AviTrader

MRO

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TO STOCK OR NOT TO STOCK

Surplus inventory management

Company Profile
South African Airways Technical Ltd

MRO News
from around the world

People on the Move
latest appointments

ICF Analysis

Building sustainable networks

While attending the World Air Traffic Management (ATM) Congress in Spain last month its apparent that collaborative ATM networks in some regions are more easily imagined than implemented. From Africa to the Middle East to Europe, experts envision collaborative networks and a single sky but the realities are often more complex including situations where growth might outpace the infrastructure available.

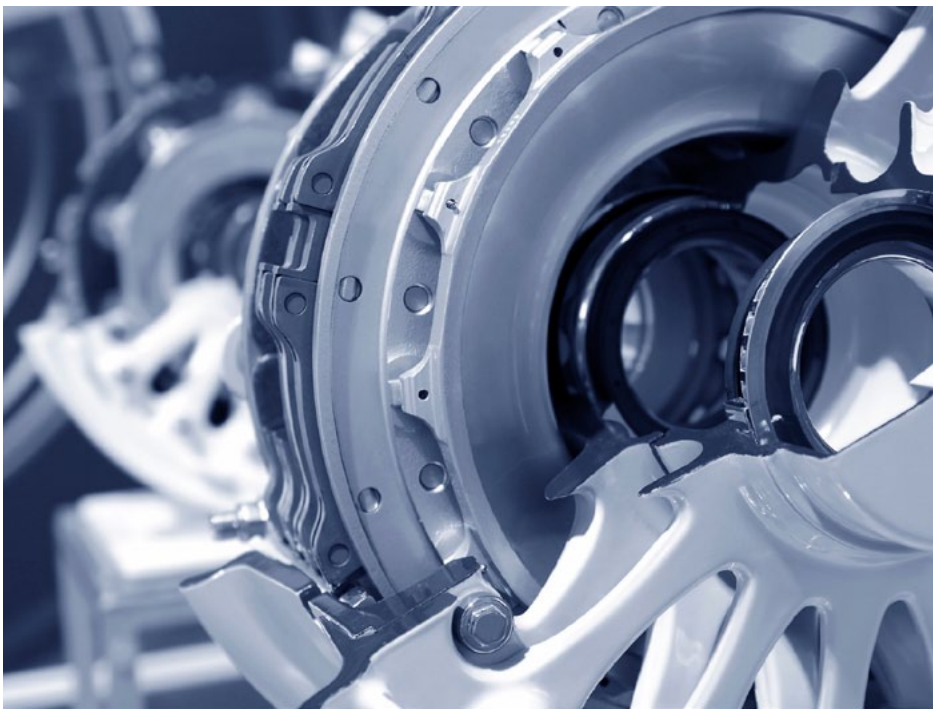
Its interesting however, to learn that numerous efforts around the world are being made to achieve a more seamless integrated ATM system because the need is getting critical. The Middle East region for instance is facing airspace capacity issues that need urgent solutions. ICF International’s new air transport fleet forecast calls for 19,000 new aircraft to enter the global fleet by 2024 with Asia Pacific becoming home to the largest fleet by region in the next decade.

On a different note, our cover story this month looks at the various solutions available to dispose of surplus spare parts inventory. The topic has generated overwhelming interest from our MRO providers and inventory specialists all providing valuable insight into the issues at hand.

Elsewhere in this issue ICF International provides an interesting account on the factors that will shape the MRO industry in the next decade and the influences behind the trends.

Happy reading!

Keith Mwanalushi
Editor



The sheer nature of the aviation industry makes inventory management even more critical.
Photo: mba

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Opinion

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COMLUX America breaks ground on wide body hangar expansion *Photo: COMLUX*

COMLUX America breaks ground on wide body hangar expansion

Comlux America, the Completion and Services center of the Comlux Group based in Indianapolis IN, is officially breaking ground on the expansion of the current VIP completion hangar to have the capability to house both narrow body and wide body aircraft simultaneously. This is in direct correlation to the announcement at MEBA of the signing of the 1st wide body completion, an A330, for Comlux America. The official ground breaking ceremony took place on the 6th of April 2015 and included key city and state officials as well as the Senior Management within Comlux America and Comlux the Aviation Group. The expansion of the hangar is scheduled to be completed by the start of Q4 2015. The expansion of the hangar is in direct correlation to the announcement at MEBA of the signing of Comlux America's first wide body completion, an A330 aircraft based in the Far East. This aircraft will be the 9th interior completion for Comlux America overall. The new hangar expansion, will include an extension to the existing facility, which was first inaugurated in 2012. The expansion will take approximately 6 months to complete and will increase the total size of the hangar from 128,000 ft² to 157,000 ft². The new facility will be able to house 1 wide body and up to 4 narrow body aircraft simultaneously.

STG Aerospace opens new subsidiary in China

STG Aerospace, a world-leading pioneer in aircraft lighting technologies, has established an official presence in China with the launch of a Wholly Foreign Owned Enterprise (WFOE), STG Aerospace (China), based in Shanghai. This new initiative is a reflection of the importance of China as a market for STG Aerospace. According to a recent IATA report, the country is expected to overtake the United States as the world's largest air passenger market by 2030. Based in the UK, STG Aerospace also has a manufacturing facility in the US. STG's CAAC, FAA and EASA-approved product range includes: safTglo, the pioneering and a market-leading photoluminescent emergency floor path system currently installed on over 9000 aircraft worldwide; safTsign, a leading brand of photoluminescent emergency and informational signage developed for commercial fixed-wing and rotary aircraft; and liTeMood, a plug-and-play, programmable, LED mood lighting system designed specifically to retrofit commercial aircraft cabins, both to enhance the passenger experience and improve airline metrics. The new office will enable STG Aerospace to offer an even higher level of service to their growing list of customers for safTglo and safTsign products, including China Eastern Airlines, Shenzhen Airlines and China Southern Airlines. In addition, its presence in the country will provide the company with a base for the ongoing development of cabin lighting tailored to the specific needs and tastes of the Chinese airline passenger.

HAECO Group awarded Air Canada 777 cabin modification programme

HAECO Cabin Solutions, a unit of the HAECO Group, has been awarded a comprehensive fleet modification programme by Air Canada. Named the "777 Dream Cabin" programme, it will include complete design engineering, certification and installation of all new aircraft interiors on 18 of the airline's Boeing 777-200 and -300 aircraft. The work will include some HAECO Cabin Solutions products, such as partition walls and new lavatory units. Additionally, it will cover the installation of new aircraft seating and in-flight entertainment (IFE) in all cabins, new flooring and laminates and the modification of galley units. The design and integration work has already begun and the first aircraft will be inducted for installation in September 2015. To meet Air Canada's tight delivery schedule, services will be provided by multiple business units within the HAECO Group from locations around the world.

Pratt & Whitney continues to build production readiness with more than US$18bn in supplier long-term agreements

In anticipation of a significant increase in engine production, Pratt & Whitney has signed nearly 200 long-term agreements involving a projected spend of more than US$18bn with key product suppliers from around the world. These agreements will help the company support increased production levels as it prepares for an expected doubling inengine production by the end of the decade. "In the 21st century community of global manufacturing, the aerospace industry views job creation and economic success from the holistic perspective of being one 'ecosystem' – as our workload increases during our ramp in production, it increases for our suppliers as well. In turn, this allows our suppliers to invest in facilities and talent," said Sergio Loureiro, vice president, Global Supply Chain, Pratt & Whitney. "We team with our suppliers and partners to make those parts for which they are best equipped to produce, while we focus on making our highly advanced proprietary components in-house. Our approach to sourcing parts is balanced and includes analysis of numerous elements of evaluation, including manufacturing capability and special-processes expertise, while considering the overall skill base at each supplier / partner." These long-term agreements are with trusted suppliers committed to understanding and meeting Pratt & Whitney's rigorous quality, cost and delivery requirements, and ethical standards. The suppliers will provide key parts and components for Pratt & Whitney's large engine business, including the PurePower PW1000G family of engines, the F135 military engine, and Pratt & Whitney Canada's engines, such as the PurePower PW800, to assure delivery to customers over the life of the engine programs.

Business leaders participate in the traditional lamp lighting ceremony during the opening of L-3 AP's new MRO facility in Bengaluru, India *Photo: L-3 AP*

L-3 Aviation Products opens new MRO facility to serve Indian aviation marketplace

L-3 Aviation Products (L-3 AP) held a ribbon-cutting ceremony on March 18th, in celebration of the opening of its new MRO (Manufacturing, Repair & Overhaul) facility in Bengaluru, India. "Our growing presence in India underscores L-3's pledge to serving the Indian aviation sector," said Krishen Ganase, president of L-3 Aviation Products. "Our new MRO facility places additional personnel in key technical and business roles in Bengaluru, and we're continuing to broaden our reach in other ways to meet the evolving needs of military and commercial aviation customers in the region." L-3 Aviation Products is a leading provider of commercial and military avionics with excellent performance, quality and customer support. L-3 AP manufactures a diverse line of safety- and efficiency-enhancing products that sets the standard for next-generation requirements, including configurable voice and data recorders, collision avoidance systems, navigation products, display systems and processors. L-3 AP also offers aftermarket solutions, including MRO, total avionics support programs and performance-based integrated logistics support for military and commercial systems.

