AviTrader

MRO

November 2014 - www.avitrader.com

THE APPRENTICE

Tooled up and ready to fly

Company Profile
VAS Aero Services

MRO News
from around the world

People on the Move
latest appointments

IBA Analysis

Nurturing young talent

The debate on the academic versus vocational training issue always brings about some interesting responses. Some global regions clearly focus more on academia, but vocational training is getting a greater hearing - and for all the good reasons.

In October British Airways ushered in 74 new apprentices as part of an ongoing programme the airlines sees as vital for tapping talent. The UK flag carrier says apprentices have a significant role to play in shaping the future of British Airways. The airline is in the middle of a £5bn investment programme which will see the introduction of new aircraft, new products and an ever-improving service for customers – all of which require the skills of a world-class engineering team.

Andy Kerswill, British Airways' director of engineering, himself a former engineering apprentice with the airline said: "Every year we recruit many excellent apprentices to join our engineering teams. I'm delighted that 74 new recruits have joined us and I know they will have a fantastic career with British Airways Engineering. They will help make us all stronger as we continue to expand our fleet of aircraft, with ever more technologically advanced systems and cabin products."

Across the Atlantic there seems to be less of an appetite for apprentice schemes in North America compared to Europe and the U.S. media often points to a broad decline in the supply of skilled tradespeople at the MRO level. Doug Russell from Exostar agrees that the situation is serious and that "we're staring into the bright headlight of an oncoming train," on this issue.

Read the full analysis in our cover story.

Happy reading!

Keith Mwanalushi
Editor

Apprenticeships are popular in the UK *Photo: British Airways*

Contents

AVITRADER MRO

Published monthly by

AviTrader Publications Corp.
Suite 305, South Tower
5811 Cooney Road
Richmond, British Columbia V6X 3M1
Canada

Email: p.jorssen@avitrader.com
Tel: +1 (424) 644-6996
www.avitrader.com

Editorial

Keith Mwanalushi, Editor
Email: keith.mwana@avitrader.com
Mobile: +44 (0) 7871 769 151

Design

Volker Dannenmann, Layout & Design
Email: volker@dannenmann.com
Mobile: +34 657 218706

Advertising inquiries

Jenny Falk
Head of Sales & Marketing
Email: jenny.falk@avitrader.com
Tel: +49 (0) 8761 346007

Registration

AviTrader MRO is a subscription-free monthly publication. To receive a copy in your inbox every month, please send an email with the subject "subscribe" to oemmro@avitrader com

Opinion

Please send your comments and queries to editor@avitrader.com

Liebherr to supply engine bleed air system for A330neo
Photo: Liebherr-Aerospace

Liebherr to supply engine bleed air system for the Airbus A330neo

Airbus has selected Liebherr-Aerospace to supply their new generation of electro-pneumatic technology for the bleed air system of the A330neo program. On October 14th, both partners signed the contract in Toulouse. The new generation of electro-pneumatic bleed air system from Liebherr-Aerospace features compact, lightweight and highly reliable bleed valves as well as a pre-cooler with integrated controls. It benefits from Liebherr's experience in bleed air systems – gained through various projects for a wide range of commercial aircraft, in particular on such Airbus aircraft as the A320neo and the A380. The system, which will bring substantial reduction in operating costs and significant increases in reliability, will be developed, qualified and manufactured in Toulouse (France) by Liebherr-Aerospace Toulouse SAS. The first A330neo is due to be delivered in 2017. Liebherr already supplies several key systems and components for the current Airbus Long Range program, e.g. high lift actuation, spoiler and rudder actuation, as well as air conditioning. The A330neo bleed contract contributes to the further consolidation of Liebherr's partnership with Airbus. Photo: Liebherr-Aerospace, Text: Liebherr to supply engine bleed air system for A330neo

Liebherr-Aerospace China obtaines EASA Part-145 approval

Liebherr's Shanghai-based repair station for aerospace products, Liebherr-Aerospace China, has recently obtained its EASA Part-145 approval. The accreditation enables the station to maintain systems, parts and components in the class "Components other than complete engines or APUs", and marks an important milestone for Liebherr-Aerospace in China. The shop offers up to 30 work benches, about 150 m² (1,600 sq ft) storage area for piece parts and line replaceable units as well as areas with state-of-the-art equipment for planning, receiving, cleaning, rework, testing, inspection and shipping. Liebherr-Aerospace China is located on the site of Liebherr Machinery Service (Shanghai). It was set up to offer to airlines based in mainland China repair facilities, and thus to improve component support and repair turn-around times. Liebherr-Aerospace is a leading supplier of systems for the aviation industry.

Thales to equip Lion Air's A320 order with avionics package

Thales will equip its avionics package on all 234 new Airbus A320 fleet purchased by Lion Air. This represents the largest order for Airbus single-aisle aircraft ever placed by Lion Air. Lion Air, who already equips their entire ATR fleet with Thales systems, is Indonesia's largest private airline and one of the fastest growing carriers in South East Asia. The avionics suite fitted on the new planes will include the Thales TopFlight Management System, which, with over 60% market share, is the number one choice for Airbus single-aisle aircraft. The avionics suite equipped on the new A320 fleet will include the ACSS (L-3 & Thales company) T3CAS surveillance platform. Following Airbus's decision to make this a standard surveillance avionics suite for its A320 family, there has been significant interest in this system, particularly in Asia. Lion Air now joins a fast growing list of airlines (including, China Eastern, Air Asia and Cebu Pacific) that have selected this new generation surveillance platform for their fleets.

Aleris Zhenjiang Qualifies to supply COMAC in China for C919 program

Aleris reported that the Commercial Aircraft Corporation of China (COMAC), has qualified the company's new state-of-the-art manufacturing facility in Zhenjiang, China, to supply aluminum plate for COMAC's C919 commercial aircraft program. With this certification, Aleris' Zhenjiang facility becomes a qualified supplier of the 7050, 7075 and 2024 alloy series to COMAC. Aleris is a privately held, global leader in aluminum rolled products and extrusions, aluminum recycling and specification alloy production. Headquartered in Cleveland, Ohio, Aleris operates approximately 40 production facilities in North America, Europe and Asia.

Spirit AeroSystems Europe Repair Station receives FAA certificate

Spirit AeroSystems' Europe Repair Station in Prestwick, Scotland, has received FAA (Federal Aviation Administration) Part 145 Repair Station Certification to perform aircraft maintenance, repair and overhaul. The FAA certification, received Oct. 8th, in addition to the facility's existing EASA (European Aviation Safety Agency) certificate, allows Spirit's Global Customer Support & Services division to work directly with airlines to perform maintenance and repair activity on components; including structures, doors and hatches, and engine/APU. Spirit AeroSystems Global Customer Support & Services also has a repair station in Wichita, Kan. , USA, and the joint venture repair station Taikoo Spirit in Jinjiang, China . As one of the world's largest Tier 1 suppliers of aerospace structures, Spirit's repair station capabilities are supported by extensive engineering design and manufacturing experience.

UTC Aerospace Systems selected by China Airlines to provide wheels and carbon brakes

UTC Aerospace Systems has been selected by China Airlines to supply the wheels and carbon brakes for its fleet of 14 Airbus A350-900 aircraft. The company will provide the equipment through its Landing Systems facility in Troy, Ohio. China Airlines will take delivery of their first A350-900 aircraft in 2016.

Donghai Airlines selects Messier-Bugatti-Dowty wheels and carbon brakes

Donghai Airlines of China has selected Messier-Bugatti-Dowty (Safran) wheels and carbon brakes for its Boeing 737 Next-Generation fleet. The contract covers 19 airplanes for delivery starting in 2015, including two in-service aircraft to be retrofitted. Traditionally specialized in air cargo services, Donghai Airlines began commercial passenger flights in March 2014. Adding these new Boeing 737 Next-Generation twinjets will enable the airline, based in Shenzhen, in southeast China, to expand its network of domestic destinations. Lu Bing, Donghai Airlines Vice President and General Manager of Maintenance Engineering, said: "We chose the reliability of Messier-Bugatti-Dowty carbon brakes to support our entry into the passenger market. Offering superior performance than steel brakes, these carbon brakes clearly reflect our strategy, which is to be recognized for our service quality."

Ameco puts tail dock for airframes into service
Photo: Ameco

Ameco puts tail dock for airframes at 4-bay hangar into service

The first tail dock at Ameco's four-bay hangar was put into service on October 14th. Now 4 stations can provide airframe overhaul with tail dock, for Boeing 747-400, 747-8, 767,777,787, A330 and A340. One Lufthansa Boeing 747 came to Ameco for D check at the same day when the first tail dock was put into service. From this October to next March, 6 Boeing 747s from Lufthansa will be layover at Ameco Beijing for D checks. In 2014 Ameco signed contracts with ACT Airlines and Air Atlanta Icelandic for Boeing 747 C-checks, KLM Royal Dutch Airlines for Boeing 747 D-check, and Austrian Airlines for 6 aircraft C-checks, including 4 Boeing 767s and 2 Boeing 777s. Ameco started to build A330 capabilities since 2012. It already performed four C-checks on 14 A330s from Air China in three years and one A330 from some 3rd-party customer.

