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AviTrader MRO

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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@aeropublications.co.uk
Mobile: +44 (0) 7871 769 151

Design

Volker Dannenmann,
Layout & Design
Email: volker@dannenmann.com
Mobile: +49 (0) 711 46910151

Advertising inquiries

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

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Opinion

Please send your comments and queries to
keith@aeropublications.co.uk

America: Things are looking up

Oliver Wyman launched its 9th annual airline economic analysis and makes for some compelling reading and revelations.

Overall, the global outlook for air travel appears healthy, thanks to persistent demand, particularly in emerging markets. In the US, the future is tied to the ability of the larger carriers to contain capacity growth. Ultimately, the strategies for success vary substantially by region and type of carrier.

Exerts from the report say after 17 straight profitable quarters, airlines based in the U.S. can be expected to keep the winning streak going in 2018 and beyond. Even as the industry's two largest operating costs – fuel and labour – edge up, a combination of persistent demand for air travel that's outpacing the overall economic growth and new found discipline on adding capacity is keeping network and value carriers in the black.

In fact, the report confirms that in 2017 yield became the second biggest contributor, after new capacity, to revenue gains for US airlines – particularly for the network carriers' domestic operations. For those players, the key to staying profitable has been resisting competitive pressures to add capacity. While many value airlines still make their money and gain market share by adding routes and expanding available seat miles (ASM), their network rivals have learned that following them down that path leads to lower unit revenue..

Keith Mwanalushi
Editor

Material costs management is fundamental for engines.
Photo: AFI KLM E&M

Contents

Inspection of the large-format flight display upgrade at the Atlantic Aviation Group facility in Shannon, Ireland
Photo: Rockwell Collins

Rockwell Collins large-format flight display upgrade for Boeing 767 certified in Europe

Rockwell Collins has reported that its large-format flight display upgrade for Boeing 767 aircraft has received European Aviation Safety Agency (EASA) type certification. The upgrade and certification were completed for Star Air through a collaborative effort between Rockwell Collins, Boeing, Atlantic Aviation Group and L2 Aviation. The new 767 and 757 flight display system, also certified by the Federal Aviation Administration, brings a series of innovative technologies that dramatically enhance situational awareness, improve reliability five-fold, decrease line maintenance actions by 80 percent, provide positive return on investment, and decrease avionics weight. All this, plus mitigating Cathode Ray Tube (CRT) obsolescence challenges, positions the aircraft for future airspace evolutions.

GA Telesis MRO Services signs long–term agreements with Honeywell

GA Telesis MRO Services has signed a long-term repair and overhaul license agreement and parts supply agreement with Honeywell. With this announcement, GA Telesis will be providing repairs of over 175 base part number and line replacement unit (LRU) repair items and sourcing over 1,200 material supply line items from Honeywell Aerospace. Products include electro-mechanical, pneumatic and mechanical LRU's covering a variety of Airbus, Boeing, Bombardier and Embraer fleet applications. These products have been an integral part of its MRO Services capabilities for many years and are currently being serviced from the Miami, Florida facility.

Rolls-Royce secures new jet engine test facility in Fort Worth, Texas

Rolls-Royce will operate a jet engine testbed at the Alliance Airport in Fort Worth, Texas. Rolls-Royce has signed a lease to take over the entire 440,000 ft² former Texas Aero Engine Services (TAESL) facility, of which the testbed is a part. The testbed will be used to carry out endurance test runs for Rolls-Royce Trent engines, allowing the company to continue to support its growing fleet at a time of unprecedented activity. Rolls-Royce is currently introducing three new large civil aero engines into service. The Trent 1000 TEN entered service in November last year, powering the Boeing 787 Dreamliner, and the Trent XWB-97 and Trent 7000 will enter service this year on the Airbus A350-1000 and Airbus A330neo respectively. By the early 2020s, one in two modern wide-body passenger aircraft will be powered by Trent engines. Until its closure in early 2016, TAESL was a maintenance repair and overhaul (MRO) facility run as a 50-50 joint venture between American Airlines and Rolls-Royce. Having signed a lease with property owner, the City of Fort Worth, Rolls-Royce expects the testbed to be operational in a few months with approximately a dozen employees.
Rolls-Royce also recently announced the development of a new testbed facility at its site in Derby, UK, as part of an ongoing commitment to support the growth in delivery of engines expected over the coming years.

StandardAero to cease operations at LAX repair station by end of March

StandardAero has announced that it will cease operations at the company's LAX-based business aviation repair station by the end of March, 2018. However, the company will continue to maintain mobile service capabilities in the Southern California region. After fully evaluating its ability to sustain LAX operations, and in consultation with StandardAero's owners, investors and the board of directors, the company reached a difficult decision to cease operations at the facility. Primary reasons driving the decision included severe and unexpected reductions in the number of worldwide TFE731 engine events and the associated revenue and volume declines which have accompanied this trend, along with multiple, unsuccessful attempts to secure a long-term lease for the LAX facility. In addition, contributing factors to the closure decision included the declining demand for scheduled airframe inspection work at LAX and the desire for operators to utilize other, more-convenient business aviation airports in the area. Until the end of March, the company will be operating the LAX facility in a business as usual manner to complete obligations for current projects and commitments to existing customers. As customer obligations are completed, StandardAero will begin the transition of equipment, tooling and inventories to its other primary business aviation locations.

Air Wisconsin Airlines signs five-year contract with StandardAero for Honeywell 36-150RJ APU MRO services

Air Wisconsin has awarded StandardAero with an exclusive five-year contract to provide maintenance, repair and overhaul services for Honeywell GTCP36-150RJ auxiliary power units (APU) on its fleet of 65 Bombardier CRJ-200 model regional aircraft at StandardAero's Maryville, TN facility. Air Wisconsin Airlines is one of North America's longest-existing regional airlines and now flies as both American Airlines and United Airlines code share. Founded in 1965, Air Wisconsin operates nearly 350 departures per day, system-wide, to 26 states and three Canadian provinces, serving nearly six million passengers per year.

Monarch Aircraft Engineering signs base maintenance contract with La Compagnie

Monarch Aircraft Engineering (MAEL) has signed a new base maintenance agreement with La Compagnie. The French airline is a returning customer for MAEL who will carry out a C check in its Luton, London hangar. The heavy maintenance on a Boeing 757 will start in February 2018.

Anthony Rossi, Executive Director, Business Development, Pratt & Whitney Canada, Jacob Rozmann, VP and General Manager, IAI Engines Division.
Photo: IAI

IAI to provide engine maintenance services for IAE V2500 engines

International Aero Engines (IAE) and Israel Aerospace Industries (IAI) have signed a 10-year general-terms agreement for maintenance of V2500 engines at IAI's BEDEK, Engine Division. The first V2500 turbofan engine, which powers the Airbus A320 family, arrived on December 14 at IAI. In a ceremony held on Thursday, December 17, IAE, which is a consortium of several companies, including Pratt & Whitney, Japanese Aero Engines Corporation, and MTU Aero Engines GmbH, and IAI marked the initiation of the V2500 maintenance agreement which established IAI as a Service Maintenance Center for IAE. IAI Bedek provides added value as a one-stop, full-service provider offering comprehensive maintenance services for aircraft, engines and components under one roof, including heavy maintenance, modifications, upgrades and aircraft conversions. The Engines Division, as part of the Bedek Aviation Group, performs maintenance on a large variety of engines, including the JT9D, CFM56-3/5/7, PW4000.

Oakenhurst Aircraft Services recognized as Gold Supplier to Intertrade Rockwell Collins

Oakenhurst Aircraft Services has signed a support agreement with Intertrade. As a recognized Gold Supplier, Oakenhurst Aircraft Services joins a select group of top-tier companies providing component MRO services. Charlie Parker, Managing Director, commented "We have been aligning our priorities with those of the MRO sector since developing our first engineering facility in 1996. Recognition as Gold Supplier marks another fantastic achievement and confirms our ability to react swiftly to new market demands. Oakenhurst Aircraft Services will deliver the exceptional component reliability and customer service that form our reputation."

West Star Aviation finalizes Embraer Service Center agreement

West Star Aviation has finalized its Service Center agreement with Embraer Executive Jets, at its full-service state-of-the-art maintenance facility in Chattanooga, TN at KCHA. This agreement is for Embraer Base Maintenance on the Phenom 100/300, Legacy 450/500 and Legacy 600/650. The Chattanooga facility will offer interior refurbishment, avionics, avionics installation and repair, inspections, part services, and engine inspections. West Star's Chattanooga location is currently expanding its footprint to include a state-of-the-art paint facility and other updates to the existing current facility to be able to accommodate aircraft up to Lineage 1000 and Lineage 1000E. The paint shop expansion is projected to open September 2018 and will offer full-service paint capabilities on Embraer and other aircraft.

IAC underway with Air Wisconsin livery transition program

IAC (International Aerospace Coatings) is well underway with Air Wisconsin Airline's CRJ-200 livery transition program. The project, which began in September at IAC's Fort Worth, Texas facility, encompasses the painting of 65 Bombardier CRJ-200 regional jets from its previous brand, into the United Express livery over a short-term period. This transition is part of Air Wisconsin's new long-term contract with United Airlines. In addition to exterior painting, IAC has been working in conjunction with Air Wisconsin to rebrand the interiors. The Fort Worth location, acquired by IAC in 2011, was specifically chosen to perform the work because of the existing infrastructure and back shops to support the interior modifications. In the few months that the program has been operating, IAC has successfully met a condensed turn-around time of the combined interior and exterior work scopes of 14 days.