Lufthansa Technik receives STC for GuideU floor path marking system for Embraer 170/190

The proven GuideU floor path marking system from Lufthansa Technik is now available for the successful Embraer 170 and Embraer 190 regional jets. The required STC (Supplemental Type Certificate) is issued in time for the Aircraft Interiors Expo in Hamburg. Now, thanks to a refinement of the existing system, the elegant, sweeping curves required for this aircraft type can be produced in single pieces for easy installation. With this new version, Lufthansa Technik meets the needs of many customers who are preparing to modify the cabin interiors of their Embraer 170 and Embraer 190 aircraft ten years after putting them into service. The system is completely maintenance-free; after initial installation, it can remain in the cabin throughout an aircraft's service life.

Thomas Global Systems pioneers new LCD retrofit solution for corporate and regional aircraft

Thomas Global Systems, a leader in the design, production and support of avionic display systems technology, launched the new LCD TFD-8601 cockpit retrofit solution for regional and corporate aircraft. This new innovation is a true plug-and-play LCD replacement for Rockwell Collins' EFD-86 CRT unit on a range of regional and corporate aircraft including SAAB 340, Embraer EMB-120 Brasilia, Beechcraft King Air, Dassault Falcon, Gulfstream, Hawker and Learjet. With first customer deliveries expected to commence next month, the new TFD-8601 LCD will complement Thomas Global Systems' extensive long-term CRT display support programs. Following careful analysis of aircraft trends in the business and regional sector, Thomas Global Systems developed the new TFD-8601 LCD retrofit solution to help owners, operators and lessors of regional and corporate aircraft tackle challenges of ageing CRTs, particularly with growing concerns about the lack of upgrade alternatives for legacy cockpits and component obsolescence. This new LCD solution from Thomas Global Systems eliminates any obsolescence threat, dramatically increases system reliability and drives down maintenance costs for the life of the aircraft. The TFD-8601 helps operators avoid expensive full cockpit upgrades – the installation process of a new TFD-8601 is truly plug-and-play and can be completed instantly. There are no upgrades in wiring or additional training required.

Monarch Aircraft Engineering signs full power-by-the-hour agreement with AJW Aviation

Monarch Aircraft Engineering has confirmed a multi-year full power-by-the-hour agreement with aircraft support specialist AJW Aviation. The power-by-the-hour agreement will supplement the component services provided by MAEL to the Monarch Airlines' fleet of 34 Airbus A320/321 aircraft. Monarch Airlines is also seeking to optimise its fleet utilisation via increased flight frequencies and a reduction of its overall fleet to 34 narrow body A320/321 aircraft, while it awaits new deliveries of the Boeing 737 MAX from 2018. MAEL will focus on its core specialisms of line and base maintenance, Part M technical services and technical training; enabling AJW to assist with operational cost alignment through its renowned PBH service which commences in March.

RUAG completes major upgrade on a Dassault Falcon 900

RUAG Aviation's Geneva maintenance facility under contract with Malaysia's Airod Sdn Bhd has recently carried out an extensive upgrade on a Royal Malaysian Air Force (RMAF) Falcon 900 aircraft. Securing this major check followed a successful relationship in engine and component repair and overhaul between the two organisations on other aircraft types. In addition to performing a major 4C check, RUAG Aviation were contracted to update and overhaul the aircraft's avionic systems as well as fully renovate the cabin. This was a large scale project under challenging timescales. RUAG Aviation installed a new Honeywell Ovation cabin management system, their first undertaking of Ovation Select on a Falcon 900. In addition the upgrade also included fitment of innovative electronic dimming window shades from Vision Systems. Further the aircraft upgrade included installation of Airshow 4000 and Satcom 7000 systems as well as a fully renovated cabin interior including new seating and LED lighting. RUAG Aviation partnered with renowned OEM's and solution providers including Honeywell, Vision Systems, AIP, ACH and EMTEQ in delivering this high technology solution.

Rolls-Royce to create Composite Technology Hub in Bristol

Rolls-Royce announced that Bristol will be the location for a centre of advanced fan system composite technology development, creating a hub of composite knowledge in the UK and securing 120 jobs in the city by the end of 2019. This advanced manufacturing facility will be at the forefront of developing the next generation of fan blades and fan cases, made

HAESL receives first Rolls-Royce Trent XWB engine *Photo: HAECO Group*

of carbon-fibre composite materials, for Rolls-Royce's future aero-engines. The Rolls-Royce CTi (carbon/titanium) blades are a key feature of the new Advance engine design, unveiled last year, which will offer at least 20% less fuel burn and CO2 emissions than the first generation of the Trent aero-engine. The blades and associated composite engine casings will form part of the new CTi fan system that could reduce weight by up to 1,500lb per aircraft, the equivalent of carrying seven more passengers and their luggage. Tony Wood, Rolls-Royce, President – Aerospace said: "This state-of-the-art facility will give us the opportunity to further develop our world-leading composite technology and manufacturing techniques for our next generation of engine design. These high-technology lightweight components have the potential to significantly improve the fuel consumption and emissions of future aircraft through our new Rolls-Royce Advance and UltraFan demonstrators. The pre-production facility will be developed within an existing building alongside Rolls-Royce's new facility for carbon-fibre electrical harness rafts, currently being constructed on the Bristol site. Both facilities will benefit from manufacturing techniques being developed in partnership with the National Composites Centre in Bristol, and research being conducted at the Rolls-Royce University Technology Centre at the University of Bristol. Rolls-Royce's existing CTi manufacturing technology capability, along with around 40 current employees, will be transferred from its composites location on the Isle of Wight during 2017, meaning a potential additional 80 roles could be created in Bristol over the next four years. The UK Government provided £7.4m funding support to support the establishment of the pre-production facility and equipment at the Isle of Wight facility and these will be further developed at the new pre-production Rolls-Royce facility in Bristol.

HAESL receives first Rolls-Royce Trent XWB engine

HAECO Group announced that Hong Kong Aero Engine Services Limited ("HAESL"), the Group's engine services facility in Hong Kong, has taken delivery of its first Rolls-Royce Trent XWB engine. The engine will support the crosscalibration of HAESL's test cell, marking an important milestone in the company's progress towards development of full Trent XWB capability. HAESL is on schedule to be equipped with Trent XWB engine overhaul capability by the end of 2015, thereby becoming one of only a few overhaul facilities in the Rolls-Royce global network providing Trent XWB engine overhaul services to airlines operating Airbus A350 XWB fleets. To meet the future needs of servicing the Rolls-Royce Trent XWB engine, HAESL will construct a new four-storey, 13,000 m² facility, which will house engine overhaul workshops, offices and training rooms. The new facility, named Phase VI, will be constructed with optimisation of operational and material flow and sustainability in mind. The Rolls-Royce Trent XWB engine is the sixth generation of the Trent engine family and the sole engine type powering Airbus A350 XWB aircraft.

ST Aerospace establishes new joint venture for aircraft seating solutions

ST Aerospace has signed a joint venture agreement with Tenryu Holdings to set up ST Aerospace Aircraft Seats (ST Aerospace Aircraft

Seats). The joint venture will have a planned investment of US$29.8m. ST Aerospace will own 90% of ST Aerospace Aircraft Seats' shares, with the remaining 10% to be held by Tenryu. Based in Singapore, ST Aerospace Aircraft Seats will be responsible for the end-to-end design and manufacturing of a range of aircraft seating solutions. The company's long-term business roadmap will include a series of economy class, business, as well as first class seats. It will be marketed as part of ST Aerospace's global network, working in tandem with the other network members to deliver an integrated cabin interiors offering. ST Aerospace Aircraft Seats will leverage both ST Aerospace's and Tenyru's rich experience in the aerospace industry, to produce innovative seating solutions which are both aesthetically and technically viable.