Boeing awards AVIC contract for 777 empennage tips

Boeing has awarded a contract to Aviation Industry Corporation of China (AVIC), China's largest state-owned aviation company, to produce composite empennage tips for the 777 beginning in 2017. The new agreement was reached through close collaboration between Boeing, AVIC Shenyang Commercial Aircraft Corporation (SACC) and AVIC International. It builds on the contract Boeing signed with AVIC earlier this year to produce vertical fin and horizontal stabilizer forward torque box panels. Under the contract, workers at SACC will build tips for the 777 vertical fin and horizontal stabilizer at its new facility near the airport in Shenyang, China. Boeing qualified SACC for composite work in July of this year following a comprehensive audit of equipment, workforce and processes. The two companies will also work together in establishing a Manufacturing Innovation Center (MIC) within the SACC facility to enhance the manufacturing and technological capabilities of SACC employees. Boeing and AVIC pioneered the MIC concept in 2012, establishing the first center in Beijing to provide classroom training for AVIC employees on Boeing's successful production methods.

Zhejiang Loong Airlines selects Pratt & Whitney AeroPower for Airbus A320 Family aircraft APU and maintenance support

Pratt & Whitney AeroPower has signed a long-term auxiliary power unit (APU) maintenance support agreement with Zhejiang Loong Airlines for its new fleet of 30 Airbus A320 family aircraft, including nine A320neos. The agreement also covers repair and spares support services. First aircraft deliveries are scheduled to begin in 2015. Pratt & Whitney AeroPower's APS3200 APU is also currently installed on Zhejiang Loong Airlines' existing A320 family of aircraft, and is certified for a 180-minute Extended range Twin Operations (ETOPs) operation. APUs provide secondary power for main engine starting, cabin air conditioning and electric power for aircraft while on the ground. APUs can also provide electric power during in-flight operation.

FL Technics Jets becomes authorized Rockwell Collins dealer

FL Technics Jets, a global provider of tailor-made maintenance, repair and overhaul services for business aviation, is delighted to announce the start of a new relationship with Rockwell Collins under which the company is being appointed as an Authorized Business and Regional Systems (BRS) Dealer. FL Technics Jets is to provide Rockwell Collins avionics sales and support solutions for various business and regional aircraft operators and MROs worldwide. According to the terms of the 4 year-long agreement, Rockwell Collins BRS has authorized FL Technics Jets to promote and sell a wide range of its products, including Pro Line 21, Pro Line 4, Venue and other avionics system solutions, in target regions. The extensive inventory range of the U.S. manufacturer covers avionics equipment for almost every type of currently operated business and regional jets, including Hawker Beechcraft, Bombardier CRJ, Bombardier Challenger and other.

GE Aviation's Peebles test operation opens new US$40m indoor jet engine test facility

GE Aviation's Peebles Test Operation celebrates 60 years of operation with the opening of a new US$40m indoor jet engine test facility. The new indoor test facility, which will begin testing production engines by year end, was built to accommodate the growing volume of GE90 and GEnx engines as well as the new GE9X and LEAP engines. The new site is the eleventh test site at the 7,000-acre Peebles Test Operation, located near the foothills of the Appalachian Mountains in southeastern Ohio. GE Aviation's Peebles Test Operation began as a GE rocket engine test facility in 1954. After a year of operation, GE mothballed the site until 1965 when it helped with certification testing of the TF39 engine for the Lockheed C-5 Galaxy military transport aircraft. The site continued to grow during the next five decades and has seven outdoor and four indoor test sites today. "Since 2006, GE has invested more than US$160m in facilities expansion at Peebles to manage our growing volume of development engine and production engine testing as well as final engine assembly of GE90 and GEnx engines," said Brian De Bruin, plant leader at GE Aviation's Peebles Test Operation. "This year, the Peebles site will test 1,600 production engines along with 70 development engines and will assemble and ship more than 500 engines from our assembly area thanks to the efforts our 340 employees."

GE Aviation, Hamble initiates production of Airbus A350-1000's wing fixed trailing edge package

Production of the wing fixed trailing edge package for Airbus' A350-1000 jetliner has begun at GE Aviation, Hamble, marking a new milestone in the largest design and manufacture contract awarded in the 78-year history of this GE Aviation Aerostructures business. The first element produced is a spoiler hinge bracket, which was manufactured on November 4th, in GE Aviation's machining facility at Hamble-le-Rice, United Kingdom. GE Aviation, Hamble has full responsibility for designing and building the wing fixed trailing edge packages on the new A350-1000 variant and the in-production A350-900 version of Airbus' twin-engine A350 XWB jetliner, comprising more than 3,000 deliverable components per aircraft – involving complex machined parts, structural composite panels and assemblies. The A350-1000's strengthened, higher performance wing will experience additional loads in flight, necessitating a high level of technical change and integration to the GE Aviation, Hamble-supplied wing fixed trailing edge package. It also involved coordination throughout the supply chain, and with the A350 XWB engineering plateau established by Airbus at its Filton, UK facility to ensure close and timely collaboration with other risk-sharing partners and agreement on all technical interface requirements.

Liebherr-Aerospace to supply FCS test rig to Alenia Aermacchi *Photo: Liebherr-Aerospace*

Liebherr-Aerospace to supply FCS test rig to Alenia Aermacchi

Liebherr-Aerospace has been selected by Alenia Aermacchi to supply an FCS test rig capable of implementing load alleviation functionality and to provide engineering support for the development of a next-generation flight control system. The test rig, which is to be integrated in Alenia Aermacchi's testing laboratory in Turin (Italy), will enable the Italian aircraft manufacturer to simulate interfaces between flight control actuators, cockpit controls and flight control software. In addition to the hardware, Liebherr-Aerospace Lindenberg GmbH, Lindenberg (Germany), will contribute its expertise in testing and engineering to support Alenia in designing an advanced flight control system concept. The system supplier will be able to use its outstanding experience gained through the integrated testing of fly-by-wire flight control systems for numerous aircraft programs.

Euravia's new PT6 production lines to accommodate growth

Euravia's Chief Executive, Dennis Mendoros, has launched the new production layout and processes, which are now in place to meet Euravia's growth plans for 2020. The modernized production line incorporates best practices and ergonomics to ensure enhanced productivity and easier flow of parts through Euravia's 58 different engine types & series production lines. As a result of increased Customer demand, Euravia is stepping up production output by over 50% in 2015 by introducing additional MRO facilities, new lines and enhanced capability for PT6A, PT6T and PT6C engines. Dennis Mendoros said: "For over a quarter of a century, Euravia has enjoyed a phenomenal growth, which was driven by capacity and capability developments. Over the last few years, all new developments are Customer driven due to Euravia's immaculate reputation for quality, product reliability and effective aftersales support."

Flying Colours Corp. adds GE Line Maintenance Center authorisation for GE CF34-3 and CF34-8C engines

Flying Colours Corp., the North American MRO, completion and refurbishment specialist has added another approval to its growing list of authorisations. GE Aviation has named it as an authorized line maintenance center for GE's CF34-3 and CF34-8C engines. Under the terms of the authorization, which was given in mid-October, Flying Colours can perform line maintenance inspections in addition to routine installed engine maintenance, including full removal and replacement of engines as well as engine components. The authorization extends to cover work undertaken at both the Peterborough, Ontario facility and the St Louis, Missouri base.

Bombardier names Lufthansa CityLine as newest Authorized Service Facility for commercial aircraft in Europe

Bombardier Commercial Aircraft announced the recent addition of a major new pillar to its growing support network in Europe. The company has appointed Lufthansa CityLine, the original launch customer for the CRJ aircraft, as an Authorized Service Facility (ASF) for its CRJ700 and CRJ900 aircraft. Under the ASF agreement, Lufthansa CityLine Technical Services will offer Bombardier customers the full range of line and heavy maintenance services from its conveniently located maintenance hangar in Cologne, Germany. The state-of-the-art facility, which operates round the clock, 365 days per year, is certified by the European Aviation Safety Agency (EASA) and employs over 170 people.

Aviall purchases GE Aviation's CF34-3A & -3A2 lease engines and used material

Aviall, a wholly owned subsidiary of The Boeing Company, signed an agreement with GE Aviation to become a provider of GE CF34-3A and CF34-3A2 used material and lease engines powering the Bombardier Challenger 601. The ownership transfer builds on an exclusive distributor agreement launched in 2009, where Aviall is responsible for forecasting, ordering, and delivering all genuine Original Equipment Manufacturer (OEM) replacement parts that are unique to CF34-3 engines. This agreement will leverage Aviall's worldwide part distribution capabilities. Across the CF34 family, GE has delivered more than 6,000 engines and continuously invests in product enhancements. Today, CF34 engines are in service with more than 1,000 business jet operators and more than 200 regional jet operators.

XiamenAir Dreamliner fleet backed by AFI KLM E&M component expertise

XiamenAir has opted for AFI KLM E&M expertise in support of the launch of its fleet of Boeing 787 Dreamliners and subsequent component maintenance and overhaul services for the aircraft. The long-term contract between the two groups organizes component support for six Dreamliner aircraft operated by XiamenAir. AFI KLM E&M designs and implements bespoke component support programs to allow airlines operating the 787 to launch their new aircraft with a limited investment. At the same time, the dedicated AFI KLM E&M pooling program allows them to benefit from substantial economies of scale.