Embraer signs pool program contract with Widerøe for E-Jets E2

Embraer and Widerøe, the largest regional airline in Scandinavia and launch customer for the E190-E2, have reached an agreement on a Flight Hour Pool Program for the airline's soon-to-be inducted E2 fleet. This is the first contract of its kind signed for the E-Jets E2, Embraer´s second generation of the E-Jets family of commercial aircraft. The agreement will cover more than 300 key rotable components for the airline's E190-E2 fleet. Widerøe will receive its first E190-E2 in April of 2018, beginning revenue service with the aircraft shortly afterwards. Widerøe's contract with Embraer is for up to 15 E2 jets, consisting of three firm orders for the E190-E2 and purchase rights for 12 further E2s. The order has a potential list price value of up to US$873m, with all orders being exercised. The airline is configuring the E190-E2s in a comfortable single-class layout with 114 seats.

Aeroco Group announces new facility

Aeroco Group International, a leading specialist in aircraft component maintenance, has significantly expanded its operations with a brand new 20,000 ft² state-of-the-art facility. Due to be completed and operational by the middle of this year, the new premises will complement Aeroco's existing facility at Manchester Airport and will incorporate industry-leading aircraft component maintenance and advanced manufacturing services. The new facility will provide Aeroco with 100% capacity growth to support their increasing customer base of airlines, leasing companies, MRO's and component traders. Once operational, the new facility will create new jobs across all areas of the business.

Oriens Aviation acquires Avalon Aero at Biggin Hill
Photo: Gary Stone Photography

Oriens Aviation moves into Pilatus PC-12 MRO support with Avalon Aero acquisition

Oriens Aviation, the British Isles Pilatus Centre, has reinforced its commitment to the single-engine turboprop (SET) Pilatus PC-12 and the growing SET commercial operations' market in Europe by acquiring Avalon Aero's business aviation MRO facility at London Biggin Hill Airport. The business will be formally renamed and inaugurated as Oriens Aviation Limited effective immediately, with a view to becoming the principal authorized PC-12 Service Centre in the UK by January 29, 2018. (Oriens' activity extends to an agreement with Goodwood Engineering, who will act as a satellite service center). As a result of the acquisition, Oriens will also have the expertise to support other aircraft types for all line and base maintenance activity. This includes:

- Cessna 421/550/551/560
- Hawker Beechcraft BAE 125 Series 1000
- Piaggio P180 Avanti

The deal between the owner of Avalon and the Oriens Aviation Board was ratified on December 1, 2017, including the transfer of the existing Avalon Aero lease on its 18,000 ft² hangar. Ahead of the deal, Oriens appointed an additional member of its senior management team in October 2017 to work alongside the existing seven-strong team which Oriens is absorbing.

Newly appointed Director of Engineering Dave Plumpton brings significant aviation and strong customer support experience having worked in the challenging airline and VIP aircraft environment for almost 40 years. Steve Westran, from Avalon Aero, will work alongside him and continue to be responsible for the daily operations of the hangar and maintenance services.

Triumph expands space applications with contract for Dream Chaser Spacecraft landing gear system

Triumph Group has released that its Integrated Systems business unit will provide the landing gear system for the Dream Chaser® spacecraft, a reusable, lifting-body vehicle in support of NASA's Commercial Resupply Services 2 (CRS2) program that will resupply the International Space Station. The contract for work was signed with Sierra Nevada Corporation (SNC), and includes the main and nose landing gear, as well as integrated actuation solutions for the landing gear and gear door systems manufactured at Triumph's Redmond, Washington site. Triumph Integrated Systems previously partnered with SNC to provide consulting services for the Commercial Crew Integrated Capability (CCiCap) program with NASA, also in support of the space station. In addition, the company also provides high-precision miniature motors to support robotic satellite demonstration missions.

StandardAero awarded five-year contract to provide APU MRO services for PSA Airlines

StandardAero has been awarded an exclusive, five-year contract to provide Honeywell RE220 and Honeywell 36-150RJ model auxiliary power units (APUs) maintenance repair and overhaul services/support for PSA Airlines' fleet of CRJ 700/900 and CRJ200 aircraft. The airline currently operates 121 regional aircraft, with plans to grow to 150 aircraft in the coming years. The contract secures StandardAero as the exclusive MRO partner through July, 2022. APU services will be provided at StandardAero's Maryville, TN facility. PSA Airlines is a wholly owned subsidiary of American Airlines Group and operates an all-jet fleet consisting of exclusively Bombardier regional jet aircraft.

C&L Aerospace signs distributor agreement with Champion Aerospace

C&L Aviation Group has announced that its aircraft parts company, C&L Aerospace, has signed an agreement with Champion Aerospace, a wholly owned subsidiary of TransDigm Group, to serve as a distributor of the company's turbine ignition products, which include igniters, exciters and leads for all general aviation aircraft types supported by C&L. The new agreement widens C&L's engine product offerings and adds to the growing list of OEM factory-new parts offerings.

Magnetic MRO acquires major pool of 737-800 aircraft and engines

Magnetic MRO, a Total Technical Care maintenance and asset management organization, completed the acquisition of a package of four Boeing 737-800 airframes and ten CFM56-7B engines. The pool of assets was acquired by a newly established asset vehicle called Magnetic Parts Trading Limited, a joint venture between Magnetic MRO and Crestline Investors. Crestline Investors is supporting the transaction with the majority of capital needs, whereas Magnetic MRO acts as exclusive asset manager for the joint investment vehicle. This is the first major acquisition of the newly established structure, with more significant projects planned for 2018-2020. "Three years ago, Magnetic MRO changed its strategic positioning from being a labor-intensive maintenance facility to more technology, know-how, and capital driven aviation service organization. We made a number of steps in the areas of technological differentiation and broad know-how of managing complex asset projects. This latest acquisition of a major package of current generation assets, together with our financial partners Crestline Investors, marks another significant step for Magnetic MRO in executing our strategic direction. We aim to become a strong value-adding partner not only to the historical pool of airline customers, but also to the asset owners and financial investors in the aviation industry."

Liebherr Aerospace Brasil certified by Nadcap

Liebherr Aerospace Brasil has received two certifications by the authority of the Nadcap Management Council for Non-Destructive Testing and Chemical Processing. Liebherr Aerospace Brasil, Guaratinguetá (Brazil) was successfully audited by the Performance Review Institute (PRI), which administers Nadcap (National Aerospace and Defense Contractors Accreditation Program) – an independent organization that certifies manufacturing processes for the industry.
Liebherr-Aerospace has invested in its facility in Brazil in order to offer its customers high-quality products that fully comply with the certified processes and standards. The company has deployed comprehensive facilities for non-destructive tests, and has built a state-of-the-art infrastructure for surface treatment, which both enable it to meet its customers' strict standards and specifications. Beside the Non-Destructive Testing certificate, which is valid until October 2018, and the Chemical Processing certification with its validity until January 2019, Liebherr Aerospace Brasil is an AS9100-Rev.C (NBR 15100:2010)- and ISO 14001:2015-certified organization.

FL Technics completes major aircraft modifications for the fifth Airbus A321

FL Technics has already completed a major upgrade project for the fifth Airbus A321 in 2017. The latest modification comprised fundamental equipment and furnishing changes in cargo compartment, including the removal of ACT in the AFT cargo hold and the installation of a semi-automatic cargo loading system to both cargo compartments. The passengers' compartment had to be reconfigured by modifying monuments and adapting seat layout. The newly installed ventilation and heating system in the AFT cargo compartment allows for safe animal transportation. Another significant part of this project was the installation of a wireless ground link quick access recorder designed to provide quick and easy access to raw flight data. Now the operator no longer needs to physically download data from FDR. Instead, such data will be automatically sent to the operator's data-server upon aircraft arrival to the airport.

FL Technics lands 2 new clients from Lufthansa Group: Germanwings and Swiss International Air Lines

FL Technics, a global provider of integrated aircraft maintenance, repair and overhaul services, has announced signing agreements with two Lufthansa Group carriers – Germanwings and Swiss International Air Lines. FL Technics has signed a contract with Germanwings for the provision of base maintenance services. The contract with the European carrier is an anticipated result after having launched new base maintenance management practice, bringing FL Technics production services to the next quality level. The first three out of five aircraft have already landed for C- and D-checks. Germanwings GmbH is a German low-cost airline based in Cologne. The carrier operates a fleet of 45 Airbus A319/320 aircraft, and is a subsidiary of Lufthansa Group.
Another prominent Lufthansa Group carrier to have recently signed a cooperation agreement with FL Technics is Swiss International Air Lines. The five-year-long agreement covers base maintenance, engineering and DOA services. Its first aircraft has already

arrived at FL Technics for a window frame replacement.

Spirit AeroSystems develops new composites manufacturing technology

Spirit AeroSystems has released that its Advanced Technology Centre in Prestwick, Scotland, has developed an improved method for manufacturing composite parts. In collaboration with the University of Strathclyde and the Scottish Innovation Centre for Sensor and Imaging Systems (CENSIS), Spirit developed an intelligent heated tool for curing composite components. The new technology can cure composite parts 40 percent faster, at half the cost, and supports a wide range of composite components across industries, from wind turbine blades to the next generation of composite aircraft.

