventory programmes. "This allows the airline to gain immediate access to operational stock inventory with reduced transactional costs and consolidated freight. This has become a very common approach and STS is very active in establishing and managing these types of value-added programmes."

Mike Cazaz, CEO and President of Werner Aero Services also sums up by pointing to better technology, i.e. better and improved software and secondly, a shift on behalf of airlines to third party management to improve inventory management.

Cazaz advises airlines to simply do what they do best – fly passengers and provision their support to third parties and pay on a monthly or hourly usage basis. "They basically get to assign the inventory management, including stock levels, repairs, modifications, ADs and so on to a professional provider. In most cases, this has proven to improve the bottom line," he concludes.

Beyond support

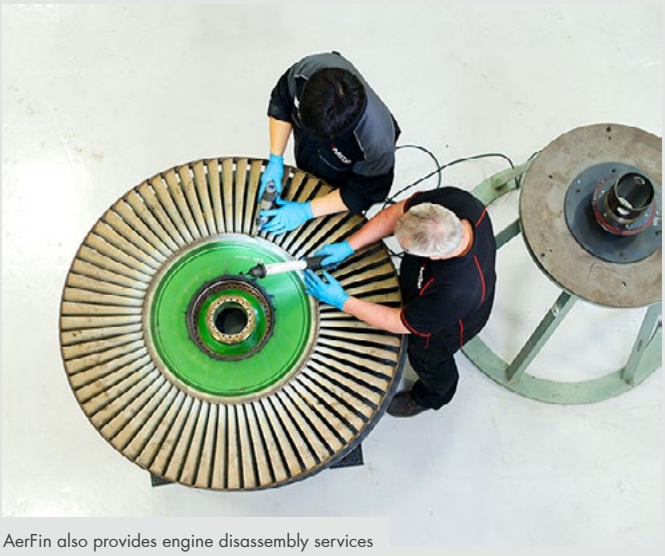
AerFin Ltd specialises in aircraft end of life solutions, using our extensive inventory holding to support our airline and MRO customer base with quality used material to reduce maintenance costs whilst maintaining the quality and integrity of the asset.

With a particular focus on regional Embraer jets as well as narrow-body Airbus and Boeing aircraft, our portfolio of services range from Power By the Hour (PBH) support packages for airlines, 24/7 AOG support from both our London and Singapore based distribution centres, engine leasing, innovative material supply programmes for MROs including our Beyond.Fleet.Services™ programme in conjunction with SR Technics. AerFin also provides engine disassembly services for CFM and RR engines from our 100,000sqft UK based technical facility.

In 2014, CarVal Investors became a major shareholder in AerFin Holdings Ltd. AerFin and CarVal Investors have a common vision to establish AerFin as a leading global provider of aircraft, engine and component supply chain solutions.

In September 2015, AerFin acquired the trade and assets of Airline Services Components Ltd to expand our portfolio of aircraft component solutions, from Wheel & Brake CPAL (cost per aircraft landing) and PBH programmes to component repair management and inventory pooling. Not only does this give AerFin a nose-to-tail solution for our customer base, but the acquisition also allows AerFin to support our global customer base of airlines and maintenance providers 24/7, 365 days a year.

At the end of 2017 AerFin was named as The Sunday Times Virgin Fast Track 100 fastest growing private UK company. This growth has been driven by its expanding product offerings and trading across a wide spectrum of products, WB, NB and regional jets. It is seeing further strong growth in 2018 through the general trading of parts and engines to now include the stub leasing of entire aircraft. AerFin is also expanding its wider product offering through some clearly branded service solutions. Its Beyond Pool solution was selected by BA Cityflyer and sees AerFin support the airline's 21 strong e-Jet fleet. AerFin will continue to expand its service solutions through 2018 and beyond, having identified a clear market requirement for quality solutions that can be competitively priced.



AerFin also provides engine disassembly services

The Beyond Pool solution was selected by BA Cityflyer

In the hot seat.....