MATIS Aerospace lays foundation for Morocco plant expansion *Photo: Safran Group/ Lisa Dupont*

MATIS Aerospace lays foundation for Morocco plant expansion

The Moroccan minister for Industry, Trade, Investment and the Digital Economy, laid the foundation stone for the expansion of the MATIS Aerospace plant in Casablanca on March 24th. MATIS Aerospace is a joint venture of Labinal Power Systems and Boeing, each owning 50% of the company. The company specializes in systems for the interconnection of electrical networks for the aerospace industry. MATIS Aerospace is expanding to accommodate an increased Boeing workload which will create 400 new jobs. Over the next four years, MATIS Aerospace will begin producing engine harnesses for the CFM International LEAP engine program, electrical harnesses for Boeing 737, 777 and 787 airplanes, and electrical harnesses for the Dassault Falcon 5X business jet. MATIS Aerospace currently occupies 8,500 m² at the Nouasseur Technopole technology hub in Casablanca. The plant will expand by 4,380 m² in 2016 to house new production areas, offices and a cafeteria. The company currently employs 850 people and projects. It will grow to 1,200 full-time employees by 2018.

easyJet signs long term aircraft component maintenance and inventory management contract with AJW Group

easyJet has selected AJW Group to be the primary provider of the airline's requirements for component maintenance and the provision, storage and distribution of spare parts. The new multi-year contract will support the airline's growing fleet of Airbus aircraft. The award of the contract to AJW was the result of a thorough and comprehensive tender process. AJW will be responsible for component repair and overhaul, supply of consumable parts such as filters and lubricants and management of the airline's spares inventory including the storage and distribution of easyJet's own extensive component inventory throughout its European network of 30 line stations. The contract, which will start in October 2015, will cover easyJet's fleet of 241 aircraft1. During the course of the contract easyJet plans to take delivery of over 100 Airbus A320 family aircraft including 51 Airbus A320neos taking the fleet to 304 aircraft by 2020.

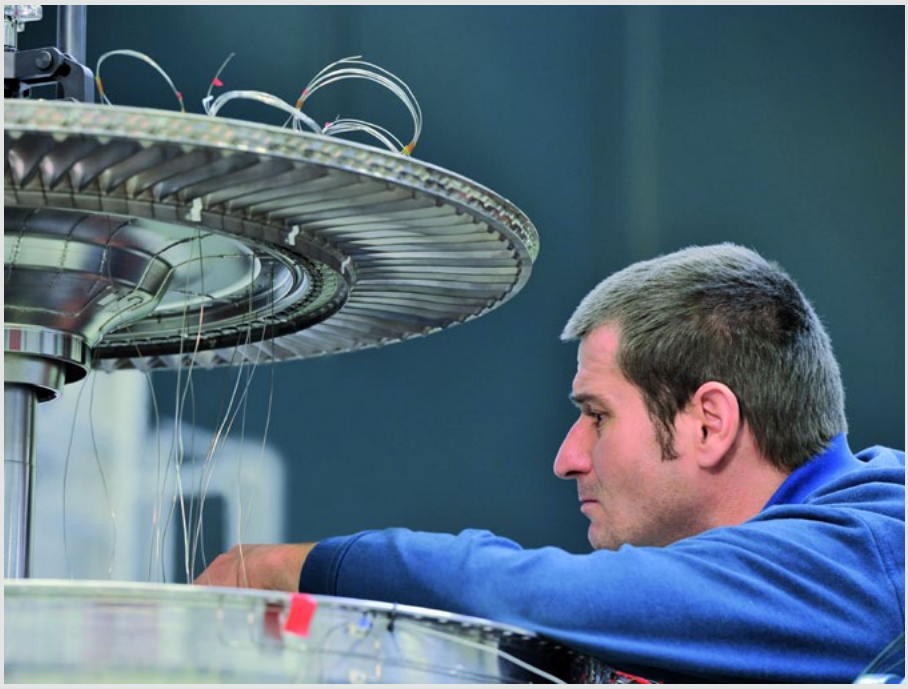
Honda Aero receives FAA production certificate for HF120 turbofan jet engine in North Carolina

Honda Aero has been issued a PART 21 Production Certificate from the U.S. Federal Aviation Administration (FAA). HAI is responsible for the production of the GE Honda Aero Engines (GHAE) HF120 turbofan engine that powers the HondaJet and other GHAE customers' aircraft. Initial production of the HF120 engines took place at GE's Lynn facility in Massachusetts. At the end of 2014, HAI started assembly of the HF120 under GHAE's Type Certification (TC) and with FAA oversight. With this program milestone, HAI's Burlington facility can now produce engines under the HAI Production Certificate. HAI is the first company to be awarded a FAA Production Certificate for jet engines in the last 23 years of aviation history. In addition to production of the HF120, HAI Burlington was chosen as the official maintenance, repair, and overhaul site for the engine. This provides the flexibility to better respond to customer demands.

Flightstar Aircraft Services continues with expansion plans

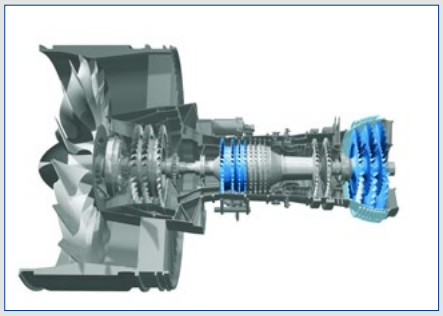
Flightstar Aircraft Services is streamlining its internal supply chain operations with its acquisition of a 52,000 ft² climate controlled facility. The Company spent over 12 months redesigning order fulfillment and distribution processes to combat material support challenges associated with growing its airframe MRO business. The company's CEO, Jerry Hernandez, stated, "Not only does this facility's design better support our materiel requirements, but its proximity to our three hangars offers a paramount advantage as well." Flightstar's development at Cecil Airport is aimed at building an aviation center of excellence for airframe maintenance and modification services. The centralized storage facility includes three bulk storage mezzanines, overhead cranes, high density shelving, and industry standard pallet racking; significantly increasing the company's workflow and parts storage positions. The current floor plan incorporates over 30,000 unique bin locations and a significant amount of lay-down and elevated storage capacity. The facility will house operations responsible for purchasing, receiving, order picking, consolidation, shipping, distribution, and reverse logistics. As like most Distribution Centers, the facility will serve as a back bone for efficient front-line store fronts and production friendly point-of-use locations located within Flightstar's three large hangar operations. Opening a centralized distribution center was logical choice for a company who continues to strive for increased operational efficiency and customer satisfaction.

MTU Aero Engines develops new turbine blade material



Assembly of a high-speed low pressure turbine *Photo: MTU Aero Engines*

MTU Aero Engines' materials experts and their partners have jointly developed a new class of unique, intermetallic high-temperature materials for highly stressed engine components: Titanium aluminide (TiAl) is the name of the new lightweight material for turbine blades that combines the advantages of metallic and ceramic materials, offering the best of both worlds. The job was done in record time. "While previously, the introduction of a new material used to take 20 years or so, we've succeeded in coming up with an entirely new material class and maturing it for production within a mere seven years," comments MTU Chief Operating Officer Dr. Rainer Martens. The hardware is already flightworthy: Back in late September of last year, an Airbus A320neo was the first aircraft ever to take to the skies with custom-made TiAl blades installed in its engines; certification was then obtained last December. The blades in the new material are fitted to the third rotor stage of the unique, three-stage, high-speed low-pressure turbine developed by MTU for the geared turbofan engine for the A320neo. Research continues unabated: The materials experts are busy developing an enhanced TiAl alloy. Their aim is to make more turbine stages from the new material. The innovation would be good news for the environment – for TiAl allows engines to be built that use up less resources, burn less fuel, and are cleaner and quieter than today's models. "I'm sure that his material will help further bring down the weight of engines appreciably," adds Martens. "I'm sure that his material will help further bring down the weight of engines appreciably," adds Martens.



geared turbofan
Photo: MTU Aero Engines

Wencor Group announces acquisition of PHS/MWA Aviation Services

Wencor Group has acquired PHS/MWA Aviation Services ("PHS"), a certified FAA/EASA Repair Station and world-class provider of aircraft repair solutions in cargo and interior systems, hydraulics, and power and controls. Terms of the transaction were not disclosed. "The acquisition of PHS enhances our Soundair Aviation Services affiliate, expanding both the international market presence and breadth of Wencor Group's repair capabilities. This strengthens our position as a worldwide leader of aftermarket solutions, and we continue to identify opportunities to partner with leading aftermarket part and service providers as part of our growth strategy," said Greg Beason, Chief Executive Officer of Wencor Group. Greg Harwood, current President of Soundair Aviation Services, will lead the new company alignment with the support of Bryan and Craig Bale.

TransDigm acquires aerospace business of Franke Aquarotter

TransDigm Group Incorporated acquired the aerospace business of Franke Aquarotter GmbH for approximately US$75m in cash on March 31st, 2015. The Company, whose name going forward will be Adams Rite Aerospace GmbH, is located in Ludwigsfelde, Germany and employs approximately 50 people. The Company manufactures proprietary faucets and related products for use on commercial transports and regional jets. Major platforms include the Airbus A320, A330, A380 and Bombardier and Embraer regional jets. Approximately 65% of revenue is derived from the commercial aftermarket and almost all revenue is proprietary and sole source.