"Instead of curing components at a standard temperature for hours at a time, we can now tailor the cycle time to match individual part geometries," Stevie Brown, lead engineer at Spirit's Advanced Technology Centre in Prestwick, explained. "The autoclave has been a bottleneck in manufacturing lines, and removing it will reduce cycle times for components, cut production costs and decrease energy consumption." Typically, high-performance composite materials are layered on a specially formed surface, or tool, and then placed in an autoclave, where a combination of heat and pressure accelerate the hardening of the material. Spirit's new technology introduces an intelligent, multi-zone heated tool, removing the need for an autoclave. The tool enables complete control of the curing process through real-time monitoring and feedback. CENSIS supported the collaboration with funding and provided project management expertise. The University of Strathclyde provided technical support and developed the control algorithm and software for the intelligent tool. The collaboration will continue through 2018, and Spirit has already begun applying the technology in research and manufacturing projects.

MAC Aero Interiors gains S9100 certificate

MAC Aero Interiors has gained AS9100 certificate meeting high-quality system requirements in the aerospace industry. AS9100 is the standardized model quality management system certified by Lloyds Register Quality Assurance, which has issued the certificate confirming MAC Aero Interiors to be compliant with this internationally recognized quality standard. Following-on from the recent AS9100 certification, MAC Aero Interiors hosted a team of three assessors from Airbus GmbH & Airbus Operations UK. The visitors carried out the Airbus Industrial Process Control Assessment (IPCA+) with the focus on controlling the processes during the production of Airbus products, supported by Supply Chain and Operations areas.

KLM UK Engineering and West Atlantic UK sign contract for airframe maintenance

An AFI KLM E&M subsidiary has signed an airframe maintenance contract for 2018 with West Atlantic UK. A European leader in the regional jets and narrow body aircraft market and having an internationally acknowledged expertise on the Boeing 737, Embraer 170/190, BAe146/Avro RJ, Fokker 70/100 & Airbus A320 Family, KLM UK Engineering has confirmed its contract with West Atlantic UK. Airframe maintenance checks with West Atlantic UK will commence on their Boeing 737 Freighter fleet in January 2018.

StandardAero awarded multi-year contracts to provide APU, MRO services for Russian-based Yamal Airlines

StandardAero has been awarded two multi-year auxiliary power unit (APU) maintenance, repair and overhaul (MRO) contracts to support Yamal Airlines, a Russian-based regional operator. The contracts include a three-year agreement to provide Honeywell GTCP36-150RJ APU MRO services for Yamal's fleet of 10 CRJ-200LR aircraft and a five-year agreement supporting Honeywell RE220 APU MRO services on Yamal's fleet of 10 Sukhoi Superjet aircraft, which is expected to grow to 16 aircraft by early next year.

These new agreements were signed on November 24, and activated on December 1, 2017. APU services will be provided at StandardAero's Maryville, TN facility. Yamal Airlines is based in Salekhard, Yamalo-Nenets Autonomous Okrug, Russia, with its main hub in Tyumen. It operates regional passenger services and was established in 1997.

AerSale to be new North American modification provider for 757-200PCF conversions

AerSale, a global supplier of mid-life aircraft, engines, used serviceable material (USM), and MRO services, has reached an agreement with Precision Aircraft Solutions (Precision) to provide 757-200PCF freighter modifications for the company at its Goodyear, Arizona, MRO facility. Additional services provided by AerSale will include regular maintenance checks, aircraft painting, and avionics modifications. Precision currently has three other approved modification and installation facilities—Flightstar Aircraft Services, located in Jacksonville, Florida, HAECO, located in Xiamen, China, and AMECO, located in Chengdu Base, China.

Pratt & Whitney inks 12-year Engine-Wise Fleet Management Agreement with S7 Airlines

Pratt & Whitney and S7 Airlines have signed an agreement for a 12-year Pratt & Whitney EngineWise™ Fleet Management Program. The agreement will cover S7 Airlines' fleet of 30 Airbus A320neo and A321neo family of aircraft powered by the Pratt & Whitney PurePower® Geared Turbofan™ (GTF) PW1100G-JM engines.

Dassault Aviation awards Daher construction of new logistics platform near Paris-CDG Airport

A longstanding industrial and supply-chain partner to Dassault Aviation, Daher is expanding its third-party logistics (3PL) services to the aircraft manufacturer for spare parts for civil aviation aircraft. The contract between Dassault Aviation and Daher provides for the construction of a Daher logistics platform which will be largely automated and digital, with HQE environmental certification in the Aerolians Paris business park. This comprehensive solution includes the building, infrastructure, information system and logistics operations. Daher and Dassault's spare parts logistics partnership for the entire range of Falcon civil aircraft spans nearly two decades. Daher designed and currently operates a distribution platform for spare parts near Le Bourget Airport. Daher is now set to build a new logistics platform, Daher engineers designed the building to handle the flow of spare parts and aircraft repairs, with the Falcon fleet's long-term outlook in mind. It will feature innovative storage facilities and a coordinated management system connecting the various stakeholders to boost overall performance. Dassault Aviation's Falcon spare part teams, Daher, and the forwarding agent will all be working under the same roof at the platform, which will ensure the availability of Falcon parts and equipment, in particular for Aircraft on Ground (AOG) assistance, with a two-hour turnaround 24/7.

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Rockwell Collins' share-owners vote in favour of acquisition by UTC

Rockwell Collins' shareowners overwhelmingly approved the proposed acquisition of Rockwell Collins by United Technologies Corp. More than 96% of all votes cast, representing more than 72% of all shares of common stock outstanding on the record date for the special meeting, were in favor of the transaction. Upon satisfaction of required regulatory and other customary closing conditions, Rockwell Collins will be combined with UTC Aerospace Systems to create a new United Technologies business called Collins Aerospace Systems. The proposed transaction is expected to close by the third quarter of 2018.

ST Engineering's aerospace arm injects capital into Engine Asset Management JV

Singapore Technologies Engineering (ST Engineering) has released that its aerospace arm, Singapore Technologies Aerospace (ST Aerospace), through its subsidiary ST Aerospace Engines (STA Engines), has injected its proportional share of US$1.47m (approximately S$1.96m) into the capital of its 50%-jointly controlled company, Total Engine Asset Management (TEAM). This injection will support the expansion of ST Aerospace's engine leasing business, bringing its total investments to US$16.49m (approximately S$21.96m). TEAM is a joint venture established in 2011 between ST Aerospace and Marubeni Corporation. TEAM provides engine leasing services for CFM56-3, CFM56-5B, CFM56-7B engines that power narrow-body aircraft, such as the Airbus A320 and Boeing 737NG, as well as the IAE V2500 engine which powers the Airbus A320 family (A320, A321, A319 and the Airbus Corporate Jet). For wide-body aircraft, TEAM provides engine leasing services for the GE90-115B engine that powers the Boeing 777-300ER.

Magnetic MRO expands into Asia with share sale to Guangzhou Hangxin Aviation Technology

The global Total Technical Care maintenance and asset management organisation, Magnetic MRO, together with existing shareholders, including majority shareholder BaltCap, have agreed to sell 100% of shares in Magnetic MRO to Guangzhou Hangxin Aviation Technology (Hangxin.)

According to Magnetic MRO CEO Risto Mäeots, "Magnetic MRO management has been actively looking for opportunities to expand into Asia, the highest growth market in aviation. Hangxin, with its existing geographical presence and service portfolio, is complementary to Magnetic MRO, creating substantial synergies and new business opportunities."

Mäeots added: "We are very pleased to welcome Magnetic MRO to the Hangxin team. Magnetic MRO and its team have developed a high quality, reliable, customer-focused MRO business," said Mr. Lv Haibo, the Vice President of Hangxin. "We fully support the existing strategy and executive management team, and will support Magnetic MRO's focus on continuing to deliver value to its existing customers, and expanding its global MRO presence."

During the past five years, Magnetic MRO has expanded from a labor-intensive maintenance facility into a technologically advanced, innovative, know-how and capital-driven service and asset management organization. The company has grown by launching new business units, opening new facilities and securing numerous long-term agreements with major carriers. Magnetic MRO sales increased exponentially in 2010-2017 and is anticipated to continue to grow at the same rate over the forthcoming years.

Hangxin was founded in 1994, providing technical solutions in the field of aircraft engineering and safety to the Chinese aviation industry. The company currently serves over 50 airlines in Asia, the Middle East, Europe and North America.

Amedeo completes management buyout of majority investor

Amedeo, an asset manager and a principal investor focused on wide-body aircraft leasing, has completed a management buyout of its majority shareholder Pine Brook, a private investment firm focused on building businesses in the energy and financial services sectors. Financial terms of the private transaction were not disclosed. Amedeo's four-year partnership with Pine Brook saw significant growth in the business, with assets under management growing from US$1bn to US$5bn. During that period, the Company established Amedeo Air Four Plus (AA4P), a London Stock Exchange-listed company with a market capitalization of approximately GB£675m (US$904m). AA4P is a transparent, income generative, and diversified investment company backed by UK institutional investors. Amedeo arranges acquisition and disposal of aircraft for AA4P and provides asset management services.