Justin Blockley, Commercial Director, British International Industries (Bii.aero)

AviTrader MRO: Can you briefly tell us how Bii came about?

Blockley: Bii was founded in 1976; our Chairman Christopher Cradock bought the name British International Industries for his growing export trading business. We originally traded in generating sets for power supply, but quickly Bii was contracted to provide standby power for an overseas military airport, and from this we began to concentrate on the military marketplace supplying spare parts to old Nato aircraft-Hunter such as Canberra, Harrier and Jaguar. This worked well for us for several decades but over the past few years our business strategy has altered and we are now focusing on the commercial aviation market.

AviTrader MRO: What are your current capabilities in terms of components and MRO?

Blockley: We manage component supply, repair and servicing requirements for international airline customers, operating modern Airbus and Boeing aircraft including 737NG/747/757/767 and RJ inventory. Our team focuses on maintaining component performance and reliability. We work closely with our repair vendors to consistently improve component performance, reduce aircraft downtime and always ensure compliance to our high quality standards.

AviTrader MRO: Bii is evolving from a military spares provider to focus on the commercial market. What led to the change in strategy?

Blockley: When I initially joined Bii in 2015 the company was primarily focusing on military spares, but as the most successful business models were concentrating on the commercial spare parts sector so I decided to set up a new business team to develop Bii's services for the commercial market. It was evident that these global air forces operating Hunter, Canberra, Harrier and Jaguar aircraft were increasingly re-equipping with Russian and Chinese aircraft and led to a steady decline in our military component sales and support. Being so close to Gatwick and Heathrow is also a huge benefit for us and our commercial airline customers so the change in strategy from military to commercial has driven a multi-million dollar turnover that is steadily growing.

AviTrader MRO: How can airlines, especially start-ups ensure a cost-effective spares inventory system?

Blockley: Many airlines are now choosing to consign their excess stock to Bii. They reduce their own inventory levels confident that we can manage scrappage, repairs and realisation of dollars on their behalf. Pooling is particularly effective when airlines look to cut costs and reduce their inventory. The current trend is to now share component pools, or outsource rotable programmes. This method is popular with start-up airlines because it ensures that operators lessen the need to the carry excess inventory previously needed to safeguard repair turnaround cycle times and ensure dispatch reliability. Now spares providers like Bii who can offer 24/7 global AOG support provide this reassurance.

AviTrader MRO: The 747-400 has reached a crucial phase in its career. How do you gauge the market for spares demand and availability for the type?

Blockley: The 747-400 is highly capable of moving 660 passengers in a two-class layout and has a max payload for cargo of 112,760. There are currently over 400 aircraft remaining in service globally and the 747 has fallen into a specific market from a spares support opinion. Through several consignees and Bii's owned stock, we specialise in having 'ready to go' rotables for this platform.

AviTrader MRO: It's stated that Bii specialises in stock appraisal and the realisation of profitable returns – What does this mean for the customer?

Blockley: Once an airline consigns their excess stock to Bii, we will sell excess, manage the stock for repair, and establish loan/exchange pools on behalf of the consignee. Our fair and collaborative business terms ensure that our customers get the best deal when they choose to consign their stock to us over other aircraft spare parts suppliers. Although currently many companies are using advanced technology to commodify the provision of spares, we realise that the most important aspect is to build relationships with our customers and apply a personal touch to each customer transaction. Some examples of the returns we have delivered include: 78% return achieved for Boeing 737NG and a 72% payback for RJ/BAE 146.

Justin Blockley, Commercial Director at Bii

AviTrader MRO: What's next in the pipeline at Bii?