Triumph Group to provide wing structural components and nose wheel steering system for Gulfstream 500/600

Triumph Aerostructures – Vought Aircraft Division, has been selected by Gulfstream Aerospace to build wing structural components for the G500/600 business jet. The contract is worth approximately $250.0m. Production of the structural components will be performed at the company's facilities in Nashville, Tennessee and Los Angeles, California. In addition to the wing structural components, Triumph Actuation Systems – Connecticut has also been selected by UTC Aerospace Systems to design and build the G500/600 nose wheel steering system. The contract is worth approximately $80.0m with the design and build being performed at the company's facilities in Bloomfield and East Lyme, Connecticut.

AEI redelivers 8 freighter conversions in third quarter

Aeronautical Engineers redelivered a total of eight passenger-to-freighter conversions during the third quarter of 2014. AEI redelivered a total of seven B737-400SFs and one B737-300SF freighters to various customers worldwide during the quarter. As an addition to the AEI product line, the company announced that it will be offering its customers the new eight pallet CRJ200 SF freighter conversion in mid-2015, followed by the twelve pallet B737-800SF conversion in 2017.

It's Time for Conversion

Your Best Choice for Smart-Value Conversion Programs

Our technologically advanced passenger-to-cargo conversions have made us world leaders in the field.

We hold leading aviation authorities' (such as FAA, EASA, CAAC, & CAAI) Supplemental Type Certificate (STC) for:

- B737 - 300BDSF/-300BDQC/- 400BDSF
- B747 - 400BDSF
- B767 - 200BDSF/-300BDSF

www.iai.co.il
bedek@iai.co.il

IAI

WHEN RESULTS MATTER

First 242 tonne take-off weight A330 starts final assembly
Photo: Airbus

First 242 tonne take-off weight A330 starts final assembly

The final assembly of Airbus' first A330 with the new 242 tonne maximum take-off-weight (MTOW) capability is underway at the A330 Final Assembly Line in Toulouse, France. The aircraft is currently completing its structural assembly before the cabin integration phase and will be used for certification flight trials. A second aircraft is being assembled in parallel which is destined for entry in service in Q2 2015 with launch customer for the new weight variant, Delta Air Lines. Thanks to an aerodynamic package reducing aircraft drag and the latest engine improvements, the 242 tonne MTOW offers an extended range of up to 500 nautical miles and up to two percent reduced fuel consumption. The 242 tonne A330-300 is capable of flying missions up to 13 hours and 15 hours for the 242 tonne A330-200. So far, nine customers worldwide have already selected this option since the launch in November 2012.

Storm Aviation and AJW Aviation sign line maintenance service agreement

Integrated aircraft support specialist, AJW Aviation, has partnered with Storm Aviation to further extend their total aircraft support solution that is transforming operational efficiency and cost-savings for smaller fleets and start-up airlines. Storm Aviation is EASA Part-145 and Part-147, approved. It operates line stations across Europe, Asia and the Commonwealth states and will also provide B1 and B2 engineers and line maintenance staff direct to customers. Storm's expertise covers a broad range of commercial aircraft types from the Airbus A320 to A380, Boeing B737 to B777, and regional jets. The agreement was signed at MRO Europe in Madrid.

Tigerair Australia signs long-term aircraft support partnership with AJW Aviation

Tigerair Australia has signed a long-term partnership agreement with AJW Aviation to transform the support programme for its current fleet of 13 Airbus A320 aircraft as part of the airline's ongoing focus on improving operational efficiency. As part of the agreement AJW will deliver complete inventory technical management (ITM) across a variety of areas including components, major assemblies, wheels and brakes, auxiliary power units (APU), thrust reversers and consumables. The partnership will be underpinned by AJW's global inventory of Airbus A320 spares located in accessible hubs across the region.

Fireblade Aviation opens first FBO at Johannesburg's OR Tambo International Airport

South African-based business aviation concern Fireblade Aviation has opened the first and only Fixed Base Operation (FBO) at Johannesburg's OR Tambo International Airport. The Fireblade Aviation FBO, which became operational on September 1st, 2014, already serves domestic aircraft having welcomed its first private jet on September 2nd, 2014. It is anticipated that full approval for the dedicated Customs and Immigration Service will be given by the end of the year making it the first FBO in South Africa to welcome international travellers. The state-of-the-art facility, which represents an investment of R165m (US$15m) by Nicky and Jonathan Oppenheimer is a culmination of the owners' lifetime passion for the aviation sector and a desire to fulfill a market demand for a world-class international FBO facility at South Africa's main airport.

Kaman Aerosystems awarded LTA by Rolls-Royce for Trent XWB Composite A-frame Fairings

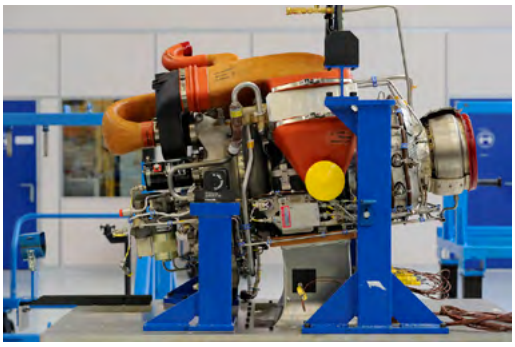
Kaman Aerosystems has been awarded a Long Term Supply Agreement (LTA) by Rolls-Royce to manufacture the Composite A-frame Fairings for the Trent XWB engine that will power the Airbus A350 XWB aircraft. Rolls-Royce and Kaman have entered into a multi-year contract for these parts, with a projected value in excess of $5m. The A-Frame Fairings will be manufactured at Kaman's facility in Bennington, Vermont.Kaman is a leading supplier of integrated aerostructures, including metallic and composite structural assemblies and metallic parts for OEM and Tier I aerospace companies engaged in commercial and military aircraft and aero-engine programs. The Company provides complete aerostructure solutions including design, tooling, manufacturing, testing, and support.

Austrian Airlines selects Magnetic MRO for base maintenance support

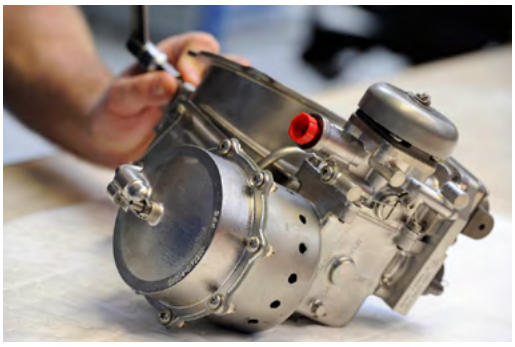
Austrian Airlines selected Magnetic MRO to perform Heavy Maintenance services for its fleet of A320 during the winter season of 2014/2015. Under the new agreement, Magnetic MRO will take care of Austrian Airlines fleet of A320 aircraft during a nose-to-tail maintenance program from December 2014 until March 2015 in its facilities in Tallinn, Estonia. Each check with its defined ground time is unique due to different aircraft type, age and modification package added. Checks range from line to heavy maintenance events with combination of structure tasks and landing gear replacements. Subject to availability and approval of the modifications, a number of aircrafts will undergo light cabin refurbishment such as installation of new class divider systems, or In-Flight Entertainment systems.

Aviation Technical Services expands service to Southwest Airlines at Kansas City Facility

Aviation Technical Services (ATS) has reached an agreement with its longtime customer Southwest Airlines to provide Maintenance, Repair and Overhaul (MRO) services to the carrier at its newly-acquired and renovated facility at Kansas City International Airport (MCI). The work will begin later this year and will take place over the course of the next three years. Over the course of several decades, Southwest has been bringing its planes to ATS' location on Paine Field in Everett, Washington. The expansion to Kansas City is a good fit for Southwest, where the carrier operates 67 daily nonstop flights to 26 destinations.



EPCOR specializes in the repair of auxillary power units and pneumatic components.



Based at Schiphol Airport, The Netherlands, EPCOR is a wholly owned AFI KLM E&M (Air France Industries KLM Engineering and Maintenance) subsidiary dedicated to total support of Auxiliary Power Units (APU) and Pneumatic Components. EPCOR has a deep understanding of airlines' priorities, providing short turn times and cost control policy through its highly skilled staff using the latest technology. EASA and FAR 145 accredited, EPCOR provides airline APU maintenance to the 737NG, 777, 787, A320 series, A330 / A340, and EMBRAER 170/190 aircraft. EPCOR's engineering experts continuously work on APU and APU components development while also providing repair and overhaul for air cycle machines, environmental control system components, engine starters, leading edge flap drive units, and other pneumatic components, all supported by a worldwide logistics network.

EPCOR

www.epcor.nl

Driving LEAN MRO operations with the industry's preferred software solution

EPCOR deploys Quantum Control MRO & Logistics Software as its operational system to streamline work processes and foster LEAN business initiatives.

The Challenge

EPCOR, back in 2005, needed a software solution to unify and improve its business processes as part of its ongoing LEAN SIX SIGMA effort. Because of this continuous improvement mindset, EPCOR was also searching for a software vendor that would welcome collaboration on future software improvements and integrate the aviation community's best-practice advancements into the software.