Tokyo Century Corporation to invest in Aviation Capital Group

Aviation Capital Group (ACG) has announced that its parent company, Pacific Life Insurance Company, has closed a transaction with Tokyo Century Corporation (TC) that results in an investment by TC for a 20% membership interest in ACG. In addition to this initial investment, TC has agreed to provide additional capital to ACG to help accelerate ACG's business expansion and create incremental business opportunities. Pacific Life will retain a controlling interest in ACG. TC is publicly-held and listed on the Tokyo Stock Exchange. Its core lines of business include equipment leasing, specialty financing, domestic automobile financing, and international business with a global network in 37 countries. TC's aircraft financing operation currently owns 48 aircraft.

Rolls-Royce obtains final approval for acquisition of ITP

Rolls-Royce has obtained the approval of all the relevant authorities for the acquisition of the outstanding 53.1% shareholding in Industria de Turbo Propulsores SA (ITP), owned by SENER Grupo de Ingeniería SA (SENER). Approval from the authorities in Spain paves the way for Rolls-Royce to conclude the acquisition, which was originally announced on July 11, 2016. On November 28, 2016, Rolls-Royce confirmed the valuation of €720m (US$850m) for the 53.1% shareholding, following due diligence. Consideration will be settled over a two-year period following completion in eight evenly spaced instalments of equal value. The agreement with SENER allows flexibility to settle each tranche of the consideration either in cash or in the form of Rolls-Royce shares, as preferred by Rolls-Royce. Completion is expected before the end of 2017. The first payment will be made 16 business days post-closing in early 2018 and the consideration will be in the form of shares. The decision on the form of subsequent payments will be determined as each individual payment falls due.

Mitsubishi Aircraft Corporation has selected **AMOS (Aircraft Maintenance and Engineering System)** to support the certification process for its new MRJ90 Regional Jet. Although AMOS has been developed for airline maintenance departments and MRO companies, the high configurability of the system means that it can be configured to manage the unique pre-production certification requirements. AMOS will be used to manage and support the flight-testing process in the U.S., taking place at the Moses Lake flight test centre. With the implementation of AMOS at Mitsubishi Aircraft Corporation, the company expects to further streamline its flight testing and certification process of the MRJ90, helping to bring this next-generation aircraft into operation as efficiently as possible.

Israel Aerospace Industries (IAI) board of directors has approved IAI's CEO and President, Joseph Weiss' proposal to implement a structural transformation. The main initiative implemented under the transformation is the establishment of a single aviation group for all IAI's aviation businesses. Currently, IAI is structured in six independent groups, each with a turnover of several hundreds of millions of dollars. The new group will focus on four business lines: aircraft development and manufacturing; development and production of aviation assemblies; aircraft conversion and enhancement, and aircraft maintenance. Yossi Melamed, Executive Vice President & General Manager of Bedek Aviation Group has been named General Manager of the new group.

Los Banos, Manila-based technical services organization, **Wingbox Aviation**, has chosen **Commsoft's** MRO IT system, OASES, to support its diversifying fleet technical management operations. Currently supporting over 130 aviation operations in more than 55 different countries, OASES is one of the most successful aviation engineering and maintenance systems, combining a very high level of technical sophistication with an intuitive user interface. Designed by engineers for engineers, OASES is structured in a modular format to allow for scalability, and Wingbox Aviation has contracted for the Core, Airworthiness, Planning, Materials and Line Maintenance Control modules.

Monarch Aircraft Engineering has implemented a new competency based system with the **ELMS** Aviation application. Using the cloud-based software system will provide MAEL, a Part 145 and Part M approved organization, with an enhanced solution to better manage competence and compliance of its highly skilled staff. Having the ELMS Aviation application allows all engineers working in maintenance and continuing airworthiness to build a complete profile of their competence, in accordance with EASA regulations and industry best practice.

Swiss AviationSoftware (AMOS) has signed contracts with **ENGINEERING Holding**. AMOS will contribute to the work scope expansion as well as digitalization strategy of four organizations: ENGINEERING Holding, **S7 Engineering**, **Sibir Technics** and **Cyprus Airways**. Thanks to the AMOS Financial Multi Entity functions, the MRO organizations of the group will work within the same AMOS environment and will benefit from synergies due to common processes and integrated transactions between the entities. Cyprus Airways will have its own AMOS environment under the group umbrella agreement as processes and business needs of this airline differ from those of the MRO providers.

Other News

Effective January 1, 2018, **Lufthansa Technik AG** is the new training organization for approximately a dozen young people who are currently in training programs at **Air Berlin Technik**. As a consequence, all of Air Berlin's aircraft mechanic and avionic trainees who began their training in 2015, 2016 or 2017 will have the opportunity to conclude their training programs in their desired professions. Lufthansa Technik and the **United Services Trade Union ver.di** came to this agreement after the new owner of Air Berlin Technik announced that it was not continuing the company's training programs. With these new trainees, the total number of people in traditional or dual-study training programs with the **Lufthansa Technik Group** in Germany will rise to just under 600. **Lufthansa Technik** and **Lufthansa Technical Training** are currently working on the contracts and training contents needed for taking over the trainees in Dusseldorf and Frankfurt, and look forward to working with them in the new year.

Czech Airlines Technics (CSAT), a daughter company of the **Czech Aeroholding Group** providing aircraft repair and maintenance services, and the Faculty of Transportation Sciences of the **Czech Technical University in Prague (CTU)**, have signed a Memorandum of Co-operation in the field of aviation. The organizations are to work together on projects, share professional knowledge, and promote the interconnection between the academic field and practice. Students will get the opportunity to join a long-term vocational training program run directly on CSAT's premises. They will experience real operations and get the chance to draft their graduation thesis during the internship. The organizations will join forces when working on specialized aviation-related matters, e.g. on the evaluation of operational reliability or safety in the field of aircraft maintenance, alongside other issues. The co-operation will be pursued predominantly with the Air Transport Department of the Faculty of Transportations Sciences of CTU. Concurrently, Czech Airlines Technics will provide the university with decommissioned or damaged aircraft parts to be used by students during lectures to learn, for example, how to identify particular defects.

Rolls-Royce has launched R2 Data Labs, to act as an acceleration hub for data innovation. The new organization, which brings together expertise from across the business, builds on 30 years of data-led services and business model innovation. Using advanced data analytics, industrial artificial intelligence and machine learning

techniques, R2 Data Labs develops data applications that unlock design, manufacturing and operational efficiencies within Rolls-Royce, and creates new service propositions for customers. At the heart of R2 Data Labs are Data Innovation Cells; mixed discipline teams of data experts who work in collaboration with teams from across Rolls-Royce's operations. These cells apply cutting-edge DevOps principles to rapidly explore data, unlock and test new ideas, and turn those ideas into new innovation and services. These Data Innovation Cells will accelerate new ideas to fuel an already exciting portfolio of predictive, data-based services in areas such as asset availability, efficiency and maintenance or safety and compliance. Through R2 Data Labs, customers will be able to tap into a new community of exciting data innovation that combines deep industry, design, engineering and manufacturing domain knowledge with a global pool of Rolls-Royce data expertise. R2 Data Labs works with best-in-class partners to provide IT infrastructure and to power its analytics ecosystem. This approach ensures Rolls-Royce can take advantage of the best open source technologies available and quickly respond, or co-create, to meet the fast-changing innovation needs of its customers.The launch of R2 Data Labs follows the recently announced partnership with **Tata Consultancy Services (TCS)**, giving Rolls-Royce a new digital platform capability. The platform enables data to be captured, shared and analyzed more easily across all areas of Rolls-Royce, so that new products and services can be developed at pace. This complements a preferred-partner agreement with Microsoft for cloud solutions, and positions Rolls-Royce closely alongside two globally recognized digital service providers. R2 Data Labs has data innovation capability hubs in the United Kingdom, United States, Germany, Singapore, India and New Zealand.

A new project at **Embry-Riddle Aeronautical University**, funded by a US$1m grant from the **U.S. Department of Commerce** through its **Economic Development Administration (EDA)**, is expected to create 387 new jobs and spur US$1.6m in private investment. On Dec. 11, U.S. Secretary of Commerce Wilbur Ross announced that a US$1m award to Embry-Riddle will be used to establish a new aviation and engineering research center in Florida. Specifically, the grant will "help build the Applied Aviation and Engineering Research Hangar in Volusia County," the U.S. Department of Commerce reported in an official news release. The facility will serve as the new home for Embry-Riddle's Eagle Flight Research Center, a hub for engineering research and development.

Engine materials

There is growing trend to install new LLPs into popular engines.
Photo: Magnetic MRO

Material's management is the most critical aspect when it comes to providing cost-efficient MRO services for engines, **Keith Mwanalushi** delves into the solutions.

Materials can make up a considerable percentage of shop visit costs, depending on engine type and age. There are several factors that are key to being able to manage material costs for engines. For younger engines, this can be combatted with alternative repairs to save costs and intelligent work scoping says Ruediger Heinrich - De Stefano, Director Asset Management, MTU Maintenance.