AAR reports third quarter fiscal year 2015 results

AAR reported third quarter fiscal year 2015 consolidated sales of US$380.1m and net loss of US$34.5m after discontinuing operations of Telair Cargo Group and Precision Systems Manufacturing. For the third quarter of the prior fiscal year, the Company reported sales of US$399.8m and net income of US$17.9m. Third quarter fiscal year 2015 income from continuing operations was US$1.9m compared to US$16.9m net income in the prior year period. Third quarter results included a US$46.4m pre-tax impairment charge for the write down of the Precision Systems Manufacturing business to the expected sales value, a US$4.7m pre-tax impairment charge to reduce the carrying value of aircraft for sale by the Company's airlift business, and US$2.5m of severance due to downsizing and costs related to a large government proposal. Sales in the Aviation Services segment increased 9.9% to US$318.4m partially due to growth in new distribution programs, and sales in Expeditionary Services were US$61.7mi, a decline of 44.0% in comparison to the prior period quarter sales of US$110.1m due to the decline at airlift.

Aergen Leasing acquires Avioserv

Avioserv, an established late-life aircraft engine parts management company based in San Diego, has been acquired by Aergen Leasing ("Aergen"). Avioserv specializes in the sale, lease and trading of engine parts, engine components and whole engines to airlines, repair facilities and parts distributors. The combined companies have raised an initial US$200m of committed equity capital from a group of financial and strategic investors led by Greenbriar Equity Group LLC, and plan to raise additional equity funding to support future growth. Aergen will leverage the technical analysis and expertise of Avioserv as it builds and manages a fleet of mid-late stage narrowbody aircraft. "Avioserv is already an established partner to many leading airlines and MROs and will provide distinct capabilities to Aergen as we acquire and manage aircraft through their full life cycle," commented Bob Genise, CEO of Aergen. As part of the acquisition, Aergen will invest meaningfully in Avioserv to expand its breadth of product expertise and offerings to third-party airlines and lessors. "Previously we had focused on late-life engines and engine parts. We're excited to have Aergen as our partner which creates opportunities to focus on both mid and end-of-life aircraft, thereby allowing us to provide airlines and lessors with comprehensive engine solutions for their fleets," commented Timothy Veit of Avioserv.

Rockwell Collins expands information management offerings with acquisition of Pacific Avionics

Rockwell Collins has acquired Pacific Avionics, a Singapore-based company specializing in technologies used for wireless information distribution, including inflight entertainment and connectivity (IFEC). "This acquisition builds on our overall information management strategy by enabling wireless distribution of digital information aboard the aircraft," said Kelly Ortberg, CEO and President of Rockwell Collins. Pacific Avionics' powerful wireless cabin intranet and internet connectivity platform will be integrated into Rockwell Collins' portfolio of cabin products and services, bringing airlines a number of advanced capabilities, including: The ability to stream video content to more than 250 passengers simultaneously, a flexible architecture to support a wide array of apps and services and Faster wireless speeds onboard the aircraft.

Fokker Services, part of Fokker Technologies, has received the order from Romanian operator **Blue Air** for the introduction of TCAS 7.1 modification on their 11 ea B737 fleet. The development of version 7.1 of the Traffic Collision Avoidance System (TCAS) was initiated by EUROCONTROL and will bring improvements such as to the reversal logic by detecting situations in which, despite the Resolution Advisories, the aircraft continue to converge vertically. The mandate is applicable in European Union airspace as of March 1st, 2012, to all new aircraft above 5,700 kg Maximum Take-off Mass or authorised to carry more than 19 passengers. A deadline, December 1st, 2015, is granted to aircraft with an individual certificate of airworthiness issued before March,1st, 2012 and equipped with version 7.0. The EU Implementing Rule sets an earlier equipage requirements than those published in ICAO Annex 10 (January 1st, 2014 new installations, January 1st, 2017 existing units).

Gogo, a leading provider of in-flight connectivity and entertainment solutions to the global aero market, announced the ATG 1000 – a new connectivity system particularly well-suited for light jets, turboprops and owner-flown aircraft. Via the Gogo Biz network service, the ATG 1000 enables high-performance e-mail with attachments and calling and texting with passengers' own smartphones and mobile numbers. The ATG 1000 is software-upgradable, which gives customers the unique ability to add connectivity features – such as web browsing – at any time, simply by purchasing a software key. Beyond passenger use, in-flight connectivity continues to grow in popularity among flight crews. In the future, the ATG 1000 is also expected to support select cockpit and operational applications. Originally launched for the business aviation market in 2009, the Gogo Biz network service utilizes Gogo's unique air-to-ground technology, providing service coverage throughout the continental U.S. and portions of Alaska and Canada above 10,000 feet.

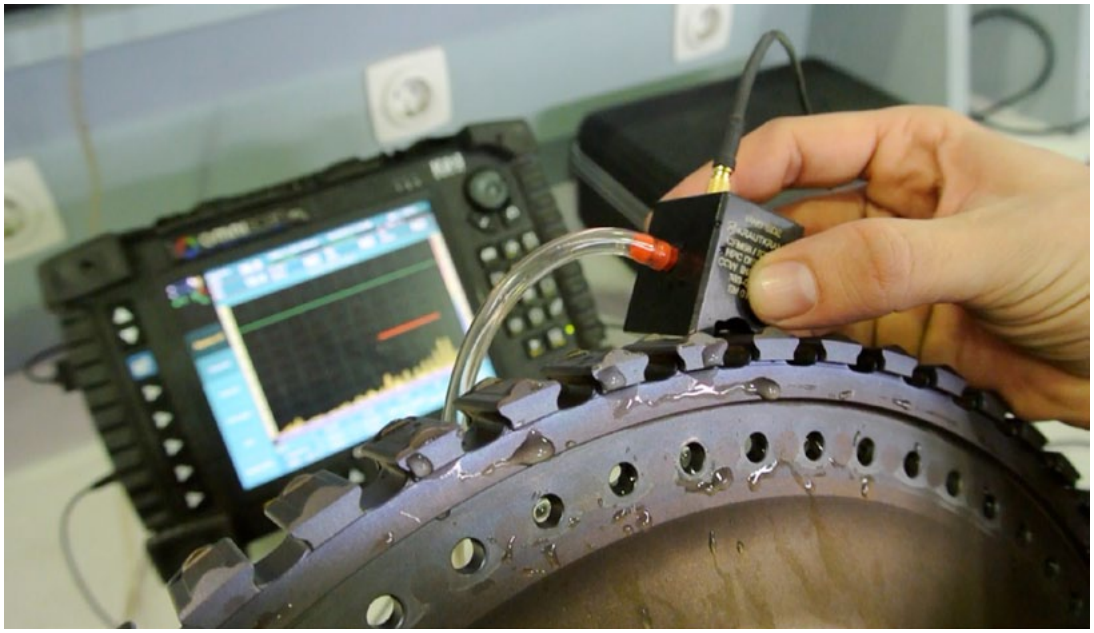
SmartSky Networks, a next-generation aviation communications provider bringing SmartSky 4G, the first airborne 4G LTE-based wireless network to the aviation market, announced **Kontron** as a technology connectivity partner at the Aircraft Electronics Association (AEA) 2015 convention in Dallas, Texas. SmartSky 4G will provide more than 10 times the typical speed and capacity by accessing 60 MHz of spectrum. Kontron's addition as a SmartSky-approved partner gives customers greater choice in selecting their preferred Cabin Wi-Fi Access Point (CWAP) hardware for connecting to SmartSky 4G. With installations on everything from business jets to A330 and B767 wide bodies, Kontron is a well-established and proven supplier to the aviation industry. "The Kontron CWAP's enterprise routing and Wi-Fi access point functionality aligns perfectly with SmartSky's open ecosystem. Our partnership with Kontron will enable SmartSky to offer our customers an affordable, yet highly capable, next-generation CWAP option," said SmartSky Networks VP, Product Development, Blane Rockafellow.

Universal Avionics has joined forces with **Rockwell Collins** to bring an affordable, integrated Automatic Dependent Surveillance-Broadcast (ADS-B) Out solution to Business Aircraft operators. The solution was designed to allow operators to add the Rockwell Collins TDR-94(D) Mode S Transponder to their Universal Avionics SBAS-Flight Management System (FMS) installation to meet the ADS-B Out mandate. In addition, operators are able to equip for Controller-Pilot Data Link Communications (CPDLC) and Localizer Performance with Vertical Guidance (LPV).Universal Avionics SBAS-FMS is an approved ARINC 743A position source, required for ADS-B Out compliance. As the foundation of the ADS-B solution, it interfaces with all ADS-B transponders including the commonly used Rockwell Collins TDR-94(D).

To stock or not to stock....

Analysis by ***Keith Mwanalushi***

Spare parts are the lifeblood of operational reliability for aircraft operators but where surplus inventories are concerned there is need to have the right solutions to dispose of such inventory accordingly. ***AviTrader MRO*** speaks to the key players in the business.



The value of surplus inventories represents challenges to airlines. *Photo: Iberia Maintenance*

Spare parts inventory management and optimisation brings together the diverse disciplines of maintenance management, inventory management, storeroom management, supply chain, procurement and logistics. Often, developing the know-how to manage this type of inventory requires specialist training and development.