Blockley: Over the coming months we will be focusing on further streamlining of our global repair vendor supply chain and reinforcing our presence in the Asian-Pacific region. We see this area as consistently growing and Bii are currently considering opening an office in Singapore. We aim to have representation in key parts of Asia including warehousing for stock. Face to face relationships are at the core of Bii's business ethos so we also plan to continue sending our highly experienced sales agents to a range of countries as a way to acquire new business and maintain existing relationships with customers worldwide. Bii is always open to new business opportunities and we will continue signing new contracts with airlines and increasing our inventory, we particularly want to focus on consigning more stock in the next few months.

To improve aircraft maintenance, use not-so-big data

Aircraft like the A350, are throwing off terabytes of health-monitoring data. *Photo: Airbus*

By Samuel Engel and Bill Collins, ICF Aviation

At the annual gathering of aircraft maintenance professionals at MRO Americas, several of the speakers were talking about the Big Data revolution in aircraft maintenance. New generation aircraft, such as the Boeing 787 and Airbus A350, are throwing off terabytes of health-monitoring data — real-time tracking of over 100,000 operational parameters throughout the flight. Everybody agrees the data is mighty, but few understand how to harness it.

So far, it is principally the big manufacturers who have invested in big data analytics platforms. They benefit from being able to look at global fleet trends and have financial exposure to aircraft health in the form of power-by-the-hour maintenance contracts, many of which effectively provide airlines with a 50,000-mile warranty for a fixed price. However, all this data has been worth very little to any one airline. In many cases, it has even forced airlines to add costs when the IT systems they use to manage aircraft maintenance can't handle the new requirements.

In general, airlines and MROs have been sitting on a different kind of aircraft health data for years. These include maintenance records, technicians' log notes and component failure rates. Compared to high-tech aircraft health monitoring, the actual data is not-so-big. But it has power today that can be extracted with a few techniques borrowed from the artificial intelligence toolkit combined with thoughtful queries — what you might call expert analytics.

For many years, airlines have been required to monitor the failure trends of each aircraft part (system or component) to identify vulnerabilities. If you observe that the seals on a hydraulic pump have failed early on five of your aircraft, for example, you would be wise to inspect seals on the remaining aircraft pretty quickly. Conversely, if you can demonstrate that actuators have consistently endured longer than expected, you can request permission from the regulator to inspect them less often, so your aircraft will spend more time flying and less time in the hangar.

These so-called "reliability programmes" (or "continuing airworthiness" under the parallel European structure), have been in place for many years. They are valuable but somewhat formulaic, focused more on measuring outcomes (failures) rather than tracking the cause of the failures. With the right approaches, however, it is now possible to correlate inputs with outputs using data the airlines already have on-hand.

In recent efforts to reduce the duration of shop visits, we have identified predictors of defects that make it possible to convert future unscheduled maintenance into scheduled maintenance that poses lower cost and less disruption. Much of the variability in the duration of a routine shop visit comes from unplanned maintenance that is uncovered during routine inspections, which puts technicians on the back foot if they have not provisioned the right parts, tooling or expertise.

At a minimum, anticipating unscheduled tasks makes it possible to provision and plan, which shortens the duration of shop visits. In other cases, if you can anticipate future failures, you can inspect for them sooner and prevent non-routine maintenance in the first place. Using on-hand data to predict maintenance requirements and anticipate potential failures improves aircraft reliability and operational performance.

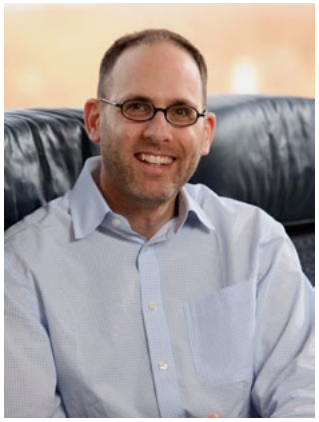
For example, by searching through maintenance logs for words like "corrosion," we have been able to identify areas where a little attention today

Big Data Analytics require expertise and management.
Photo: Lufthansa

saves days of tear-down and repair work in a future heavy maintenance check. Doing so saves days of labour – a significant cost reduction measure. Limiting the amount of required maintenance with data-informed service also returns the aircraft to revenue service much sooner.