Whereas for mature engines, De Stefano observes that when MRO costs increase due to the need for heavier shop visits, used serviceable materials are increasingly used. "Luckily, the mature engine market also offers opportunities to find alternatives: this arises from more repairs typically being available and aircraft retirements. Retirements see more used engines and related material appearing on the market."

For instance, he states, with the market entry of A320neos and 737 MAXs, many CFM56 and V2500 engines will be retired in the coming years, creating an increased supply of surplus engines and used serviceable material (USM), which can be fed into cost-effective solutions.

"And the more surplus engines and USM is available in the market, the more flexible and cost effective it can become. At MTU Maintenance, we use such material in our mature engines programme instead of installing brand new and more expensive parts – especially if operators have engines facing their last run before retirement," De Stefano remarks.

Additionally, it is worth mentioning that vendor management is an important aspect with regards to material costs – key to both repair and scrap rate management and parts sourcing. De Stefano explains that having materials and repairs available at the right time, for instance through GTAs with OEMs and key suppliers, is imperative in achieving turnaround times for customers. "We have excellent supplier relationships and take a partnership approach to our dealings," he says.

For mature engine overhauls, in which CTS Engines excels, CEO Brian Neff says the ultimate sale price of a used serviceable replacement part can vary wildly between sources. "Therefore, it is critical for airlines and lessors to work with MROs like CTS who can rationalise the used serviceable part supply chain for mature engines and keep costs down."

For these USMs, Amar Chouaki AFI KLM E&M VP Business Development, Engines observes that this market is under pressure. "As for the repairs, developments can be extensive, but require specific skills and capabilities that develop gradually along with the engine lifecycle.

"Then, material costs management is fundamental for MROs to offer competitive maintenance solutions to the market, and for the airlines to have the ability to contain their cost of ownership," Chouaki states.

The 2017 engine parts market was an even more competitive space than that seen by Magellan in 2016. It is clear that operators, lessors and MROs are seeing the benefit of utilising USM in maintenance

Developing advanced engine material management systems is vital.
Photo: Magnetic MRO

on both legacy and current production engines. Material input can compose up to 90% of a heavy shop visit for an engine, as compared to around 50% for airframe maintenance, according to David Rushe, Director – Sales and Marketing, Europe at Magellan. So, as he specifies, the potential cost savings are quite evident, particularly given the pro-rata savings that can be realised in high cost components such as LLPs and HPT blades versus new parts.

Rushe - A growing side of our business is consignment.
Photo: Magellan

One of the prominent discussion points at engine-related conferences this year is technical records. Despite the efforts of various industry groups, no defined list of tech records requirements exists to accompany the sale of an aircraft or engine. The levels of acceptance of records vary across the industry and it has put pressure on the Quality and Records departments in aftermarket firms, such as Magellan to ensure adequate records are in place to accompany the sale of a part and ensure its full value is realised on the market.

Operators can reduce physical inventories of material by turning the ownership of spare parts pools, to support the repair cycles of removed units, back to the MROs suggests Brian Beair, VP Business Development, North America at AJW.

Brian Beair, VP Business Development, North America at AJW

He says by utilising advanced exchanges of inventory, this can result in excess inventory owned by the operator. "They, in turn, can sell this excess inventory to MROs or other operators. Another option is to sell or consign stock to aftermarket suppliers, such as AJW, thereby creating revenue opportunities - providing them with a flexible and innovative solution to monetise their assets.

"Additionally, AJW takes full control of all removed material from an engine post shop visit and evaluates the potential for recovery, upgrade and saleability. If the engine can be salvaged by repair or upgrade, AJW will then sell the part into the market on behalf of the

Major part of the cost of an engine shop visit relates to material.
Photo: AFI KLM E&M

material owner on a split consignment basis as part of their material recovery programme," Beair stipulates.

KLX Aerospace Solutions has been providing fastener and small assembly product to both engine OEM's and MRO facilities for many years. This portfolio includes standard aerospace products, but also OEM proprietary part numbers.

When contracted with KLX, the burden of inventory management and ownership is shifted from the MRO to KLX, whilst still guaranteeing "100% reachback, "or availability of any piece part whenever needed, indicates Leiza Minchella, Senior Director of Sales, KLX Aerospace Solutions. "KLX establishes dedicated inventory at either the customer site or one of its 60 warehouses around the globe, and then works with the customer to design the best delivery solution."

Leiza Minchella, Senior Director of Sales, KLX Aerospace Solutions

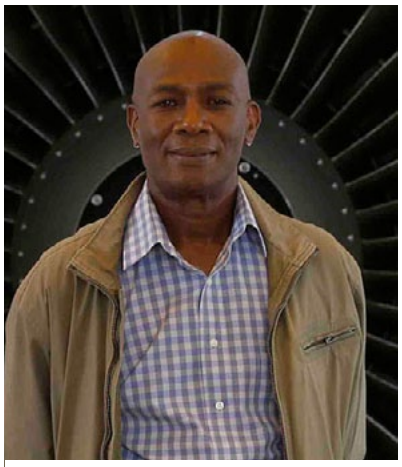
Minchella explains that the mechanism for delivery of parts to the MRO mechanic can take many forms - from simple point-of-use bin programmes, to detailed piece part kits. "But, the single unifying element is quality parts available when they're needed, where they're needed," she says.

KLX also has an established process for managing customer-owned inventory, and through its e-commerce platform (ShopKLX.com), MROs can decrease the operational cost of managing their parts and products. "It can help MROs access new customers by boosting brand awareness and availability for its niche products globally without any geographical limits. The ShopKLX.com platform offers MROs a scalable and proven e-commerce solution to meet the industry demand as well as customer requirements by introducing different sales channels and reaching market segments," Minchella states.

Glenford Marston, General Manager of Aero Norway stresses that operators can work with MROs to closely manage inventories, and look at reducing such inventories based on each operators' engine configurations. "Forecasting material needs, marketplace demands, and data analysis of stock levels are all important. Operators need to exercise flexibility to see revenue opportunities," he remarks.

Surplus engines, modules and spare parts are valuable materials that can be evaluated to establish their current market value says De Stefano from MTU. "As an MRO provider, we are interested in all engine modules and parts. We purchase parts or provide an exchange service to reduce turnaround time for operators."

Additionally, MTU Maintenance provides end-of-life and engine life extension services that can be interesting for asset owners.



Glenford - LLPs are the main material cost drivers of the shop visit.
Photo: Aero Norway


Filip Stanisic, Head of Engine Management Department at Magnetic MRO.

Engines with remaining "green-time" can be bought, leased or exchanged generating additional income for the asset owner.

There are also cases in which it is simply no longer economical to operate an engine. And asset owners look for exit management strategies. "One of which is a direct sale. But, the sum of the engine parts can be worth more than the engine as a whole. In these cases, MTU offers teardown and parts remarketing services. This can include individual work scoping, the disassembly of the engine and the recovery of its usable parts, all the way to parts management and storage. The recovered parts can either be used by the customers themselves or consigned to MTU – which uses the material itself of sells it to third parties through its remarketing channels.

If operators wish to get involved in supplying their own material for shop visits—a position that CTS Engines strongly encourages—then it is best for them to concentrate on the "A" parts of an engine—that is the high dollar, high scrap items, such as core airfoils that account for the bulk of material costs, Mr Neff suggests. "It is not a good idea for operators to stock the 'B' and 'C' parts. Typically, operators are not focused on surplus material sales as they take up a lot of time."

Magellan acquires much of its engine material through the acquisition of whole aircraft or stand-alone engines. "However, a growing side of our business is consignment, whereby Magellan manages the storage, repair management and sale of material from whole assets or packages of material," says Rushe.

Magellan has enabled well established airlines, MROs and lessors to generate revenue from excess material. Another key trend witnessed in 2017 according to Rushe was renewed demand for older engine types, which may previously have been seen to be surplus requirement. Examples include the CFM56-3C1 and -5A models, the CF34-3B1 and the PW4000-94. "It is clear that operators are seeing the advantages of using these engines for prolonged periods amidst low fuel prices and with cost-effective maintenance strategies. The demand for these assets has in turn led to a hunger for applicable spare parts to keep shop visit event costs to a minimum."

The role of life limited parts (LLPs) and parts manufacturer approval (PMAs) also come into play. Filip Stanisic, Head of Engine Management Department at Magnetic MRO says the situation with LLPs is very specific since for most widely used engines as CFM56-5B, CFM56-7B and V2500-A5 engines there are very limited number of used LLPs in the market. "This is directing a lot of operators to install new LLPs into engines, even in situations when planning is assuming that those parts will not be used till the end of their life, which is increasing the price of shop visit significantly. LLP related cost can be between 30% and 60% of the total cost of engine repair," indicates Stanisic.

PMA material plays a much less important role in engine repairs today compared to previous times observes Stanisic. He says for engines like the CFM56-3, PW 4000 94-inch and CF6-80C2 engines there was a lot of PMA material connected with hot section that could significantly decrease the price of an engine shop visit. But for more advanced engines but like CFM56-5B, CFM56-7B and V2500-A5 PMA material of hot section airfoils is almost non-existent. He points out that only HPT Stg.2 blade for V2500-A5/D5 engine was develop but it was not widely used, very limited number of sets were installed. "So, excluding CFM56-3, PW 4000 94-inch and CF6-80C2 engines there is no PMA solution that can bring the cost down. Moreover, in the current market environment where more than 50% of the most distributed engines like CFM56-5B/7B, V2500-A5 are leased – PMA parts are forbidden by the Lessors. This is the main reason why nobody was developing hot section PMA parts for these engine types." Stanisic highlights.