The sheer nature of the aviation industry makes inventory management even more critical. Of particular interest is the management of surplus inventory. The value of surplus spare parts inventory is often overlooked by some owners so what strategies should airlines be looking at to best monetise their excess inventories?

"Sometimes owners and operators leave it too late to realise the maximum value of their inventory. It is important to sell the value as early as possible," states Shane Tingey," sales director at AJW Aviation. "People will monitor larger assets like engines and plan the exit and life profiles of this material but forget the larger inventories until it becomes surplus and then try a bulk sale recovering cents on the dollar. The material needs to be monitored to ensure its configuration is of the highest possible standard and disposed of in a managed way to suit the fleet changes. The owner should also look to swap their older inventories for newer more fleet appropriate," says Tingey.

Mike Cazaz from New Jersey-based Werner Aero Services thinks the best strategy for turning inventory into cash is for airlines to use a third party to buy it and lease back to the airline. "This can be bundled as a complete logistic solution that will include inventory management, either on an hourly rate basis of fixed monthly fee. However, surplus unwanted inventory should be sold to the aftermarket as soon as possible as most of it may lose its value over time if it stays on the shelves," Cazaz suggests.

Over at the Magnetic MRO headquarters in Tallinn, Estonia, Simona Verbiene – head of spare parts suggests that when airlines know that certain aircraft types will soon be retired from the fleet, they should start taking more parts on exchange basis - instead of purchasing components - "Such a strategy will not increase the existing stock and requires less additional capital employed. Exchanges in general are an effective way to increase efficiency and avoid huge depreciation and the loss of value of assets," she comments.

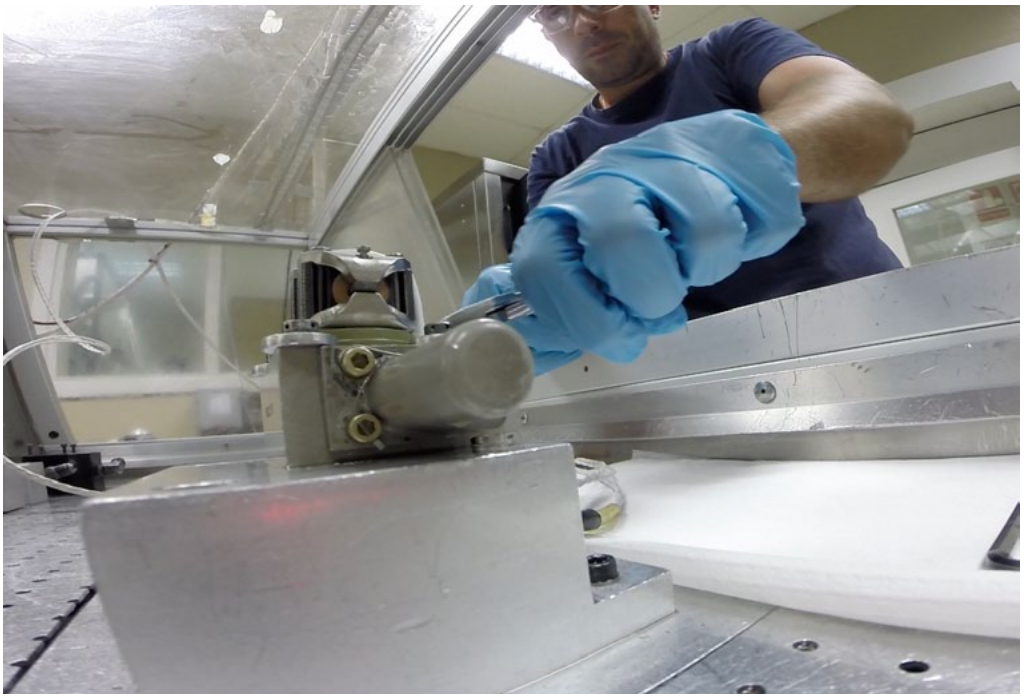
Another opinion from back in the U.S. and similar to that of Cazaz is for airlines to consign to well-known parts distributors with an established network and expertise in the asset type. Mark Brown, SVP for asset management at Apollo Aviation Group says if the inventory is less desirable surplus type assets, utilising a smaller parts distributor is beneficial as "they will place more focus on this type of inventory." He adds that a secondary strategy is for the airline to sell inventory in-house, utilising inventory parts systems such as Inventory Locator Service (ILS). "These surplus efforts need to be based on current market values and not acquisition or book value to be successful," Brown asserts.

Clearly, the value of surplus inventories represents challenges to airlines as there are many factors that come into play. Tom Covella, group president at STS Component Solutions highlights these factors that include obsolescence due to component upgrades and replacement, fleets in transition due to new fleet strategies, excess expendable and consumable material from scheduled maintenance visits as well as excess inventory based

Cazaz - Complete logistic solution that include inventory management. *Photo: Werner Aero Services*

on demand and utilisation. "From our experience, these are all factors that contribute to the surplus inventories airlines face. STS Component Solutions has worked with many major airlines by providing market assessments with the 'true' market value of this excess inventory alongside strategies needed to maximise the ROI," Covella notes.

Acquisitions and mergers within the airline industry are increasingly common - new owners have to make decisions on thousands of jet spares after the merger or acquisition. In such situations, supposedly, there are numerous considerations in terms of stock disposal and/or relocation. "In such a situation there is a big risk to get over-priced slow-moving inventory," believes Idas Juronis, head of components and materials sales at FL Technics.



Stock must be analysed as thoroughly as possible. *Photo: Iberia Maintenance*

Juronis adds that the stock must be analysed as thoroughly as possible in order to correctly evaluate inventory's net realisable value (as it might differ significantly from the book-value). For new parts Juronis says prices from OEMs and distributors price lists need to be compared against the book-values. "Aftermarket prices are even harder to check as they are fluctuating more on spot supply-demand market. Therefore it is always easier to include a trading company [unless the airline itself does a lot of purchasing/selling], which has more up-to-date data on pricing," he continues.

Covella argues that as airlines integrate as a result of a merger, a core strategy should always be evaluating the consolidation of inventories at line stations, maintenance facilities and major hubs. "When airlines have a large global network this becomes more and more of a challenge, but with improved forecasting tools, consistent review of inventory utilisation and demand, as well as a good supplier network that is aligned with the airline, these key factors can reduce the risk of excess inventory build-up.

"From a stock disposal perspective, airlines are often faced with resource challenges when attempting to determine the best approach in handling this situation. The decision of book value verses market value needs to be analysed before a strategy can be developed. However, given the current price of oil, I believe airlines have some latitude in their favour that may allow them to financially absorb the variances they face in covering the gap between book value and market value," Covella tells *AviTrader MRO*.

It seems though, that systems for selling surplus aircraft parts are largely driven by policies designed to dispose of the parts quickly. However, many excess inventories are actually obsolete and/or slow moving throughout the market. Alejandro Ceballos, manager for AOG and customer support at Iberia Maintenance in Madrid replies by saying one of the main problems is the saturation of the surplus market with obsolete fleet parts. Ceballos says the challenge is to market the stock when there is "still a significant demand" in order to move that stock faster and at a reasonable price.

> "Stock value will be close to the real value of the stock. So the biggest challenge – loss of value and also avoid the dead stock which in most cases is a result of budget driven purchases, mistakes and a lack of purchase experience."
>
> Simona Verbiene – head of spare parts, Magnetic MRO

Derk-Jan van Heerden, general manager at AELS an aircraft end of life solutions provider in The Netherlands thinks the biggest challenge is the problem of value. "Some airlines have a book value associated to spare parts that not always match with market value. A sale can in some cases result in a loss because of this. Values drop quicker for slow movers if the aircraft is being disassembled more often."

Tingey from AJW jumps into the conversation saying most of the slow moving and obsolete inventories that are out there now are brought about by the owner waiting until the aircraft have been retired and then moving onto the inventory to discover he still has enough to support the complete fleet and that little maintenance or modification has been carried out. "The value of the inventory is negligible and only one or two parts can really be sold in the complete package so the owner will get little or nothing from the sale and the inventory specialist will end up recommending scrap or consignment with an ultimate scrappage of the parts once any value if any has been extracted," Tingey observes.

Simona Verbiene from Magnetic MRO brings it back to the issue of book value versus market value. "The Airlines should do accruals to cover the loss of value for obsolete components, which means implementation of more aggressive accounting. In this case, stock value will be close to the real value of the stock. So the biggest challenge – loss of value and also avoid the dead stock which in most cases is a result of budget driven purchases, mistakes and a lack of purchase experience," Verbiene explains.

In terms of aircraft types seeing greater demand for disposal, Cazaz points firstly to the four engine widebody market with the 747-400 and A340s continuing to be retired and generating a surplus of parts, generally due to the continued operational cost penalty (notwithstanding the recent price declines in oil, and therefore aviation fuel prices) compared to widebody twins.