The Solution

EPCOR selected Quantum MRO & Logistics software for several significant reasons:

- Component Control was very open to collaborating with EPCOR to develop the Quantum Shop Control module that is specifically made to comprehensively manage aircraft MRO of components and their associated quality control requirements.
- EPCOR could integrate all of their business software into Quantum to have a single repository of business data to quickly search and respond to business needs.
- Component Control's software improvement philosophy meant that Quantum would be a living software that adapted over time to encompass evolving industry best practices

Commented Joost Bosman, Quantum Program Manager at EPCOR, "With Quantum, EPCOR has operations focused software optimized specifically for running a LEAN aviation MRO environment. The ongoing successful use of Quantum at EPCOR has resulted in parent company AFI KLM E&M leveraging Quantum to automate surplus part sales and streamline corresponding background logistics."

component control

www.componentcontrol.com

First A350XWB for Vietnam Airlines rolls out of assembly hall *Photo: Airbus*

First A350 XWB for Vietnam Airlines rolls out of assembly hall

The first A350 XWB for Vietnam Airlines, to be leased from AerCap, has just moved to station 30 at the Roger Béteille Final Assembly Line (FAL) in Toulouse, France. This new milestone marks the completion of some of the major airframe assembly as well as the successful first electrical power-on. In station 30, the aircraft will now undergo ground tests, while the cabin installation initiated in the previous station.

Ameco gets authorization on A330 landing gear overhaul

Authorized by CAAC, EASA and FAA, Ameco released that it can perform A330 landing gear overhaul now. The 1st workload will come at the beginning of November. As the first MRO in China to develop landing gear overhaul, Ameco's capabilities cover most A320, A321 and A330 fleet; and the Boeing landing gear overhaul mainly focus on Boeing 737NG and Boeing 747. Aircraft Maintenance and Engineering Corporation, Beijing (Ameco Beijing) is a joint venture between Air China and Lufthansa German Airlines. It was established on August 1st 1989, with Air China holding 60% and Lufthansa 40%.

Vector Aerospace signs multiple new service agreements

Vector Aerospace Engine Services – Atlantic, (ES-A) has renewed its Network Services Agreement with Turboprop East, based in North Adams, Massachusetts, United States. ES-A will provide Turboprop East with comprehensive engine repair and overhaul support for the Pratt & Whitney Canada (P&WC) PT6A and JT15D series engines from its P&WC Distributor and Designated Overhaul Facility (DDOF) located in Summerside, Prince Edward Island, Canada.

ES-A signed an Engine Services Agreement with Aerway Leasing based in Waterford, Wisconsin, United States, at the NBAA Convention in Orlando, Florida. The services agreement calls for ES-A to provide Aerway Leasing, with engine repair and overhaul support for the Pratt & Whitney Canada (P&WC) PW100 series engines.

ES-A also renewed its Engine Service Agreement with Gander Aerospace Manufacturing/Evas Air based in Gander, Newfoundland, Canada. As per the terms of the exclusive agreement, ES-A provides Gander Aerospace Manufacturing/Evas Air with fixed-wing aircraft engine repair and overhaul support from its facility located in Summerside.

Vector Aerospace Engine Services – Atlantic has renewed its Engine Services Agreement with CommutAir based in Cleveland, Ohio, United States. The agreement calls for ES-A to provide CommutAir with engine repair and overhaul support for the Pratt & Whitney Canada (P&WC) PW123 series engines.

ES-A also signed an engine services agreement with Provincial Aerospace, based in St. John's, Newfoundland, Canada. As per the terms of the one-year agreement, ES-A will provide Provincial Aerospace with engine repair and overhaul support for the Pratt & Whitney Canada (P&WC) PT6A and JT15D series engines.

GE Aviation opens unique composites facility in Asheville, NC

GE Aviation, a global leader in jet engine and aircraft system production, hosted a grand opening ceremony at the site of its new advanced composites factory near Asheville in Western North Carolina. The new 170,000-ft² facility will be the first in the world to mass produce engine components made of advanced ceramic matrix composite (CMC) materials. GE has begun hiring at the new CMC components plant. Within five years, the workforce at the plant is expected to grow to more than 340 people. The existing workforce at GE Aviation's current machining operation in Asheville will gradually transition to the CMC components plant. The introduction of CMC components into the hot section of GE jet engines represents a significant technology breakthrough for GE and the jet propulsion industry. CMCs are made of silicon carbide ceramic fibers and ceramic resin, manufactured through a highly sophisticated process and further enhanced with proprietary coatings. GE plans to introduce more CMC components into future engine development programs. The specific CMC component to be built in the new Asheville facility is a high-pressure turbine shroud. More importantly, this CMC component will be on the best-selling LEAP jet engine, being developed by CFM International, a joint company of GE and Snecma (SAFRAN) of France and will mark the first time CMCs are used for a commercial application. The LEAP engine, which will enter airline service in 2016, will power the new Airbus A320neo, Boeing 737 MAX and COMAC (China) C919 aircraft.

Boeing celebrates groundbreaking for 777X composites wing center *Photo: Boeing*

Boeing celebrates groundbreaking for 777X composite wing center

Boeing celebrated the groundbreaking of its new 777X Composite Wing Center at the Everett, Wash., campus. Permitting for the new 1-million-square-foot facility was completed approximately seven weeks earlier than anticipated, allowing for an accelerated start to construction. Boeing is investing more than $1bn in the Everett site for construction and outfitting of the new building. Once completed, the facility located on the north side of the main final assembly building will help usher in composite wing fabrication for the company's newest commercial jetliner and sustain thousands of local jobs for decades to come. Completion of the new building is expected in May 2016. To date, the 777X has accumulated 300 orders and commitments. Two models will comprise the 777X family – the 777-8X, with approximately 350 seats and a range capability of more than 9,300 nautical miles; and the 777-9X, with approximately 400 seats and a range of more than 8,200 nautical miles.

FLY Leasing reports third quarter 2014 results

FLY's net income for the third quarter of 2014 were US$15.4m compared to US$0.3m in the same period in 2013.Total revenues increased 33% to US$105.5m. Operating lease rental revenue for the third quarter of 2014 was US$105.1m compared to US$78.4m for the same period in the previous year, an increase of 34%. The increase was driven by the larger portfolio and improved utilization. The third quarter 2014 results include US$14.2m in end of lease income, compared to US$17,000 in the third quarter of 2013. FLY's net income for the nine months ended September 30th, 2014 were US$40.6m compared to US$39.1m for the same period in 2013. For 2014, end of lease income was US$18.0m and gains on aircraft sales totaled US$18.9m. The 2013 results included US$47.6m in end of lease income and US$6.3m in gains on aircraft sales. Adjusted Net Income was US$16.5m for the third quarter of 2014 compared to US$2.7m in the same period in the previous year. For the nine months ended September 30th, 2014, Adjusted Net Income was US$40.4m compared to US$52.5m for the same period in the previous year.

Exchange Income Corporation to acquire Provincial Aerospace for CA$246m

Exchange Income Corporation a diversified, acquisition-oriented company has entered into an agreement to acquire all of the shares of Provincial Aerospace ("PAL"), a diversified Canadian-based aerospace and aviation company, for a combination of cash and stock totaling approximately CA$246m. PAL, headquartered in St. John's, Newfoundland & Labrador, operates three distinct businesses across the aerospace, airline and aviation services sectors. Provincial Airlines is an independent airline that has been operating for over 40 years in Eastern Canada providing scheduled, charter and cargo services. PAL Aviation Services operates fixed base operations at two locations, Halifax, NS and St. John's, NL . Additional services include aircraft refueling, ground handling and aircraft facilities. PAL operates a total of 30 aircraft across its divisions with the aerospace business operating a variety of aircraft types for its customers and the airline fleet primarily comprised of Dash 8s and Twin Otters. The acquisition is anticipated to be fully funded by the issuance of common shares to the Vendor representing approximately CA$12m of the purchase price and the company's available cash resources from its currently unutilized credit facility representing approximately CA$234m. Post-acquisition the company remains in a solid financial position with significant capacity remaining in its committed term credit facility. Accordingly, there is no requirement for the Company to issue any additional equity to complete this acquisition.

Air Lease Corporation partners in a new aircraft leasing joint venture, Blackbird Capital I

A wholly-owned subsidiary of Air Lease Corporation(the Company) has entered into a joint venture with a co-investment vehicle (the "JV Partner") arranged by Napier Park Global Capital for the purpose of investing in commercial aircraft and leasing them to airlines around the globe. The newly formed entity with committed equity and debt capital is named Blackbird Capital I LLC and 90.5% of the equity is owned, through the JV Partner, by a pooled investment vehicle of long-term institutional investors managed by Napier Park. The Company owns 9.5% of the joint venture and will not consolidate the entity. The joint venture is expected to acquire total aircraft assets of approximately US$2.0bn by year-end 2016, with up to US$500m in equity and the remainder financed by a committed US$750m warehouse credit facility (which includes an accordion feature that could make the total facility up to US$1.5bn) and other forms of debt financing. ALC will provide management services over a 12 year period to the joint venture for a servicing fee based upon aircraft assets under management. In addition, the Company expects to sell aircraft from its portfolio to the joint venture with an aggregate value of approximately US$500m by year-end 2016. Through the joint venture, ALC will manage up to US$2.0bn of additional aircraft lease transactions to better serve the airline industry.