LLPs are the main material cost drivers of the shop visit and these play a large part in varying costs. "Timing shop visits based on well managed maintenance schedules, combined with LLP availability can lower the costs. Depending on the PMA these can also help to lower material costs due to the difference in price to OEM parts," adds Marston from Aero Norway.

The consensus by MROs is operators look toward reduced cycle life engine builds, obtaining life limited parts can provide dramatic savings compared to using OEM new parts with full life cycle limits remaining.

In 2017, AJW dismantled several first run engines to gain access to half price LLPs. "As these are the highest demand parts in an engine build and rarely available on the market, having these provided as USM gives engine owners a significantly lower cost over buying new LLPs," Beair says.

Additionally, in Beair's opinion, PMA parts approval and usage in engine builds has increased significantly, which enables further savings on the overall engine build. "Demand for USM and PMAs continues to grow as they are increasingly institutionalised by the leading airlines."

Chouaki from AFI KLM E&M sees that LLPs are in essence scrapped after a certain period. "It is therefore of the utmost importance that LLPs have as much stub life as possible. Then, when replacement is needed, depending on the targeted rebuilt life of the engine, used LLP parts may be used [remaining life] to optimise costs versus time on wing."


Chouaki says airlines are looking at predictable contained maintenance costs.

Since it is common place that the price for a spare part when bought through traditional channels is significantly higher than the production price, Minchella says partnering with KLX gives the MRO shop access to the production price. "This is specifically beneficial for LLPs where KLX has established relationships with the OEM's through a business to business operating system [Symphony™] allowing the customer to receive parts with the needed shelf life and not risk inventory in house becoming obsolete and unusable."

Many engine OEMs and MROs are developing advanced engine material management systems and seemingly, these technologies can be used to manage and control material costs.

Minchella says as the need for quick, reliable information on aircraft

A350 component bleed air valve.
Photo: AFI KLM E&M

performance and maintenance needs has resulted in advanced systems to gather and assimilate accurate timely data, the need for efficient part availability solutions has grown to ensure OEM and MRO sites can react effectively to such data. Any advance in data availability - when coupled with a robust material planning system - will help balance the cost and availability of product.

"Using data analytics from the operator to the MRO will help visualise a better system to deliver forecasts," says Marston. He adds: "Predicting future needs of material types and market place availability, combined with flexible optimisation of shop visits, will further streamline the entire process at Aero Norway. When operators share their data with Aero Norway, it will enable us to work with them on the management of engines material and work scopes, so they are able to align their costs with certainty – thus improving their own efficiency and profitability."

Stanisic believes engine materials management systems can be beneficial especially with good collaboration between the operator and the OEMs or MROs. "It can bring good results," he notes.

Advanced engine material management systems can include customer stock management, management and consignment of surplus inventory, sale of surplus inventory, and disassembly of engines for monetisation lists Beair. He says, as such, the focus is not on tearing down the engine to the piece part level, but on finding modular integrated and flexible solutions. "AJW's portfolio of services spans the entire process, from appraisal and analysis of the residual value, and the remarketing or release of the entire engine, to extensive parts management."

Adding parts management services can include the teardown of the engine, the repair of reusable material, the storage and reuse of engine spare parts, and the sale of surplus or otherwise redundant parts to third-party customers.

More and more, airlines are looking at predictable contained maintenance costs. "They are expecting MRO service providers to endorse the risk of maintenance cost discrepancies," Chouaki points.

"No MRO in the world knows an operator's fleet better than that operator," Neff rom CTS points out. Theatres of operation, stage lengths, flight crew thrust management, and load factors all can have an impact on the lifecycle of an operator's engine—"and nobody knows this better than the operator."

Therefore, Neff reckons it is a very good idea for an operator to target high value replacement parts, such as the "A" parts, that it knows it will need for future shop visits. "By predicting future material requirements, and sourcing high value parts attractively in advance to supply to an MRO, an operator can definitely reduce its overhaul costs."

Andrew Walmsley, President at Volo Aero concludes that effective management of material costs are key to the total cost of engine overhaul and management, and it's always connected to the stage of the assets life cycle, the length of time the asset will remain in operation and what if any return conditions are required to be met.

Walmsley: "An asset which is only at its first shop visit and will be operated for a significant period (both time and cycles) will most likely have new LLP's and material installed. It is important to look at the expected life remaining on LLP's after the next shop visit and the length of operation. It's a costly exercise to build an LLP module for -7B for 7,000 cycles and operate it for 5,000 cycles, the remaining 2,000 cycles become effectively worthless, in this case it would be better to buy used LLP's with 13-14,000 cycles (much less expensive than new material) and have an asset with 7,000 cycles which would have a strong after sale or lease market."

Walmsley says repaired material offers significant cost savings to new material.

The business of APUs

In the United States, aviation accounts for over 5% of the country's gross domestic product and over 12 million jobs. TurbineAero, formerly known as Triumph Air Repair, is the second largest privately funded aviation company in the state of Arizona, and the largest Auxiliary Power Unit (APU) Maintenance, Repair and Overhaul (MRO) services company in the world.

TurbineAero's CEO, Rob Higby, partnered with The Gores Group and other aviation executives to lead the carve-out from the Triumph Group, to create TurbineAero. During this process, Rob and the TurbineAero management team, successfully transformed three independent organisations into the world's largest and leading APU MRO services company. TurbineAero has further verticalised the supply chain of all things APU enabling the most comprehensive end-to-end services organisation in aviation today. Under Rob's leadership, TurbineAero was awarded the APU MRO Top Shop Award in April 2017, by The145. In addition, Rob has led the acquisition of global aviation customers, including the USA Airforce's C17 and KC10 fleets, as well as Lion Air and Pratt & Whitney Canada's APU business.

With over 35 years in the industry, TurbineAero has advanced a cause that plays a significant role in our country's economy, with an industry that employs millions of workers and enables countless airlines to fly each day. TurbineAero drives the US and global economy, while at the same time directly contributing to the safety of the country and in a manner, that creates a platform for the country's finest to continue to serve that cause and work their craft throughout their careers, since over 75% of TurbineAero's workforce contains US veterans from all branches of the armed services.

TurbineAero has streamlined the industry, employing over 200 employees across its Arizona and Thailand facilities. The company has direct service to the Americas, Europe, Middle East and Africa. TurbineAero bundled the MRO experience, to include: R&O; Accessories; machine parts; engineering technical support; OEM Repairs; development and manufacturing of Parts Manufactured Approval (PMA); Designated Engineering Representative (DER) Repair; APU customer support training; and APU leases spares pool. New APU product lines and services support both commercial and military customers.

TurbineAero has become a key player in the APU MRO business.

The accomplishments and expansion of TurbineAero have gained worldwide industry respect as the company continues to develop its global footprint, and acquire companies that complement TurbineAero's services model.

TurbineAero employs over 200 staff across its Arizona and Thailand facilities.

In the hot seat.....

David Doherty, Head of Commercial, Monarch Aircraft Engineering Limited (MAEL)

AviTrader MRO: What are your current capabilities in aircraft maintenance services today?

Doherty: Base Maintenance:
Luton Hangar capabilities - 767, 757-200/300, 737-600/700/800/900, A319/A320/A321, A310, A300-600, A300B4 and A300F4
Birmingham Hangar capabilities - 787 Dreamliner, 767, 757-200/300, 737-600/700/800/900, A380, A330, A319/A320/A321, A300F4, Bombardier Q400 and Embraer 170/190 series

Line Maintenance - 9 line stations across Europe:
Birmingham capabilities – 787 Dreamliner, 777, 767, 757-200/300, 737-300/400/500, 737-600/700/800/900, A380, A330, A319/A320/A321, A310, A300-600, Bombardier Q400 and Embraer 170/190 series
Luton capabilities - 767, 757-200/300, 737-300/400/500, 737-600/700/800/900, A330, A319/A320/A321, A310, A300-600
Gatwick capabilities – 787 Dreamliner, 767, 757-200/300, 737-600/700/800/900, A350, A330, A319/A320/A321, A310, A300-600, A300B4/F4, Bombardier Q400 and Embraer 170/190 series
Manchester capabilities – 787 Dreamliner, 767, 757-200/300, 737-300/400/500, 737-600/700/800/900, A330, A319/A320/A321, A310, A300-600, A300B4/F4, Bombardier Q400 and Embraer 170/190 series
Leeds Bradford capabilities – Boeing 757-200/300, 737-600/700/800/900, A319/A320/A321, Bombardier Q400 and Embraer 170/190 series
Malaga capabilities – 787 Dreamliner, 767, 757-200/300, 737-300/400/500, 737-600/700/800/900, A330, A320NEO, A319/A320/A321, A310, A300-600, Embraer 170/190 series
Edinburgh capabilities – 737 Dreamliner, 737MAX, 737-600/700/800/900
Kiev capabilities - 737-600/700/800/900, A319/A320/A321
Warsaw capabilities – 787 Dreamliner, A319/A320/A321

Additional maintenance services:
- Spares trading
- Monarch Design Services (Part21)
- Fleet Technical Support CAMO Part M)
- Specialized Monarch AOG Response Team (SMART)
- Aircraft type training at the MAEL Training Academy (Part147)


David Doherty, Head of Commercial.
Photo: MAEL

AviTrader MRO: What has been the impact of the cessation of activities at Monarch Airlines on your MRO business?