This example is early-stage expert analytics, where professional experience guides what trends to search for and analyze. This judgment-based approach, where a deep understanding of maintaining aircraft is the guide to looking for clues, has allowed us to reduce check times by up to 10% in many single item improvement cases. When several small-data items are corrected in unison, check spans can be reduced by greater than 40%.

It is possible to go farther, however. By taking advantage of deep learning algorithms, it is possible to identify the precursors of significant drivers of labour, span increases and turn-around-time without necessarily knowing in advance what the key predictor will be. Enabled by the parallel processing power of GPU chips, deep learning algorithms can ask the system to hunt for patterns by itself and propose correlations. But because correlation does not prove causality, it still requires expert judgment to interpret which results really drive maintenance requirements and what to do about it.



Samuel Engel, ICF Aviation

Although we're talking about not-so-big data, natural language processing is one additional Big Data capability that is especially valuable. Maintenance logs are written by human beings, with all the variety that implies. Artificial intelligence helps translate many different ways of describing a single condition into a common cluster that supports trend analysis. Without this capability, you need to rely on shop-floor techs to write notes exactly as prescribed, which is challenging at best. In addition, where task cards have not yet been automated, the tools of Big Data are valuable to digitise handwritten notes.

As with most applications of Big Data Analytics, the technology itself will not deliver results: it requires expertise and management. At the outset, it can be a seismic culture change to encourage techs to note observations, provide timely input and support a programme that is ultimately designed to reduce the demand for their own labour. Here, it is especially compelling to define the programme in terms of benefits to safety and reliability, which it is.

In addition, it is critical to follow through with incremental adjustments to the maintenance programme, which is to say using the data to change the schedule of checks, inspections and mandated activities. Increasing the intervals between checks or the time between changing out components translates directly to cost savings, but changes to the intervals don't happen by themselves. Committed engineers need to use the data to propose, manage and make changes in the maintenance programme, which generates the enduring benefit.

Bill Collins, ICF Aviation

More than anything, however, our approach supports a longer transformation from reactive to predictive maintenance. Most of us have been raised and trained to react to the situation in front of us. Aircraft and engine techs are rewarded for how well they can diagnose and response to grounded aircraft today. The most efficient aircraft maintenance, however, anticipates future situations and addresses them in advance, using data to inform a better plan. Taking advantage of not-so-big data is a key step in this transformation that delivers immediate results across the MRO industry.

For contact, ICF Aviation Twitter handle: @ICFAviation


Neil Russell

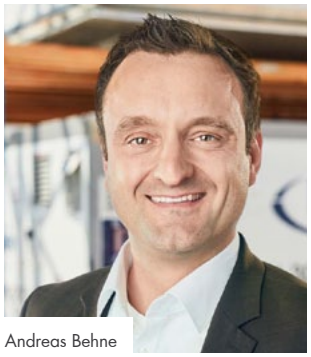

Rune Veenstra

Engine MRO specialists, Aero Norway AS has appointed two new members to their senior management team. **Neil Russell** will undertake the role of Chief Operating Officer and **Rune Veenstra** is the new Chief Business Officer. These appointments are part of Aero Norway's refreshed management structure which will see Russell and Veenstra act as divisional directors under CEO, **Glenford Marston**. Russell's appointment follows a seven-year career with TechnipFMC where six of those were spent as Engineering, Production & Supply Chain Director. In his new role, Russell will largely be responsible for growing the business, improving efficiency and increasing profitability in line with the company strategy. Veenstra will be joining Aero Norway after five years as Managing Director at Heli-One Norway, a helicopter MRO Company, and six years at Norsea AS, the oil service company. As Chief Business Officer at Aero Norway, Veenstra will work closely with Neil Russell to drive business growth and increase market share; he will also be accountable for the development of the Company and commercial strategies.