Mr Brown from Apollo highlights demand for used parts especially from in-production aircraft types typically 777, 737NG, A330 and A320 variants. "Primarily this is because a large volume of these types of aircraft are in service, requiring regular maintenance, coupled with the relatively small amount of retirement/part-outs of these types of aircraft which creates a favourable supply and demand balance for the used parts business. The type of part that is usually in high demand is that which has a high repair cost which cause the part to be beyond economical repair (BER) or is life limited and out of serviceable time creating high scrap rates. Regulatory Airworthy Directives (ADs) and Service Bulletins (S/Bs) Issued by the FAA can also effect replacement and repair cost causing units to BER," Brown specifies.

At Iberia Maintenance they have seen that the demand for MD8X, B757 and A340 stock decrease. On the other hand, they observe the A320 to have a wide market but somehow saturated due to the retirement of classic models which are being replaced by new models.

Aldas Juronis, Head of FL Technics Components and Materials Sales.

It is natural that inventory owners are keener to reduce the level of inventories of aircraft types which are retiring, and whose fleet is diminishing throughout the market, according to Juronis from FL Technics. He says keeping such inventory is a risk to face a very big drop in parts' values in the near future due to decreasing demand. For example, Juronis cites that owners are more cautious with Boeing 737 Classics inventories than Boeing 737NGs.

Parts exchanges are seen as an attactive solution. *Photo: Iberia Maintenance*

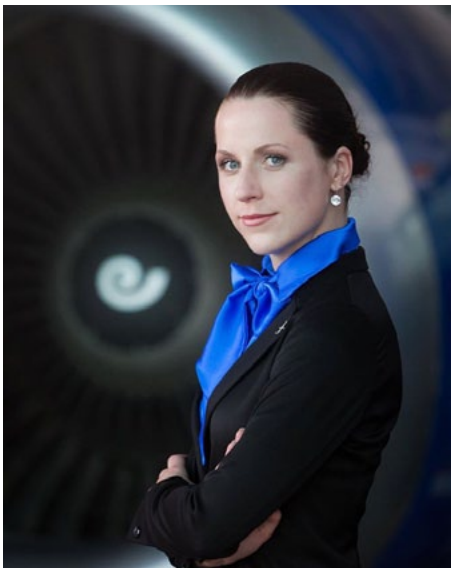
The different trends described above show that there are various dynamics that come into play in the surplus parts sector but are there any deliberate systems in place that enhance the value of surplus inventories? All the respondents say they are actively involved in enhancing value in one form or another.

Brown responds: "Apollo Aviation consigns its aircraft parts inventories. We enhance the value of the inventories by specifically targeting the asset type to the best distributor for that type in a partnership relationship. We enhance this relationship by employing in-house product managers for airframe, engine and landing gear components. This allows us to be knowledgeable of the values of parts and inventories and provides us with the technical knowledge to understand which parts can be upgraded or have enhanced value. With this knowledge, coupled with controls in credit risk, insurance, valuations and sales forecasting in our consignment agreements, we effectively monetise the inventory."

According to Covella STS has spent a great deal of time and invested a considerable amount of resources to develop home-grown databases and analytical tools to help the company determine the value of surplus inventories.

"We have been able to automate and refine this process in an effort to provide key figures and insight so that we can make fast and accurate determinations on the value of inventories," Covella indicates. He adds that this in-house capability has afforded the company a "great opportunity" to provide services to all airline business partners while also offering them "a good determination of market demand on their excess inventories.

"This, in turn, affords our partners the luxury of not only looking at their internal demand and consumption; it also yields a broader perspective within the global market so that they can determine a more in-depth approach to their assessment of excess inventories," Covella sums up.



Verbiene says proper provision and analysis of stock should be done to create a financial logic. *Photo: Magnetic MRO*

South African precision

SAA Technical has nearly 85 000 square meters of hangar space. *Photo: SAAT*

South African Airways Technical (SOC) Ltd (SAAT) has served the African aviation market for more than 80 years and remains the leading maintenance, repair and overhaul (MRO) provider in Africa. SAAT has a broad skills base, with excellent and modern facilities with local and international certifications and accreditation; its full maintenance capabilities are based on the highest of safety standards, superior quality of service, and the best maintenance reliability records in the world with dispatch reliability and turnaround times exceeding International benchmark standards. Fully FAA-certified since the early 1990's, SAAT serves an increasing number of local, regional and international airlines .Over the decades the business has earned a solid reputation for its expertise with a collective people-asset base of 2800 highly skilled staff – an important aspect at the very core of our business.

SAA Technical operates from extensive premises at OR Tambo International Airport in Johannesburg, South Africa, servicing not only the domestic market but also regional and global customers. SAA Technical's strategic mission is to deliver commercially sustainable world class maintenance, repair and overhaul services in South Africa, Africa and globally.

The SAAT team compromises of maintenance-related employees, with a strong base of technical and engineering skills. Inclusive are the support structures of engineering, planning, strategic procurement, logistics, quality assurance and quality control, finance, 24 hour maintenance control centre, technical training and human resources.

SAA Technical has nearly 85 000 square meters of hangar space. This includes the 36 000 square meter major maintenance hangar, the largest in Africa, capable of accommodating five B747 aircraft simultaneously. A multipurpose dock, capable of handling A340-200/300/600 aircraft, all B747 aircraft and MD11 aircraft.

SAA Technical does all major maintenance for flag carrier South African Airways (SAA). It also provides major maintenance to a number of European, African and Middle East airlines.

Contextually, SAAT has undergone several decades of change as the business climate in South Africa and the world continues to evolve and change at a rapid pace. SAAT's ultimate objective is consistently be a more commercially-focused organisation, adopting industry best-practice in operations, marketing and administration with a view to providing competitive best of breed services to the global aviation industry.

SAA Technical does all major maintenance for flag carrier South African Airways (SAA). *Photo: SAAT*

In the hot seat.....

Keith Mwanalushi speaks to Matt Eaton, SVP MRO Marketing & Sales, C&L Aviation Services.

AviTrader MRO: What attracted you to this business?

Eaton: As a youngster growing up in Kansas it was always my dream to do something in aviation. My best memories were of road trips to the Air Capital of the World, Wichita, Kansas, to pick up someone flying in for a visit. Shortly after getting my pilot's license, my opportunity opened up and I went to work for an airplane parts distributor in Wichita. C&L was particularly attractive due to the people and the culture and with a growing company like C&L there are more opportunities to contribute.

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

Eaton: It's been a long time since I've experienced a typical day!! My day is usually consists of phone calls with potential and current customers and of course, lots of computer work. At C&L we do a lot with technology and most of our intra company meetings are conducted via video conferencing and it greatly enhances our ability to interface with colleagues around the world.

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

Eaton: With a fast growing company like C&L the challenge is always finding enough hours in the day. There is always a new opportunity to pursue and it just takes time to address everything.

AviTrader MRO: What are the current capabilities at C&L Aerospace?

Eaton: At C&L we now offer a complete portfolio of services from aircraft and engine sales and leasing to heavy airframe maintenance, paint and interior work all in one location.

AviTrader MRO: C&L is involved with in service support for the Saab 340. What is the market like for putting refurbished aircraft back into the marketplace?

Eaton: This market segment while, rather dynamic, is showing signs of some strong activity as the overall economic landscape for commuter aircraft appears positive for the next three years.

AviTrader MRO: In terms of spares, how do you manage the availability of inventory for older non-production aircraft?

Eaton: We use our detailed knowledge of these aircraft to target each part that may not be produced any longer or that the price may be escalating beyond what we think is reasonable. We look at the part and evaluate what may be the best approach to having the part available at a reasonable price. Methods we use range from developing a DER repair for that particular part, to producing a PMA part, to working with the OEM to make a high quantity purchase for inventory which allows us to sell each individual part at a reasonable price to our customers.

Eaton - We project significant double digit growth for at least the next five years.

AviTrader MRO: C&L announced a $5-million expansion last year to allow the company to service larger aircraft. What is the exact scope of this expansion?

Eaton: C&L's recent expansion resulted in a greatly increased footprint overall which includes bigger hangars allowing for larger and more aircraft to be serviced. Also as a part of the expansion, C&L has added a complete interior shop, increased the size of our component repair shop and a new complete aircraft paint facility with capability to paint up to ERJ190 size aircraft. To better serve our parts customers globally, we also greatly increased our parts warehouse co-located within the new facility.

AviTrader MRO: What are your growth projections for the near and medium term?

Eaton: We're very excited about our growth trend line. With the new expansion comes increased capabilities in both airframe and component service which also opens up more markets. We project significant double digit growth for at least the next five years. This growth will be organic and outside of any acquisition activities we experience.

C&L Aviation has invested in new hangar capacity. *Photo: C&L Aviation*

Literally unmanned – will there be anyone to pilot the commercial drone industry?