Doherty: MAEL is a standalone company holding our own cash, property and employees. We have been growing our third party work significantly in recent years and now

MAEL has developed into one of the world's leading MRO's.
Photo: MAEL

we are solely a third party MRO business we need to continue in our growth. The reaction has been very positive since the demise of the airline. We are now able to accommodate third party work at times when our customers require it, instead of having limited time and space to prioritise the Monarch aircraft work. Along with our wide ranging capabilities, there is now a huge opportunity to grow and develop our customer base.

AviTrader MRO: You have announced several new contracts recently following the closure of Monarch Airlines. How critical are these contracts for the business moving forward?

Doherty: These contract wins are very important. They send a positive message out to the industry. It shows companies want to work with us and trust us to deliver the work required to a consistently high standard. We are proud of our record of retaining key clients as well as attracting new customers. Since the closure of the airline our short term aim was filling the slots we had planned for winter maintenance. There has been significant interest in the hangar availability and the slots are filling up.

AviTrader MRO: One of those recent contract wins is with Virgin Atlantic's 787-9s. How much emphasis are you putting on MRO services for such next-generation aircraft?

Doherty: New generation aircraft is a big focus for MAEL going forward, although we will continue to support a number of aircraft types for the foreseeable future. For winter 2017/18 over 20 B787 aircraft will be maintained at our Birmingham hangar. Our partnership with Boeing and their Global Fleet Care programme demonstrates our commitment and recognises the investment we have made in supporting the next generation of aircraft. This year we have opened new line stations at Edinburgh and Nice, as well as expanding our existing line station in Malaga.

AviTrader MRO: MAEL just celebrated 50 years of MRO services in 2017. What does this milestone mean for the company?

Doherty: MAEL has developed into one of the world's leading MRO's. Over the past 50 years we have developed the skills of thousands of people who have gained valuable engineering knowledge through training and experience. This year MAEL was also awarded 'Line Maintenance Provider of the Year 2017'. This is a tremendous achievement in a highly competitive market and a credit to our fantastic line maintenance team. We are very much looking forward to the next 50 years.

AviTrader MRO: What's new in the world of line maintenance these days?

Doherty: As 'Line Maintenance Provider of the Year 2017' MAEL is always looking to develop its line maintenance capabilities. With the Airbus A380 to the A320NEO we are listening to what our customers want and ensuring that we have the capabilities to provide line maintenance support. With the new generation aircraft maturing, we expect more customers requiring new capabilities on aircraft types, so we will look to add these to our existing line maintenance capability list. We have recently signed long term line maintenance contracts with China Airlines and Wizz Air and look forward to winning more line maintenance work in 2018.

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

Doherty: MAEL is expanding in 2018 with the opening of a brand new Component Maintenance Centre (CMC) in Northampton. The CMC will be designed to provide operational support in the form of workshop capability, as well as logistics, to our activity across a wide range of customers using our Base and Line Maintenance services. The new state of the art facility is ideally located in Northampton between our Luton and Birmingham hangars and it is at the heart of the motorway network to benefit work all over the UK. We are on target for an August 2018 opening

This winter over 20 B787 aircraft will be maintained at the Birmingham hangar.
Photo: MAEL

2018: The year of technology

Maintenance is one of the major contributors to aircraft operating costs. *Photo: CSAT*

Mark Martin, Director, Commercial Aviation Product Line, Aviation & Defense at IFS, sets out four major technological developments that that will revolutionise the MRO industry through 2018.

Despite longer-lasting aircraft, more durable engines and innovations in maintenance techniques, recent research has shown maintenance spending continues to increase. In fact, airlines now spend more money on maintenance than on fuel or crew. The need to cut maintenance, repair and overhaul costs is a pressing issue for airlines, as is the need to keep assets operationally available.

1) Seeing double: Digital twins will set new maintenance standards

Maintenance is one of the major contributors to aircraft operating costs. Flight delays and cancellations from unplanned maintenance cost airlines billions of dollars every year, not to mention the impact on customer satisfaction. Because of this, the minimisation of operating costs and optimisation of operational availability continue to be top priorities for airlines.

Digital twins, a state-of-the-art method of monitoring engines when in use, will help airlines achieve these aims. A digital twin refers to a virtual replica of a physical asset, like an aircraft engine, which can display how the engine is running to engineers on the ground while the aircraft is still in the air. These can then be linked to IT systems to help streamline and optimise maintenance processes and operational availability.

Doubling down on maintenance

To make this happen, engineers compile thousands of data points specific to each asset during the design and manufacturing phase of the engine. These are then being used to build a digital model that tracks and monitors an asset in real time, providing essential information throughout an asset's lifecycle such as engine temperature, pressure, and airflow rate.

By implementing digital twins and creating a virtual model of the asset, organisations can receive early warnings, predictions and even a plan of action by simulating 'what-if' simulations based on weather, performance, operations and other variables—helping keep aircraft in service for longer.

GE helped develop the world's first digital twin for an airplane's landing gear. Sensors were placed on typical failure points on the asset, such as hydraulic pressure and brake temperature, to provide real-time data and help predict early malfunctions or diagnose the remaining lifecycle of the landing gear.

Armed with this sort of data, engineers and MROs can compare data gathered by sensors on the asset to that of its digital twin, which can be put through the same paces the engine experiences as it takes off, flies through different types of weather and undergoes regular wear and tear. If the two data sets don't match up, then a request can be put in for the engine to enter servicing.

According to IDC, companies that invest in digital twins will see a 30%

More airlines will invest in AI and cognitive computing.
Photo: Lufthansa

improvement in cycle times of critical processes, including maintenance. In 2018, expect to see more benefits as the technology matures.

2) AI in the sky: Taking predictive maintenance from luxury to must-have

Artificial Intelligence (AI) is invading the skies. A SITA report claims half of airlines surveyed will invest in AI and cognitive computing in the next three years, while a recent Aviation Digital Transformation survey saw 37% of respondents identify AI as a key area for investment.

One of the biggest opportunities for AI involves predictive maintenance. An Oliver Wyman report suggested that predictive analytics can help optimise maintenance planning and capacity by reducing the need for routine maintenance and only triggering repairs when needed—helping increase fleet availability by up to 35% and reduce labour costs by 10%.

AI is helping bring this to reality by using data from in-service aircraft to predict potential issues. These algorithms are learning to predict delays and faults, giving airlines, airports and MROs a better chance of avoiding them.

The ability to correctly predict the right moment to repair or replace a part is key to this approach—if done too far in advance, the benefits of longer usage are lost, but if done too late, unexpected failures can result in unavailable assets and lost revenue.

Airlines look to the cloud

But one of the main challenges facing AI adopters is that of storing and analysing vast quantities of data can overwhelm IT systems. The next generation of cloud solutions is here to help process this data, meaning everything from predictive maintenance to in-flight performance and the real-time ageing of the aircraft can be better tracked and understood.

Cloud solutions are a vital tool in the new aviation IT landscape, especially when dealing with scheduled and unscheduled aircraft maintenance. Having smarter assets and mobile devices wirelessly connected to store data in the cloud removes the need to physically store and process data on-site.

As digitalisation transforms business models in 2018, the application of advanced analytical methods from AI will no longer just be good to have—it will soon be business critical.

3) Mobility and the cloud at your service—SaaS offerings make mobile deliver

Airlines aren't just eyeing the cloud as an answer to dealing with AI. Cloud services go hand in hand with mobile solutions, and recent IFS research of 150 aviation professionals found mobile computing is one of the top five areas identified for investment in 2018. Over 30% of respondents identified mobile as being a key driver of digital transformation.

Software as-a service solutions are helping drive new efficiencies into commercial aviation operations, particularly for line of business needs such as line maintenance execution and planning. Previously airlines and MROs have been concerned about the amount of physical hardware they might need to adopt new technologies, but the transformation into a SaaS/mobile environment using tablets or devices and eliminating the cost of purchasing and managing on premise technology is proving to be attractive.

Cloud-based mobile solutions can be rolled out to the workforce with no physical installation required. Consequently, airlines can focus on the value they receive, not the infrastructure they need, removing a barrier to change.

2018 will see a data-driven approach for MRO services.
Photo: Boeing

4) Drones: An autonomous inspector calls

Some of the biggest improvements in maintenance techniques can be derived simply from engineers being able to take a closer look at everyday tasks, such as aircraft inspections. A task that drones will revolutionise in 2018.

Today, typical visual inspections of commercial aircraft can take up to 6 hours. Drones have the potential to cut this time dramatically while offering greater accuracy of checks—freeing up engineer time, reducing maintenance costs and improving safety.

Initial drone systems have already been used to enhance visual checks made by engineers. Low-cost carrier EasyJet has been trialing drones for known or unknown fuselage inspections for some time now, and is looking to fully implement the solution for hail and lightning strike damage in 2018.

But developments are now being made to automate these inspections—not replacing engineers, but giving them better tools, ones they can deploy quickly with less planning and training.