Cadence Aerospace, a provider of highly complex aerospace components and assemblies to commercial and defense customers, has appointed **Thomas C. Hutton** as Chief Executive Officer and **Dennis J. Orzel** as Chief Operating Officer. **Ron Case**, who has served as the Company's CEO since 2014, plans to retire later this month. Hutton joins Cadence Aerospace after having served as Chief Executive Officer of PAS Technologies, a provider of cost-effective original equipment manufacturing and maintenance, repair, and overhaul (MRO) products, services and solutions for the commercial and military aerospace, industrial gas turbine and oil and gas markets.

Husam Zayed has informed Joramco of his intention to retire from his position as Chief Commercial Officer effective April 1, 2018. Husam joined Joramco in 2011 and during his tenure, he assisted in turning Joramco into a leading profitable third-party MRO. Under his leadership he has cemented a clear customer footprint in the key markets of the Middle East, Europe and Asia, in addition to securing long-term partnerships with strategic partners for the future.

IBA, the independent aviation advisory and aircraft appraisal firm, has appointed **Dr Stuart Hatcher** to the role of Chief Operating Officer. Dr Hatcher joined IBA in 2005 and was previously Chief Intelligence Officer responsible for IBA's valuations, modelling and intelligence activity – analyzing the market and trade information, to refine IBA's valuations and opinions on market trends and their effect on the industry. He has been responsible for developing IBA.iQ, the new online analysis platform offering essential market intelligence for aircraft operators and the global aviation leasing and finance community. Dr Hatcher holds a Ph.D. in Chemistry, as well as being a Senior ISTAT Certified Appraiser.


Andreas Behne

DoKaSch Temperature Solutions has named **Andreas Behne** as new Global Sales Director. Since March 1, 2018, Behne has been in charge of the newly created position to further expand the Opticooler's use in Europe and beyond. Behne reports directly to the managing director, **Andreas Seitz**. Behne has been working in leading positions in international logistics for more than a decade, managing sales for temperature-sensitive shipments for logistics providers such as Dachser and Nagel Group. DoKaSch Temperature Solutions is the Germany-based provider of the Opticooler, climate-controlled air cargo container.

Other News

Inmarsat has signed a deal with low-cost Indonesian airline **Citilink**. The deal has been signed in partnership with **Lufthansa Technik**, **Lufthansa Systems** and Indonesian tech company **Mahata Aero Teknologi** and will see a retrofit of 50 of Citilink's Airbus A320s with Inmarsat's GX Aviation in-flight broadband service.

Turkish Technic and **HAVELSAN** have signed a Memorandum of Understanding with Inmarsat on the development of integrated in-flight connectivity and entertainment solutions. As part of the collaboration, the three companies will offer a joint solution for emerging markets, which integrates **Inmarsat's** award-winning GX Aviation inflight broadband solution with the Turkish Technic-HAVELSAN in-flight entertainment system.

Avianor and **Lufthansa Technik** of Hamburg, Germany have signed a Cooperation Agreement. The agreement provides Avianor with access to Lufthansa Technik's Base Maintenance modular services in the areas of Planning, Engineering, Materials, Logistics and Benchmark performance data. With Lufthansa Technik's centralized Base Maintenance Services Avianor can benefit from the data and the experience of thousands of aircraft maintenance events. Therewith, Avianor increases its quotation accuracy and has the potential to greatly improve event TAT due to precise work preparation and enhanced planning and material support. With these resources at its disposal, Avianor can accelerate its growth, increase customer service and quality, and offer clients world-class back office support. "This agreement allows our relatively small MRO to compete more equally with the larger players in our industry," said Earl Diamond, CEO of Avianor. "Being a subscriber to Lufthansa Technik's modular services, Avianor took the first step to be part of Lufthansa Technik's global network. Over the next six months, the roll-out of these new services will be completed. Further developments of already identified potential in other fields of collaboration are planned to widen the range of cooperation in the future.