Boeing Commercial Airplanes reports 3rd-quarter revenue increase of 15%

Boeing reported third-quarter revenue increased 7% to US$23.8bn on higher deliveries. Core earnings per share (non-GAAP) increased 19% to $2.14, driven by strong performance across the company's businesses. Third-quarter core operating earnings (non-GAAP) increased 13% to US$2.4bn from the same period of the prior year. GAAP earnings per share was US$1.86 and GAAP earnings from operations was US$2.1bn. Core earnings per share guidance for 2014 increased to between US$8.10 and US$8.30, from US$7.90 to US$8.10 on continued strong operating performance. GAAP earnings per share guidance for 2014 increased to between US$6.90 and $7.10, from US$6.85 to US$7.05. Operating cash flow before pension contributions guidance increased to greater than US$7bn. Commercial Airplanes operating margin guidance increased to approximately 10.5%. Boeing Commercial Airplanes third-quarter revenue increased 15% to a record US$16.1bn on higher deliveries. Third-quarter operating margin was 11.2%, reflecting the dilutive impact of 787 and 747-8 deliveries and higher period costs partially offset by the delivery volume and continued strong operating performance. During the quarter, the company launched the 737 MAX 200 with a commitment from Ryanair for 100 airplanes. The 737 program has won nearly 2,300 firm orders for the 737 MAX since launch. Due to the continued strong demand for the 737 family of airplanes, the company intends to increase the 737 production rate from 42 to 47 per month in 2017, with recently announced plans to increase to 52 per month in 2018. Also during the quarter, the first GEnx-powered 787-9 Dreamliner was delivered. Commercial Airplanes booked 501 net orders during the quarter. Backlog remains strong with over 5,500 airplanes valued at a record $430bn.

Novaria Group acquires Weatherford Aerospace

Fort Worth-based Novaria Group announced the acquisition of substantially all the assets of Weatherford Aerospace Inc., a provider of aircraft wing skins, formed structures and unique services related to the treatment and processing of aerospace products. Novaria plans to pursue strategic growth and expansion of Weatherford's capabilities, while also delivering enduring value to customers, employees and the aerospace industry. Weatherford's manufacturing capabilities are focused on a wide variety of processes and products that are incorporated into most airframes flying today. The company's customers include many major original equipment manufacturers (OEMs) and tier 1 and tier 2 supply chain partners such as: Gulfstream, Boeing, Bell Helicopter, Bombardier, Lockheed Martin, Spirit and Triumph. Charles Paris, Sr., founder of Weatherford, will be retained as a consultant to the company. Charles "Chip" Paris, Jr., the current President and General Manager of Weatherford, will continue in his present capacity under Novaria's ownership.

MTU Aero Engines AG slightly raises forecast in light of nine-month results

In the first nine months of 2014, MTU Aero Engines AG's revenues grew by 6% to €2,811.6m (1-9/2013: €2,659.6m). The group generated an operating profit of €270.9m (1-9/2013: €267.8m) and its EBIT margin came to 9.6% (1-9/2013: 10.1 %). Net income increased by 5% to €178.3m (1-9/2013: €169.1m). "The good nine-month results and the greater planning confidence for the remaining quarter allow us to reinstate the full-year revenue forecast of around €3,750m that we issued at the beginning of the year," said Reiner Winkler, CEO of MTU Aero Engines AG. "Moreover, we expect to achieve a higher operating profit and net income than anticipated as yet. Adjusted EBIT will probably rise to around €380 million and net income to around €250m." MTU had adjusted its revenue forecast slightly downward from €3,750m to €3,650m (2013: €3,574.1m) on the basis of the half-year figures. The outlook had included a stable adjusted EBIT of around €375m (2013: €373.1m) and an adjusted net income in the region of €245m (2013: €235.7m). The increase in group revenues in the first nine months of 2014 is mainly attributable to strong growth in the commercial engine business, where revenues rose by 12% to €1,563.9m (1-9/2013: €1,402.9 million). The engines that accounted for the largest part of these revenues were the V2500, which powers the Airbus A320, the GP7000 for the Airbus A380, and the GEnx for Boeing's 787 Dreamliner and 747-8. Revenues in the commercial maintenance business remained stable at €920.8m (1-9/2013: €911.8m). The main source of these revenues was the V2500 engine. "Our third-quarter revenues in the MRO segment were higher than ever before. This means that we have turned the corner and reversed the negative trend that affected revenues in this segment in the earlier part of the year," added Winkler.

GE acquires 9.9% equity stake in TEXL

Hong Kong Aircraft Engineering Company (HAECO) reported that GE Aviation has acquired a 9.9% equity stake in Taikoo Engine Services (Xiamen) ("TEXL"). The transaction marks a milestone in the HAECO Group / GE Aviation partnership. Established in July 2008, TEXL is a joint venture between HAECO, Taikoo (Xiamen) Aircraft Engineering Company ("TAECO"), Cathay Pacific Airways and Xiamen Aviation Industry Company. TEXL provides a comprehensive range of repair and overhaul services for GE90 engines, including performance restoration, quick turn and module shop visits, engine test and component repair. In 2008, TEXL and GE Aviation entered into a long-term GE90 Branded Service Agreement, which licenses TEXL as an authorised GE90 Service Provider, GE90 Centre of Excellence and the sole holder of a GE90 GBSA in Asia. TEXL has performed engine repair and overhaul work on more than 150 GE90 engines to date, from an extensive list of GE90 operators, including Cathay Pacific, EVA AIR, Air India, GE Capital Aviation Services, China Cargo Airlines, China Southern Airlines, Emirates Airlines, Etihad Airways, Turkish Airlines, Jet Airways and Thai Airways.

The apprentice – you are hired!

Analysis by ***Keith Mwanalushi***

The lack of highly technical professionals in the growing aircraft industry creates a huge need for skilled and qualified specialists. *AviTrader MRO* looks at what emphasis today MRO organisations place on engineering apprenticeship schemes.

José Salvada, marketing and sales director at Portuguese aircraft MRO provider OGMA gets straight into it - "This growing scenario is leading successful MRO organisations to implement training recruitment programmes to prepare professionals with the right attitude, meaning highly qualified and trained tradesperson with both soft and hard skills."

In October, BA ushered in 74 new apprentices. *Photo: British Airways*

OGMA partners with local public schools, and has been investing in the last years in dedicated apprenticeship aeronautical programmes for young students, who have chosen to follow a vocational route instead of an academic career. "Those programmes will grant OGMA's new generations of skilled professionals and the best ones are and will be selected to join the company, where they can work and earn while learning," Salvada continues.

In Britain, traditionally, apprenticeships have been the foundation for many a successful career in workplace. Jay O'Brien, practical training coordinator at Monarch Aircraft Engineering (MAEL) shares this view and says MAEL continues to promote apprenticeships as an extremely important channel for feeding engineers into the skilled workforce upon completion of training.

"MAEL has delivered in excess of 700 young engineers into the aviation industry over the last 45 years, via a four year apprenticeship programme, and we have been very fortunate that we can retain most of our apprentices. Those that do move on generally navigate their way to extremely successful careers with some even reaching senior management and director level and the one thing they never forget is their roots," says O'Brien.

In October, British Airways announced 74 new apprentices - they join one of the three engineering programmes offered by the airline: industrial apprenticeship; cabin appearance apprenticeship or engineering business support apprenticeship. All these schemes have been revamped this year to make them more tailored to the particular needs of the airline's maintenance teams.

According to BA, the 62 industrial apprentices will complete a three year programme supported by Farnborough College of Technology and the Semta Apprenticeship Service. The new recruits will train on the job, with one day a week at college in the first year. They complete training in different areas of the business, learning the skills required to maintain the airline's fleet of more than 260 aircraft. Throughout their apprenticeship they will earn a competitive wage and work towards the completion of either an NVQ level 3 or Cat A Licence.

The 12 cabin appearance apprentices will complete a two-year scheme also supported by Farnborough College of Technology and Semta. Their focus will be on learning how to improve and maintain the external appearance of our aircraft and cabins to ensure they are of the highest quality. This programme was introduced last year and will continue again this year.

Fifteen business support apprentices will start their two year scheme in January 2015. This focuses on in-house training to support the business and administrative needs of the world-class engineering department. The new recruits will complete either an NVQ 2 or 3 with support from the Semta Apprenticeship Service and training provider 'First for Skills'.

Since 2011 Lufthansa Technik has been offering a stable number of apprenticeships. Barbara Koerner, head of vocational training management and HR management aircraft systems notes that apprenticeships represent a core pillar of the HR policy with regard to "healthy" demographics. "For decades the majority of our flight mechanics have been generated out of our own vocational training. Thus we can state that employees that passed our vocational training represent the backbone of our

Since 2011 Lufthansa Technik is offering a stable number of apprenticeships. *Photo: Lufthansa Technik*

German production sites."

Industry observers say there seems to be less of an appetite for apprentice schemes in North America compared to Europe and the UK in particular. There are various views on the issue, O' Brien from MAEL feels that there does appear to be a greater emphasis in the US on the academic side, even though opportunity does exist for vocational training. "In the UK we have a lot of colleges that offer both academic and vocational courses and there isn't any pressure to guide individuals down a certain route. Students who want to do academic studies will select the courses and follow the educational system that compliments their studies, likewise, students who want to do engineering, plumbing, carpentry and the like will select courses that help them achieve these skills," O' Brien explains.

Worth noting, in the UK students can also leave school at 16 years old and go into the workplace by way of apprenticeships and therefore there is a lot of competition within industry to pick up and nurture the young talent. There also seems to be a renewed interest from the government to promote apprenticeships. Organisations in the UK such as the National Apprenticeship Service function to promote apprenticeships in schools and colleges and then support them, and business, whilst they are in the workplace.