Ever since the drone market has started to rapidly grow, it has been constantly surrounded by controversy. For instance, with commercialisation of drones, over 42% of Americans are concerned about their privacy. However, while aviation authorities are developing new rules to ensure both safety and privacy standards, it seems that drone-sceptics actually shouldn't worry too much – at least in a short-term perspective. Without universally accepted regulations the commercial drone segment still has almost no one to pilot it. Even for $100 000 a year.

Drones grew their popularity in the military, but are now steadily gaining their market share in civil aerospace. Data shows that there is already 500 000 drones sold in the commercial U.S. market alone. However, it seems that civil aviation authorities worldwide have actually missed the moment when a private hobby has become a rapidly developing aviation segment.

The market may have started with just amateurs flying quadcopters in their backyards but now it is large corporations, like Amazon or Google, that are seeking to use drones for logistics, security, infrastructure inspection and other purposes. However, in many cases an approval for commercial utilization of drones is more an exception as there is still no global consensus on how this segment should be regulated.

For MROs the emergence of the drone market means having to face a new direct competitor. *Photo: Avia Solutions Group*

"It may come as a surprise, but today using drones, particularly the larger ones, for commercial purposes is basically illegal. In the USA, for instance, only a small portion of businesses have ad hoc permissions to use smaller drones with quite strict and very limited application area. Same goes for Europe. In the meantime, in Hong Kong operators of larger drones have to apply for a relevant permit for every single flight, while the UAE went as far as banning sales of commercial drones altogether," comments Skaiste Knyzaite, the CEO of AviationCV.com.

As long as aviation authorities haven't introduced any clear regulation, utilization of larger, more technologically sophisticated (and thus more commercially advanced) drones will be fully dependant on separate ad hoc permits which are not that easy to obtain. It becomes especially obvious from the case of Amazon, which – after long and intense discussions both directly and through international media – has only recently received FAA's consent on using some of its drones, "for research and development and crew training".

It's understandable that without a clear vision on how the market should be regulated the authorities cannot fully ensure the safety of the environment where the drones are to be used. Drones hovering over strategically important nuclear plants in France or an airplane having a near-miss with a drone at London's Heathrow airport - all these accidents raise reasonable questions and doubts.

Knyzaite says from a headhunting perspective, the competition between drone operators and commercial airlines shouldn't be an issue

But even should clear rules be introduced tomorrow, this doesn't mean that hundreds of commercial drones will instantly go up in the city skies. Commercial operators will still have to invest additional time into test flights and staff training – time especially precious for an evolving industry.

Luckily, in some countries the process is developing at a higher pace and with a stronger cooperation between the authorities and the private segment. France, for example, already has more than 1 200 registered drone businesses, and is way ahead of the USA which annually lose almost USD10 billion due to the delay in drones' commercial integration (according to the Association for Unmanned Vehicle Systems International). The Association has also forecasted that over the following ten years the segment is expected to create 100 000 jobs, including the ones for pilots, technicians and IT engineers. However, the supply of required personnel still remains an open issue.

Certainly, the most active and persistent businesses can join efforts with their local authorities in developing ad hoc training programmes to prepare a small amount of specialists. But for a strong healthy growth the emerging drone industry needs far more than that. And it's not only about clear requirements and universal training programmes for future staff, but also about the pool of potential specialists.

"Individuals with at least minimum aviation and IT background are most likely to be on the top of the candidates list. First and foremost, we talk about CPL and PPL holders, mechanics and IT engineers," adds Knyzaite. "From a headhunting perspective, the competition between drone operators and commercial airlines shouldn't be an issue as it's hard to imagine how First Officers (left alone Captains) are shifting from airplanes to drones as their primary job. But for maintenance organisations (both aviation and non-aviation) as well as IT companies the emergence of the drone market means having to face a new direct competitor. A competitor who either on its own or with the support of industry-specific HR partners will certainly grab its portion in the job market thus making the struggle for skilled specialists even fiercer."

Source: Avia Solutions Group

MRO Demand – The next decade

Analysis by Richard Brown, *Principal – ICF International.*

2015 is shaping out to be a good year for airlines. Fuel price has fallen fast in the last six months, passenger and cargo traffic is growing, and, IATA is forecasting record airline profitability of $25B for the year. A key driver of this profitability is airlines having greater discipline over and control of their capacity over the past few years, meaning that traffic growth has outpaced growth in seats. It is against this backdrop that ICF has recently released its new global 10-year MRO air transport forecast.

There are over 27,500 aircraft in service with the world's airlines. Half of the fleet is comprised of narrowbody aircraft such as the popular Airbus A320 Family and Boeing 737. A further 18% of the fleet is made up of widebody aircraft with turboprops and regional jets accounting for the remaining 32%. A large part (31%) of the fleet is flown by North American carriers. However, the second largest fleet concentration is in Asia Pacific which today accounts for 26% of the fleet. Asia Pacific has now overtaken Europe which has fallen to third place with 25% of the fleet. Over the next decade Asia Pacific will become home to the largest fleet by region.

ICF's new air transport fleet forecast calls for ~19,000 new aircraft to enter the fleet by 2024. Today's aircraft backlog is at record levels (some 12,000 aircraft are currently on order) with aircraft such as the A320neo/ceo, 737 NG/MAX, A350X-WB, 777/777X and Embraer E2 E-Jet family accounting for much of the deliveries going forward. On the retirements front, a combination of fleet demographics, low interest rates and availability of relatively cheap capital means that over the next 10 years, ICF is forecasting over 8,500 aircraft will exit active service. Maintenance intensive aircraft such as 737 Classics, 767s, 747-400s, A300s, A310s and MD80s along with early build A320 Family will be the main aircraft retiring. Consequently, of the 19,000 new aircraft deliveries over the next decade, approximately 46% will be to offset the 8,600 retirements and only 54% are for growth. This is a significant change from typical historical levels where retirements have only accounted for 20% of deliveries.

The active fleet (taking into account deliveries and retirements) is forecasted to grow from 27,500 aircraft in 2014 to nearly 38,000 aircraft in 2024. This reflects a 3.2% CAGR in the installed base over the coming decade. North American fleet growth is set to be a modest 1.4% compared to the Asia Pacific fleet which will grow strongly at 4.7% CAGR, as does the Middle East at 5.3% CAGR. Europe grows at a below average rate of 2.7% CAGR.

MRO spend is ultimately driven by the utilisation and age (in hours and cycles) of active aircraft. ICF values today's air transport MRO market at $62.1B. The largest driver of maintenance spend is engine overhaul which accounts for 40% of the MRO demand. This is followed by rotable component overhaul and repair (22%), line maintenance (17%), airframe heavy maintenance (15%) and modifications (6%). Modifications includes painting, cabin interior and avionics upgrades, and passenger to freighter conversions.

Regionally, North American operators account for 29% of MRO spend; Asia Pacific represents 27% (slightly higher than their fleet % due to the higher composition of widebody aircraft); European operators generate 27% of MRO followed by Middle East (7%), South America (6%) and Africa (4%).

Richard Brown,
Principal, ICF International

The MRO market is forecasted to reach $90B by 2024 (in 2014 constant $). Therefore, excluding inflation and catalogue price increases, the MRO market grows at 3.8% CAGR which is faster than the fleet growth of 3.2% CAGR.

Engine MRO is forecasted to grow at 3.5% CAGR and remains the largest spend category throughout the next ten years. However, it is components (4.5% CAGR) and modifications (5.9% CAGR)) that grow fastest. Reduced labour intensity of airframe heavy checks as the fleet renews combined with increased intervals from the latest generation aircraft means that airframe maintenance shows the weakest growth at 2.6% CAGR, below the overall average. Demand for aircraft upgrades such as interiors (to increase product competitiveness) and winglet retrofits (to conserve fuel) are driving the high modifications growth.

Regionally over the next decade it is China and Asia Pacific that drive the largest absolute increases in MRO spend. By 2024, Asia Pacific airlines (excluding China) will be generating $7B more maintenance activity annually than they are today and Chinese operators will spend more than $5B more annually than today. The MRO spend growth from North American airlines will be relatively low, increasing by only $2.3B annually compared to today.

There are several trends affecting the MRO market over the next 12 to 24 months. First, "right shoring" of heavy maintenance activity, including bringing previously outsourced airframe work back to North America is likely to continue as labour rates in high-growth regions such as some parts of Asia increase (due to limited supply of trained technicians and wage inflation).

Second, the large number of aircraft retirements will continue to boost the supply of used serviceable parts. ICF forecasts over $3.5B of surplus parts are consumed by operators, which is roughly

Engine MRO remains the largest spend category throughout the next ten years. *Photo: Pratt & Whitney*

9% of all material spend. Engine parts account for 65% of this surplus parts spend as it here that larger savings can potentially be made.