Workers would still control the flight of the drone, but using visual processing algorithms combined with enterprise IT systems means the drone can send work orders straight to the maintenance crew as soon as a fault is identified.

Safety first

But challenges remain. Drones must receive FAA approval for both outdoor and indoor flights. FAA Part 107 requires unmanned aircraft operators to ensure that aircraft and controls are fit for safe operation prior to any flight.

Regional regulations that change from country to country and state to state must also be considered, as must operational complications, such as security safeguards, communication with ongoing air traffic and airport authority approval to make sure drones are used safely.

Despite these hurdles, there is a growing opportunity for the industry as the benefits start to outweigh the challenges in 2018. For example, in the U.S., a new initiative, the UAS Integration Pilot Programme, was announced, aiming to pair unmanned aircraft operators with state and local governments to safely expand cutting-edge unmanned aircraft operations. The programme will shape a regulatory framework that balances the benefits of UAS technology while lessening the risks to public safety and security.

Commercial aviation leads the way

The aviation industry is at the forefront of innovation. IFS research confirmed that commercial aviation leads in the take-up of new technologies for digital transformation to overcome some of the industry's greatest challenges. Airlines, MROs and other parties are constantly looking to make major improvements in operational processes and, although these technologies may be at the start of their aviation lifespans, the commercial aviation industry is fully aware of the benefits they will bring.

How to cut aircraft engine maintenance costs in 2018?

Photo: FL Technics

We all know that aircraft engines guzzle a lot of fuel (with some variance), but that's necessary. However, when an engine gets hungry for money, a poorly selected maintenance approach might cost a hefty sum, but, according to industry experts, a large portion of material costs can be avoided.

In order to manage costs and remain competitive in the MRO market, today's players must carefully observe the latest developments. Board Chairman of the largest aviation services holding in Eastern Europe Avia Solutions Group Gediminas Ziemelis and the representative of global MRO FL Technics Andrey Baydarov share their insights into the latest trends and strategies predominant in the field of aircraft engine maintenance.

New market trends stimulate changes

In the last several years, FL Technics, one of the leading MROs in Central and Eastern Europe, has drastically changed its approach to engine management when it comes to both Avia Solutions Group internal and FL Technics external customer fleets.

"We continuously monitor the market for any changes which may require refocusing our efforts in terms of engine management across various regions. When it comes to the rapidly growing Middle Eastern and CIS markets, the key factors to consider are late deliveries of modern aircraft, relatively stable fuel prices, high demand for cargo aircraft and the rapidly expanding niche of sports charter aviation," explains Ziemelis.

In response to these market trends, FL Technics specialists are heavily engaged in un-parking and phase in of mature aircraft and engines.

"The mature fleet of CFM56-3 and CF34-3 engines is still very popular among local operators, relatively small lessors and financial institutions focusing on short-term planning, commonly not exceeding 2-5 years of operations. This calls for maximum usage of the so-called engine green-time in order to avoid extra investment into over-maintenance," shares the executive.

Low cost carriers set trends for MROs to follow

Meanwhile, some market trends, such as the growing demand for low-cost aviation services, are likely to dictate the main direction for development in all aviation segments for many years to come. And the global MRO sector is no exception.

"Low cost carriers (LCCs) are all about speed and minimum downtimes, as the ability to offer low fares heavily relies on intense operations. An average C-Check for an aircraft operated by an LCC takes approximately 2-3 calendar weeks, whereas a classic repair may land a metal bird for up to 2.5-4 months at a time. Needless to say, this is a luxury that no LCC can afford, so spare engine lease support is a must-have service in the portfolio of every modern MRO," says Ziemelis.

Gediminas Ziemelis, Chairman of the Board at Avia Solutions Group

"Luckily, recent technological advances have enabled MRO specialists to service even mature engines, such as CFM56-3 and CF34-3, way faster. Many heavy repairs can be now carried out "on-wing" and "on-site", translating into quicker turnaround times and

Photo: FL Technics

considerable savings for operators," explains Head of Engines Teardown and Parts Trading Unit of FL Technics Andrey Baydarov.

Then vs. now: new approach to efficient engine maintenance

According to Baydarov, in the past, faced with a potential serious engine problem (exhaust gas temperature, margin loss, life limited parts expiration, findings on borescope inspection, etc.), operators used to seek traditional heavy performance restorations with spare lease support. They had to wait for a repair vendor's report which, in many cases, ended in the instruction to scrap high-value engine airfoils and purchase new and expensive solutions from the surplus OEM market, sometimes forcing full engine repair cost to Beyond Economic Repair limit.

"A great example of such inefficiency could be the classic problem of HPT LLP expiration on CF34-3. Until recently, once an engine would reach its 18,000 Engine Flight Cycles, most operators would schedule engine removal and LLP replacement. , This would also require the replacement of HPT shrouds and blades. Depending on the engine condition and risks associated with two-way shipment, the entire affair would cost the operator up to USD 0.75-1 M," recalls Baydarov.

Nowadays, according to the specialist, it is becoming increasingly common to proceed with "on-wing" HPT module change which can be carried out in a hangar, within 5-7 calendar days and at a cost of approx. USD 0.55-0.65 M.

Shift towards MROs which offer one stop shop maintenance solutions

Both, Gediminas Ziemelis and Andrey Baydarov, are quick to point out that the aforementioned services aimed at lowering engine management costs can be provided in the most efficient way – by MROs which have the engineering know-how, appropriate certification, long-term experience and a wide network of partners to ensure timely access to resources necessary to conduct complex engine maintenance works in hangar environments.

"Being backed by a strong infrastructure of Avia Solutions Group family of companies, FL Technics can easily adapt classic engine management programmes to meet the specific needs of various customers, regardless of their fleet age or aircraft location. The key is to have a strong network of partners that can ensure the availability of certain assets at a short notice," shared Ziemelis.

According to experts, in comparison to many OEMs, MROs with considerable capabilities can offer more flexible solutions. For instance, large independent providers can successfully prolong the life of older engine types by using PMA components or tapping into a solid stock of most demanded parts accumulated during in-house teardowns.

Concerning advanced engine types, such as CFM56-5B/7B and V2500-A5 used in A320/B737NG, modern MROs are working extra hard on the development of "plug and play" solutions, especially when it comes to high value assets, like landing gears and APUs. As many operators are looking for ways to diversify their fleets and incorporate more new generation regional aircraft, MROs will also need to reconfigure their service portfolios and adjust their engine maintenance programmes.

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Declan Kelly

Declan Kelly has been named Chief Commercial Officer for GECAS. In this newly created role, Kelly will lead all originations activities for GECAS' fixed wing aircraft and is responsible for the commercial strategy, building synergy and share practices between GECAS' regions. Kelly brings 30 years' experience in the aviation industry, he brings deep domain expertise and proven leadership skills to the role. He will report to **Alec Burger**, President of GE Capital and President and CEO of GECAS. GECAS' Chief Commercial Officer will be based in Shannon Ireland. Until a replacement is named for his prior role, Kelly will also continue to serve as Executive Vice President, US, Latin America, Caribbean.

Aero Controls welcomes **Steve Richardson** as new Chief Financial Officer who will be responsible for financial strategies to support the company's objectives and maintain the organizations strong financial health. Richardson enters into this role after long time CFO, **Mary Ann Burns**, steps down to focus on affiliated company business. He has an extensive experience in finance within the manufacturing industry and other aviation companies such as AEC.


Han-Ley Tang

AJW Group has appointed **Han-Ley Tang** as Chief Information Officer. Han-Ley took up the new role on January 3, 2018, reporting directly to **Christopher Whiteside**, President and CEO of AJW Group, and will be a member of the executive leadership team. As CIO, Han-Ley will be accountable for leading AJW's global IT functions, focusing on driving performance and digital transformation. A new role based at AJW's headquarters in the UK, he will assume responsibility for ensuring AJW continues to leverage technology in support of the company's long-term strategic plan.


Jim McMillen

TMSaero has announced the addition of Jim McMillen to the company. McMillen's 50+ year career in aviation has covered all aspects of jet propulsion from design, development, operation, and maintenance to buying, selling, and leasing. He has worked with three different engine manufacturers (Rolls-Royce, GE and CFM International), three different airlines (Eastern, National, and Pan Am) and he was President of the JT8D overhaul facility, Aero-Thrust, for 20 years.


Hélène Moreau-Leroy

Hélène Moreau-Leroy has been named Director of the Zodiac integration project, tasked with preparing the integration of Zodiac Aerospace, which will be implemented following Safran's public offering. She reports to **Jean-Jacques Orsini**, Safran Executive Vice President, Performance and Competitiveness. **Franck Saudo** has been named CEO of Safran Transmission Systems, taking over from Hélène Moreau-Leroy.

Andrew Kemmetmueller has joined AAR in the newly created position of Chief Digital Officer, reporting to President and Chief Operating Officer, **John M. Holmes**. Kemmetmueller brings with him 17 years of aviation experience, most recently as the head of Aviation at Uptake, a prominent Chicago data science company, where he led his team to develop solutions for airlines and to solve problems in flight operations, maintenance and scheduling. Prior to Uptake, Kemmetmueller was with Gogo, a leading in-flight internet provider, and also ran his own consulting firm that worked with over 200 airlines.