In terms of what can be done to develop young talent O'Brien thinks of two ways – "Firstly, I would suggest that industry takes the lead and is given the necessary guidance and support to set up and promote apprenticeships and open its doors to give youth the opportunity to showcase their skills and potential. Secondly, there needs to be a potential change in culture and not place as much emphasis, as there currently is on academia at school, and instead make them aware that apprenticeships, vocational training and development can offer just as equally good an opportunity of a successful career as following an academic route can bring."

> "There are only 1,200 graduates of collegial studies every year in Canada who will become aircraft technicians."
>
> Dina Medeiros, Head of HR – AJW Technique

Some analysts in 2014 highlight a few interesting findings in the North American market pertaining to the hiring situation (of all technical expertise). Research at Oliver Wyman has shown a shift in that North American carriers are willing to absorb a cost deficit by placing airframe work stateside rather than use foreign repair stations. This trend is seeing 32% of North American MROs hiring, according to an Oliver Wyman report.

The U.S. media however often points to a broad decline in the supply of skilled tradespeople at the MRO level and Doug Russell, VP of supply chain solutions at Exostar believes these reports are right on point. "In fact, we're staring into the bright headlight of an oncoming train," Russell warns.

"For years, the AIA and other industry analysts have been telling us that our skilled workforce is aging, with retirement for a significant percentage of that workforce just around the corner. When you combine that fact with the challenge individual's face in acquiring the licenses and certifications to fill MRO jobs and the focus on up-and-coming industries like renewable energy, we've got a problem that we must address now, before we have a talent vacuum," Russell continues.

However, Russell sees positive news on two fronts - "Firstly, as the labour supply falls, demand for skilled tradespeople will rise, as will wages, which will spur interest in these jobs. Second, to prepare individuals with the skills they need to fill these jobs, we're seeing real sensitivity amongst companies like BAE Systems, Boeing, Lockheed Martin, Raytheon, and Rolls-Royce to cultivate interest and talent, starting as early as high school. These factors will provide the infusion we need here in North America to maintain a strong MRO workforce now and in the future."

At AJW Technique in Canada the main challenge is attracting and retaining skilled techni-

cians with a college diploma in aircraft maintenance. "There are only 1,200 graduates of collegial studies every year in Canada who will become aircraft technicians (CCAA)," states Dina Medeiros, head of HR – AJW Technique.

"Our apprenticeship programme helps us gain visibility amongst new graduates to attract top talent to our organisation. Also, as the demographics in our industry is advancing in age [average age in aerospace in Quebec is 43 years old – CAMAQ and AJWT is 50] we need to transfer the knowledge and experience to the next generation of technicians," Medeiros adds.

Stable demand for the professions where Lufthansa Technik currently offers apprenticeships - Barbara Koerner

AJW Technique reports that the main challenge is attracting avionics technicians. "Montreal has become a hub for companies in the field of aerospace and we are competing for the same resources. There is only one school offering specialised programmes linked to aerospace and the proportion of graduates in avionics is much lower than in other fields," Medeiros further explains.

Back in Europe there are places where apprenticeships are not so common, for example, in Lithuania, because of the specifics of the national educational system. "Nevertheless, apprenticeships, internships, traineeships and other relevant programmes are very important for the MRO industry," observes Kestutis Volungevicius the head of FL Technics Training.

He notes the practical experience accumulated by the participants gives them a big support once they enter the labour market. "The aforementioned experience allows young specialists to gain deeper understanding of identifying safety precautions, using, care and control of tools, reading aircraft maintenance documentation, reading drawings and diagrams. Certainly, it is also about skills: drilling, riveting, inspection techniques, disassembly, assembly techniques, general repair and minor troubleshooting methods and so on," Volungevicius highlights.

So is there a connection between the numbers of apprenticeships available and the skilled jobs in short supply in any particular market. Volungevicius believes so – "With the more experience the students graduate their universities, the more chances they have to be interesting for potential employers thus facilitating the supply shortage issue."

In terms of aircraft maintenance and the skills that are most in demand, Salvada from OGMA sees a great demand in the market for skilled

Volungevicius - We are currently developing several joint programmes with higher education institutions

sheet metal technicians as the aircraft MRO heavy inspections require a great number of professionals. "In the future that demand will continue but we will see a balanced change towards systems, avionics, composite specialists driven by aircraft of new generation," says Salvada.

Some areas of MRO are facing a lack of manpower, "this is an opportunity to bring and retain new young talents," Salvada believes. He continues: "Direct labour is the main cost driver for aircraft maintenance, so we cannot take a back seat, but rather, we all have to continue our efforts to make our industry safe, efficient, competitive and sustainable for years to come, where low labour cost regions will continue playing a significant share in labour intensive and other sophisticated MRO programmes."

VAS – talking all things parts and inventory

VAS Aero Services is a provider of aviation parts and services. Whether its landing gear for a commercial jet, or a critical component for the latest turbofan engine, the company offers more than 900,000 different part numbers to its global customer base.

Advantages of using a parts management solution provider rather than airlines managing this function in house.

In a fast-paced industry where airlines are concentrating on customer service, fleet planning, and global marketing efforts, spare parts administration has typically not been a frequent priority. In fact, it wasn't that long ago when airlines would boast between each other regarding their vast inventory levels. Those days are gone and airlines now strive to maintain lean inventory levels through all aspects of their operation. They are trending more and more to cost-saving methods associated with their inventory requirements, but improper supply-chain management or operating inefficiencies can have just the opposite effect, resulting in a process break-down or failure, costing the airlines time, resources, and, more importantly, money. The right aftermarket parts services provider, however, can play a vital role in meeting their operational needs and financial goals.

Airlines can realize significant advantages in partnering with an aftermarket service provider for parts solutions. The key to an effective aftermarket program is selecting a partner with the right mix of geographical reach, inventory management experience, and a ready, steady marketing base of customers and prospects.

On a global basis, the availability of aftermarket parts is ever-changing, evolving every day through on-going activities both from large established organizations and the addition of smaller entrants to the market. VAS has one of the largest supplier networks in the aviation market. Our strategic relationships provide us access to a wide range of inventories, allowing us to support our major airline customers every day with quality spare parts at the right price.

Aftermarket services companies such as VAS help airlines recognize additional market opportunities to increase parts turnover and generate cash flow, turning surplus, spare and salvaged parts into a revenue stream. VAS works with major airlines divided across multiple continents to market the availability of their parts to other end-users in the industry. Through exchanges, loans, and outright sale transactions, spare parts can be efficiently managed within an airlines stock. This model also creates repair management opportunities for the airlines' in-house shops and keeps airworthiness tags current.

Additionally, it is critical for airlines to have an experienced partner who can assist during aircraft retirements and fleet transitions. As airlines first begin to develop their strategic plan for aircraft adjustments, an aftermarket partner can simultaneously finalize a plan to efficiently monetize remaining inventory levels. By deferring an inventory plan until the end and simply auctioning the lot inventory, airlines lose the opportunity to recover the full Fair Market Value of the inventory. To combat this, VAS schedules and deploys lot inventory reduction initiatives on behalf of major airlines to properly reduce excess stock levels while maintaining parts to service the remaining operational fleet.

With all of the other business imperatives that an airline faces, inventory administration can be easily mismanaged. An effective aftermarket services partner such as VAS plays a key role in keeping inventory liquid and revenue flowing.

Utilizing web portals to launch inventory pool programs

In the age of ever-changing technological advances, web-based portals represent the way forward to improved operational efficiency and productivity for aftermarket sales programs. Online portals make good sense and provide a variety competitive advantages for aftermarket business:

- Easy access for prospects and customers to find inventory online; available by keyword search
- Quick, easy promotional opportunities to generate exposure and leads for new inventory and close-outs
- Fast updating and agile management of inventories
- Seamless integration with ERP, IT and accounting systems
- Simple reports and notifications set-up; facilitates monitoring of inventory and accounts for greater transparency

Portals are an efficient way to manage and distribute inventories owned by multiple entities and located at one or more facilities. Through maintaining consistent guidelines for component data and details, traceability and documentation paperwork, current photos, and other factors, portals can provide a high degree of exposure for aviation spare parts to the world-wide industry. A successful portal will provide the prospective buyer with:

- 24-hour access of real-time inventory searching
- Convenient site navigation and detailed search options, e.g. search by platform or part number
- Traceability and viewing of supporting documentation
- Account settings to track orders, update contact information, and view accounting details
- Company news informing the industry of newly secured business
- Specials such as single part and package deals

Tommy Hughes EVP & CCO
Photo: VAS

The web portal speeds the parts procurement process, giving users immediate access to inventory, ordering, order status and more, and putting key purchasing decision-making information within reach of anyone with an internet connection to their desktop, laptop or other computing device. For the parts owner/seller, a web-based system offers:

- Real-time inventory updates
- Paperwork available in PDF format
- "Get Quote" & "Make Offer" buttons to streamline procurement process
- Self-service reviews of account order history and status of current orders

Furthermore, partners in this sourcing process should receive a variety of reports and notifications that keep them informed and involved in the aftermarket warehousing, marketing and sale of their surplus, spare and salvaged parts:

- Real-time data: 24/7 visibility on all quote & sales activity
- Sales reporting: In-depth sales metrics (customizable)
- Inventory health reporting: Stock metrics (customizable)
- Budget reporting: Actual revenues vs. projections

Aircraft manufacturers and airlines both can reap great benefits from working with an aftermarket marketing partner like VAS, who represents one of only a few aftermarket providers that have established web-based portals for managing excess inventory for their customers. The portal provides partners immediate access to business intelligence and a quick snapshot of their surplus inventory program. It is transparent, efficient and easily integrated into existing business management systems. On the buy side, prospects and customers in search of parts have a one-stop location for vital inventory that will keep their fleets in the air and earning revenue.