A third trend to watch is the strong growth in e-enabled aircraft. The new generation of IP-enabled aircraft fleet is approximately 500 today. However, over the next decade the fleet will grow to exceed 11,500. Alongside the growth in aircraft health monitoring potential, the parameters being monitored and the data generated is massively more significant. Yet, the new generation aircraft such as 787 and A350XWBs pose questions and challenges to airline MRO and MRO incumbents, due to the debate over data ownership, access to this data and OEM intellectual property, and the need for enhanced IT system capability.

Fourth, aircraft, engine and rotable component OEMs are set to continue to seek a greater share of the MRO market. Aircraft OEMs such as Airbus and Boeing are offering component flying hour support contracts in competition with the established suppliers of broad component offerings such as Lufthansa Technik, Air France KLM E&M and SR Technics. The component OEMs, having been required by the airframers to take a greater share of the design costs and risks in the newer platforms are also now compelled to focus more on the MRO market. As a result, the role of the independent MRO on new generation aircraft is being increasingly challenged going forward. Such independent MROs have to consider whether to partner with OEMs (perhaps through licensed service centre agreements) or to vigorously compete on price, turn-time and customer service. The challenge for operators is how to keep control of maintenance costs in the long-term and ensure competition as the market becomes more OEM-centric. For the airframe OEMs, they are still in the process of validating and prove the viability and value of their MRO propositions. For many observers, the "jury is still out" as to whether they will succeed.

Fifth, the introduction of new aircraft types provides operators with the opportunity to change their maintenance approach. We've seen examples of shifting outsourcing behaviour with the introduction of the 787 and A380. Airlines therefore continue to evaluate what work to perform themselves and what to outsource to the competitive aftermarket.

Consequently, as the MRO market heads to $90B over the next decade there are a number of challenges and opportunities for suppliers. The aftermarket role of OEMs, independent MROs, integrators and airlines continues to evolve. New partnerships are being formed and new agreements signed. Against the backdrop of record orders and deliveries, lower fuel prices and increased airline profits, the MRO market is poised for growth and the supply base is actively evaluating how best to capitalise on this. Interesting times are ahead.

ICF International provides objective, independent regulatory, technical, financial, and commercial guidance to aviation clients, including airlines, airports, financial institutions, manufacturers, U.S. federal agencies, international governments, VIPs, and heads of state.

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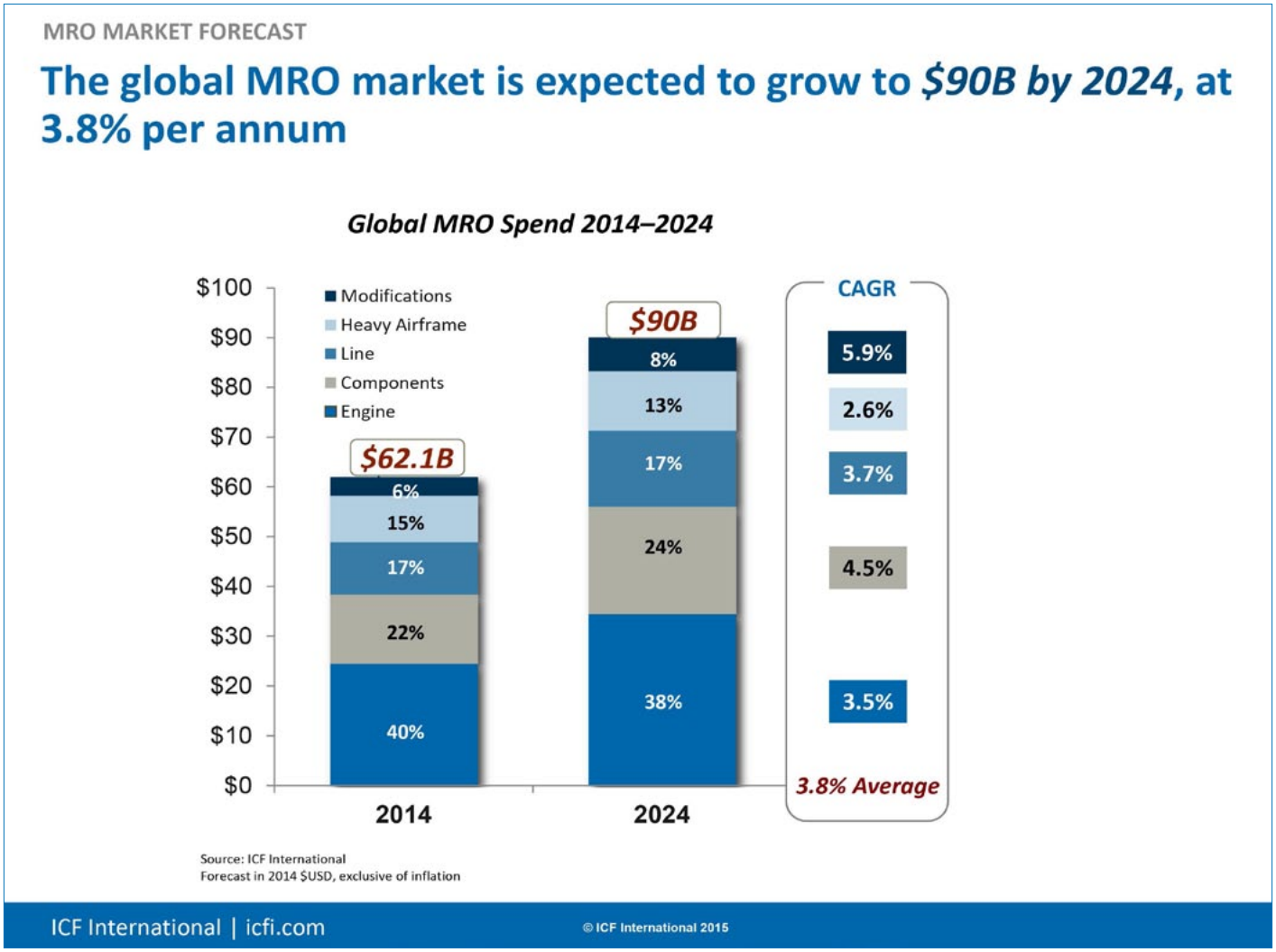

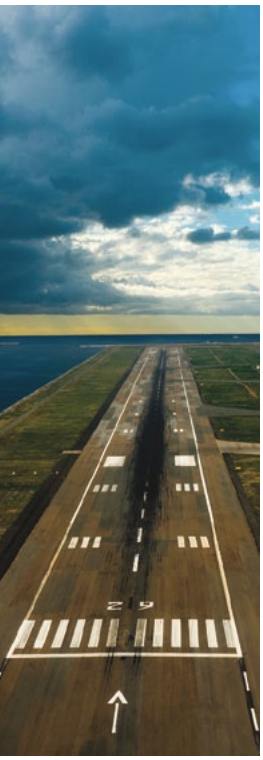

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Fred Cromer

Bombardier released that Pierre Alary will retire as Senior Vice President and Chief Financial Officer, Bombardier Inc. In order to ensure a smooth transition, he will remain in his position until an international search for his successor has been completed. Fred Cromer is appointed President, Bombardier Commercial Aircraft, effective immediately. Mr. Cromer will be joining his team in Mirabel in the coming weeks. He is replacing Mike Arcamone, who is leaving the company to pursue other interests.


Brian Hirshman, incoming President of ATS

Aviation Technical Services (ATS) announced that aerospace industry veteran Brian Hirshman is joining the company as President effective May 1st, 2015. In his new role as President, Brian will oversee one of North America's largest and most tenured maintenance, repair and overhaul (MRO) organizations with over 1,500 employees and facilities in Everett and Moses Lake, WA; Kansas City, MO; and Fort Worth, TX.

AMETEK Singapore PTE, a unit of AMETEK MRO, has expanded its senior team with the appointment of Brian Hunter to the newly created position of Vice President, Sales & Marketing. Mr. Hunter has a wealth of aerospace experience gained in diverse roles over the past 25 years.


Oliver Stratford

AJW Aviation has appointed experienced aviation industry specialist Oliver Stratford as Sales Manager – Southern Africa. His role is to work closely with all of AJW's customers across the region for contracted power-by-the-hour support, ad-hoc spares sales, component repairs and engine services.

TES Aviation Group today announced that William (Bill) Moeller has been appointed as their new Chief Commercial Officer (CCO). Bill, a proven aerospace aftermarket executive with over a decade of operations, program management and sales experience, brings a wealth of knowledge to TES. He has held various positions in both the commercial and military businesses at PW UTC including an assignment as the General Manager of the Christchurch Engine Centre MRO facility in New Zealand.


Bill Brotherton

Lockheed Martin selected Bill Brotherton as president and general manager of Lockheed Martin Commercial Engine Solutions that includes its San Antonio, Texas and Montreal, Canada facilities. Brotherton will be responsible for leading military and commercial engine maintenance, repair, and overhaul (MRO) services for 10 engine lines and new engine production assembly and test operations.