In the hot seat.....

Keith Mwanalushi speaks to Doug Russell, Vice President of Supply Chain Solutions, Exostar.

AviTrader MRO: What attracted you to this business?

Russell: I came to Exostar to help run and build this business, because it gave me the opportunity to combine my 25 years of experience as a pilot and in the manufacturing industry with my desire to apply those skills to the implementation and deployment of IT solutions that make a difference.

AviTrader MRO: What does a typical day's work entail in your job?

Russell: We handle two million transactions a month between parties in the aerospace and defense industry, which represents a significant portion of all materials procurement. We have to make sure business processes to execute these transactions operate at the levels of performance, availability, and security our customers expect. I am focused on ensuring we exceed obligations and expectations. At the same time, I am also assessing how we can expand the breadth and depth of our service offerings, whether it's bringing new organizations and their partners into our community, enhancing existing capabilities like multi-tier visibility across the supply chain, or integrating new functionality such as 3PL and 4PL logistics.

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

Russell: Our customers operate in highly-regulated environments that dictate how information can be shared and who can access it. Security requirements are essential in today's world of advanced persistent threats, but we must make sure they are not an impediment to collaboration. We must address both sides of this equation without compromising either. That means we must create robust, flexible solutions that meet the needs of our customers today and tomorrow. I try to engage our customers to look beyond their day-to-day, tactical needs and consider a 3-5 year strategic plan. Some aerospace and defense customers are only scratching the surface with respect to what our solutions can do for them; my goal is to help them unlock the power of our solutions to raise productivity and value without sacrificing security or compliance.

AviTrader MRO: What is the importance of cloud-based solutions for information sharing, particularly for the aircraft MRO industry?

Russell: Structured and unstructured collaboration between parties involved in MRO activities can require sharing sensitive information that cannot fall into the wrong hands. Most on-premises collaboration solutions are either insecure, prohibitively expensive for small-to-medium sized businesses, necessitate a great deal of IT resources and expertise, or all of the above. Cloud-based solutions can be deployed quickly, have a lower barrier to entry, and can scale up or down to meet the needs of the business. In Exostar's case, our cloud-based solutions not only provide a compelling time-to-value and return-on-investment, but our secret sauce is the layers of security we wrap around our core supply chain management and collaboration solutions to protect intellectual property and ensure compliance. MRO companies working through Exostar's community cloud can productively, cost-effectively, and securely share information with their colleagues.

AviTrader MRO: Identity and access management are crucial, how can MRO and airlines create a secure platform for this?

Russell: We agree. Identity and access management are crucial, particularly in light of the growing number and complexity of cyber-based threats. That's why we have dedicated significant time and resources over the past decade to the implementation of our cloud-based identity and access management solutions and operating environment. When MRO organizations and airlines work with Exostar, we take all of the pain out of creating the secure platform you reference. We on-board and provision all organizations and individual users into our community. We control access to the community by checking the credentials each user receives after we initially confirm their identity. We further limit user access to only the applications and data to which the user has permission, based on assignments given to us by the asset owners or service providers. So, these parties can rest assured their applications and information won't fall into the wrong hands. Individuals enjoy a seamless, single sign-on user experience. Organizations can take advantage of our cloud and identity and access management expertise to leverage a robust solution with the cost, resource, and schedule benefits of the cloud.

AviTrader MRO: What kind of investment do organisations require in order to install your cloud-based solutions?

Doug Russell, Vice President of Supply Chain Solutions, Exostar

Russell: The investment varies, depending on the nature of the relationship the organization has with us. We work with many global aerospace and defense companies with multi-tiered supply chains encompassing thousands of suppliers and tens of thousands of individuals. These customers are interested in providing access to their supply chain portals, ERPs, and other back-end systems to suppliers so they can communicate and collaborate. In that scenario, the customer pays a one-time integration fee and an annual subscription fee based on factors such as total dollar value of spend, number of users, etc. On the other end of the spectrum, we have mom-and-pop suppliers that make little or no investment at all, because they can work through a web browser interface to conduct business with their customers. Regardless of the nature of the engagement, our goal is to ensure organizations get a compelling combination of speed-to-deployment, time-to-value, and return-on-investment, with a customer's ongoing commitments scaled to individual usage criteria. We're able to do this because we handle all solution development and upgrades, the operating environment, and all on-boarding and provisioning, as well as training and customer care.

AviTrader MRO: From an aviation perspective, what is next on the horizon at Exostar?

Russell: We've got exciting innovation just around the corner for our aviation customers and prospects. Today, we offer a cloud-based A&D Identity Hub that brings together buy-side companies like BAE Systems, Boeing, Lockheed Martin, Raytheon, and Rolls-Royce with their multi-tiered global supply chains. We're in the process of taking the proven security and collaboration functionality of the A&D Identity Hub and creating a cloud-based Digital Aviation Hub that will allow aviation companies to more easily, quickly, cost-effectively, and securely communicate and collaborate with their customers, be they airlines, pilots, contractors, or MRO organizations. Stay tuned for more information on what promises to be an exciting service offering for the aviation community.

Pratt & Whitney JT8D-200...still in the game

Analysis by ***Jonathan McDonald***

Think of the Pratt & Whitney JT8D-200 and images of Florida based overhaul centres, Delta Tech Ops, AA, Allegiant, Delta and an ever dwindling fleet of MD-80 "Mad Dogs" come to mind. The closely related PW JT8D-200 has long since been associated with marginal noise compliance and superseded technology, yet there are still around 465 active MD-80s. Around 135 American MD-80s remain active, with 117 at Delta and 46 active at Allegiant. Nearly two thirds of the remaining active MD-80 fleet is based in one great country among just three operators. Despite this, there are still 170 (ish) active MD-80s elsewhere, mainly in countries such as Bulgaria, Venezuela, Italy, Iran and Taiwan.

The American "Super 80" fleet will all be gone by 2019 *Photo: Rene Schwietzke*

So while the MD-80 fleet is on its way out, just over a third of all examples built are still flying. And that means at least 930 installed PW JT8D-200s. Furthermore, IBA would hazard a sensible guess that there are an estimated further 140, serviceable spare JT8D-200s. By serviceable we'll say engines good for 1 year's operation, with circa 1,500-2,000 cycles remaining on the limiting LLP limiter or so. As for the number of unserviceable JT8D-200s, or those in partial disassembly, it is virtually impossible to gauge. There are small numbers of Boeing 727s equipped with PWJT8D-200s, though this is unlikely to alter the total population by much.

What future is there in the MD-80 fleet, and therefore the PW JT8D-200 that keeps it going? Well, we understand that the American "Super 80" fleet will all be gone by 2019. Allegiant seems set to gradually replace its MD-80 fleet with A320 family, though this may take some time. As for Delta and the other operators, it's still uncertain when they will retire their MD-80 fleets. While the MD-80 / PW JT8D-200 fleet is in decline, it is still out there in numbers, and not just going to disappear overnight. IBA thought it therefore appropriate to touch base with the PWJT8D-200, particularly as 35 years ago, the first "Super 80" took to the skies, equipped with this engine.

Where does IBA see market values on these engines? Well, regardless of whether it's a JT8D-217A, 217C or 219, physical condition, LLP life remaining and maintenance status are major value determinants.

The PW JT8D-200 has been notoriously prone to cracks in the HPC disks. ADs were issued (FAA 2003-16-05) to prevent fracture of the 7th and 9th through 12th stage HPC disks and 8th stage HPC hub which unless complied with could have resulted in an uncontained engine failure. This is just one of the many Airworthiness Directives aimed at the engine, usually associated with cracking and corrosion inspections. The Lower Pressure Turbine (LPT) requires inspection under AD FAA 2011-07-02 (Inspection of LPT and replacement of the turbine fan blade). The estimated cost of this AD was not excessive (circa US$ 4,800) though some ADs, such as FAA 2002-16-08 (prevention of uncontained failure of the combustion chamber outer case) were known to cost as much as US$48,000.

The majority of PW JT8D-200 LLPs have certified lives of 20,000 cycles. The total LLP disk stack cost for one engine is circa US$ 1,800,000. The Low Pressure Compressor Front Hub alone lists at around US$ 270,000 and the 1st Stage Turbine Disk lists at circa US$ 230,000. Nobody is going to pay that price these days, especially as the market is awash with used parts, and that few, if any MD-80 operators will need to build their engines to 20,000 cycles. IBA estimates that the average MD-80 these days will probably only be flying around 1,400 cycles a year (with many probably doing less). This would equate to 14 year's use if one divided the average LLP cyclic limits by the average utilisation annual cycles. IBA cannot imagine that by 2028 there will be many MD-80s still flying. Even if they are, they won't be doing 1,400 cycles a year. PW JT8D-200 operators will only build engines to fit business plans, and will therefore build engines to a few thousand cycles.

Maintenance status is key to values of the PW JT8D-200. Regardless of whether it is a PW JT8D-217A, 217C or 219, an ESV1+ (or light shop visit) costs US$ 1,000,000. ESV1+ will typically involve a high spool refurbishment encompassing High Pressure Compressor, High Pressure Turbines and combustor. An ESV2 (heavy shop) can cost US$ 2,000,000.

For a PWJT8D-217A flying between 1 and 2 hour sectors, Mean Time Between Removals (MTBR) for ESV1+ is between 6,000 and 8,000

hours. For a -219 that increases to between 7,000 and 9,000 hours. IBA's independent, current market PW JT8D-200 value opinion is as follows,

Condition	JT8D-217A	JT8D-217C	JT8D-219	Status
Good Serviceable	US$ 350,000	US$ 480,000	US$ 565,000	5,000 cycles to limiter or more
Serviceable	US$ 170,000	US$ 335,000	US$ 400,000	Between 1,500 and 2,000 cycles to limiter
Run Out	US$ 115,000	US$ 220,000	US$ 285,000	Loaner / scattered LLP life / 1st limiter 1,000 k or Less

With a -217C a 10,000 hour MTBR may be possible. On longer sectors there is little difference to the MTBR on the 217A however on the 217C and 219 it may be possible to see an MTBR of up to 11,000 hours or so. Past and existing MROs for the PW JT8D-200 have included Delta Tech Ops, American Airlines, ITR, TEC Miami, Pratt & Whitney Christchurch, TIMCO, APECS Engine Centre, FJ Turbine Power, Complete Turbine Service, Newjet Engine Service, Patriot Aviation Services, Turbine Engine and IAI.

Maintenance on the PW JT8D-200 engines has regularly involved use of PMA parts and DER repairs. This can make future maintenance problematic. Ownership for future operators can therefore become troublesome. Pratt & Whitney has exploited a number of their mature engine programmes recently to remove any PMA and DER from their engines with the view of future leasing and maintenance activity solutions. However, trading of the JT8D-200 engines has become somewhat supressed. Tracking the engine has become more of a challenge as the engine is often perceived as a burden within many lessor portfolios. Large lessors have now removed the type off their books or do not advertise the engine so openly. Therefore trading often happens away from the public eye.

IBA has researched a number of traders with PW JT8D-200 series engines available. We are aware of a PW JT8D-219 that recently traded for around US$ 400,000. It had a little over 2,500 cycles remaining to first LLP limiter. Another similar engine sold a few years ago for US$ 550,000. There is currently a PW JT8D-219 in serviceable condition advertised by Aerothrust for US$ 550,000. There are roughly 3,500 cycles remaining to first limiter. The same firm advertises a similar engine for US$ 625,000 with 5,320 cycles remaining to first limiter. Clearly traders are pricing their engines according to LLP life remaining – a logical and sensible strategy in IBA's view. It should be borne in mind that these are asking prices. In reality the trading price will be a little less as any potential punters are bound to negotiate price downward a little bit.

For lease rates, IBA ascribes a relatively wide range across the PW JT8D-217A/C/219 series owing to the multiple credit risks, maintenance status and model marks. On a longer term basis (three years plus perhaps) to a reasonable credit, IBA has a monthly rental of US$ 16,000. On a shorter term basis to higher risk credit, IBA ascribes monthly lease rate of US$ 26,000.

To conclude, just under 40% of the MD-80/ PW JT8D-200 fleet is still in use. Some additional allowance should be made for spares. Either way, with American Airlines dwindling its fleet, there are bound to be more than 260 additional PW JT8D-217s and -219s coming out of AA alone between now and 2019 before one considers other operators' exit strategies. This is bound to create further oversupply, either of the complete engine, or related components. When assessing market values of a PW JT8D-200 series engine, traders will price their engines based on Life Limited Parts (LLPs) remaining, physical condition and maintenance status.

The cost of overhauling the PW JT8D-200 engine far outweighs the trading value of the engine. So operators have exploited the financial benefit of acquiring the better, complete engines in the used market and burning off the green time as opposed to putting the engine through a shop visit. There are still opportunities to trade / lease PW JT8D-200 series engines in tertiary markets such as Venezuela and Iran, but with this comes higher credit risk. This, paradoxically, can raise short term lease rates on the engine.

IBA

The IBA is an independent aviation consulting firm based in Leatherhead, UK, with representation worldwide.

For more information, contact Owen Geach: owen.geach@ibagroup.com;

T: +44 (0) 1372 224 488; M: + 44 (0) 7917 648 712

Global Eagle Entertainment, a worldwide leading provider of content, connectivity and digital media solutions to airlines, has joined **Air China's WiFi Alliance**. In addition, Dave Davis, CEO of Global Eagle Entertainment (GEE) has been appointed as a "Member of Council" in the Air China WiFi Alliance. Air China, one of the largest carriers in Asia with over 300 planes in service, is driving an innovative approach to connectivity with its partners. Through the alliance, Air China will provide a powerful and seamless WiFi experience to its passengers. Founded by Air China, the Air China WiFi Alliance (ACWA) is a committee of experts in the aviation, connectivity and passenger experience markets whose goal is to promote the development of China's inflight connectivity and passenger experience sector.

Gogo (GOGO), a leading global aero communications service provider, has received STCs from the FAA to install its Ku-band satellite equipment on Boeing 757-200 and 767-400 aircraft operated by **Delta Air Lines**. Gogo now has five STCs for its Ku-band satellite service on Delta's international fleet; Gogo previously received FAA certification to install its Ku-band equipment on Boeing 747-400, 767-300 and Airbus A330 aircraft operated by Delta. With the newly-issued STCs, Gogo is one STC away from having regulatory approval to install its Ku service on Delta's entire international fleet. Gogo expects to complete installations on Delta's international fleet in 2016. Gogo's Ku-band satellite connectivity service is currently available on 50 international aircraft operated by two airlines.

Available in the first quarter of 2015, the upgraded **SkyShield** now will provide five levels of data filtering, adding security to Internet connections. SkyShield presently allows customers to control their in-flight Internet usage by blocking unneeded network traffic that slows down connections and increases data costs. SkyShield allows customers to stop certain software processes and applications that use large amounts of data, such as program or software updates that run in the background, streaming audio and video websites, and social media feeds. Satcom Direct has expanded this service to provide proactive security threat monitoring. Customers can opt-in to the monitoring which includes 24/7 notification of threats against or from the customer's devices on-board the aircraft, vessel or mobile terminal.

Other News

The wide range of manufacturing processes being developed by **GE** in collaboration with the **UK's National Composites Centre** were displayed during a ceremony marking the facility's recent expansion to double its size. Included in GE's displays at the Centre's latest opening event on October 30th were techniques to produce advanced propeller blades for a new generation of quieter and more efficient regional airliners, the use of automated fibre placement in manufacturing complex aircraft wing panels, along with composite and metallic reinforcing layer technologies for large-diameter flexible pipes in ultra-deep water applications. "Together with the National Composites Centre, GE is exploring innovative manufacturing techniques that will open the horizons for composites in a diverse range of products," said Steve Walters, the General Manager for GE Aviation Mechanical Systems. "As a tier 1 member, we value the Centre's resources and its flexible, collaborative nature." The National Composites Centre provides a high-quality environment to evolve cutting-edge composite technologies into manufacturing processes, with the aim of delivering innovative composite solutions to UK industry. Located at the Bristol and Bath Science Park, it is one of seven research and technology centres that form the country's High Value Manufacturing Catapult network. Building on the National Composites Centre's success through the joint work with industry, academia, and government based on an original £25 million public investment, a further £28m was announced last December for the doubling of its size – with this building expansion now complete.

SAS AB has sold its facility at the technical base at Oslo airport for MNOK 650 to Oslo Pensjonsforsikring, after having utilized an option to buy the facilities from APAB that has been the previous owner. The transaction does not generate a capital gain or liquidity for SAS, but it will reduce the yearly operating expenses. SAS has concurrently with the sale signed a 15 year leasing agreement with the right to extension.

People On The Move


David Walton

BOC Aviation reported the appointment of **David Walton** as the new Chief Operating Officer to be based in the Singapore headquarters. Mr. Walton has 28 years of aviation finance and leasing experience. He holds a Bachelor of Arts (Honours) from Stanford University, and a law degree from the University of California, Berkeley.

Ascent Aviation Services reported that **Joseph Ng** is now the Company's new Chief Executive Officer, effective November 1st. Mr. Ng joins Ascent with over 30 years of executive experience in the management of aircraft maintenance and quality systems. Mr. Ng began his career with ST Aerospace in 1990 and after continuous advancement within multiple divisions of the company, he was named President of ST Aerospace's Mobile Division (VT Mobile Aerospace Engineering, previously known as ST Aerospace Mobile) in 2005.

Hawthorne Global Aviation Services, a leading general aviation services company, released that **Thomas Auten** has been named General Manager for its Atlanta FBO at Cobb County Airport (KRYY). The Atlanta facility is part of the growing network of Hawthorne FBOs located throughout the United States.

VAS Aero Services appointed **Jeremy Galanti** as Director of Sales and Marketing. An experienced aviation industry salesperson, Galanti is responsible for sales and marketing execution for all of the company's aftermarket parts and service programs, supporting the global business effort from VAS Aero Services' Delta Airlines satellite facility in Atlanta, GA. Prior to joining VAS, Galanti served as a regional sales executive with Delta, where, among other duties, he oversaw maintenance, repair and supply contracts with more than 25 airline partners worldwide.