

MRO

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Next generation maintenance

Industry interview
TrueAero

MRO News
from around the world

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latest appointments



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MRO

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Opinion

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Fleet modernisation at an all-time high

At no time have we seen the industry as hungry for shiny new aeroplanes as in the last couple of years. Airlines from every global region including Africa are now actively involved in some sort of fleet modernisation exercise and this will clearly have an impact on MRO practices.

In Russia and the CIS region Boeing forecasts market demand for 1,170 new aircraft over the next 20 years, valued at \$140 billion. Boeing estimates 190 regional jets, both western and Russian built, will be required over the next 20 years; this demand is being driven by the growth that the intra-CIS region has been experiencing.

Lufthansa placed orders for 34 Boeing 777-9Xs and 25 Airbus A350-900s. The investment amount for the Lufthansa Group is the largest single private-sector investment in the history of German industry.

Low cost carriers are also driving much of the modernisation programmes – Airbus just announced that JetBlue has amended its purchase agreement with Airbus to include an additional 15

Airbus A321ceo (current engine option) and 15 A321neo (new engine option) aircraft.

Manila-based Cebu Pacific will add new A330s as it takes its long haul low fare strategy even further and Allegiant has signed a purchase agreement for 12 Airbus A320ceo.

Interestingly, some African carriers too are stepping up their efforts to keep a modern fleet flying. Rwandair is introducing A330s and 737-800s over the next couple of months while Ethiopian has once again pioneered as first in Africa to introduce the A350.

As new aircraft types enter service repair technologies will no-doubt be a focal point for the industry in the months and years to come. Our cover article in this edition looks at how big data will impact MRO, as well as finding the right calibre of technicians to service these new jetliners.

Happy reading!

Keith Mwanalushi
Editor



New aircraft types present a number of revolutionary changes.
Photo: British Airways

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HAECO Xiamen completes first 777 freighter check for Lufthansa Cargo
Photo: HAECO

HAECO Xiamen completes first 777 freighter maintenance check for Lufthansa Cargo

HAECO Xiamen completed its first Boeing 777 freighter maintenance check for Lufthansa Cargo AG in June. HAECO Xiamen has worked with Lufthansa Cargo AG for over a decade, providing C-Checks and D-Checks for its McDonnell Douglas MD-11 freighter fleet, to establish a successful business relationship. In the following months, HAECO Xiamen will undertake additional maintenance checks for freighters operated by Lufthansa Cargo. HAECO Xiamen has redelivered over 100 aircraft inputs to the Lufthansa Group, handling multiple aircraft types, including MD-11s, Boeing 747-400s and 747-8s.

Jet Aviation signs FBO Alliance agreement with Jet Center at Santa Fe

Jet Aviation has signed a Fixed Base Operation (FBO) alliance with Jet Center at Santa Fe to offer customers with more choices. Jet Aviation, with more than 20 FBO operations worldwide, and Jet Center at Santa Fe recently signed an FBO alliance agreement. This partnership offers customers additional locations from which to choose, with guaranteed levels of service. The companies will also share best practices and combine resources. "A partnership with Jet Center at Santa Fe makes perfect sense for our customers since both of our companies are committed to delivering the highest level of service," said John Langevin, Vice President FBO operations, North America, Jet Aviation. "Their exceptional attention to detail and the company's strategic airport location makes them a great alliance partner to the Jet Aviation global FBO network."

ATSG's second quarter results on track toward 2016 targets

Air Transport Services Group reported consolidated financial results for the quarter ended June 30, 2016. Revenues increased 19% to US\$176.5m. Excluding revenues from reimbursed expenses, revenues increased 13%. This increase included contributions from thirty-five Boeing 767 cargo aircraft leased to external customers as at June 30, six more than a year earlier. Eight of those thirty-five leased 767s were operating for Amazon Fulfillment Services Inc. (AFS), a subsidiary of Amazon.com, which ATSG began serving in September 2015. Pre-tax earnings from continuing operations were US\$18.8m, compared with US\$17.2m in the prior-year period. Adjusted pre-tax earnings from continuing operations declined slightly to US\$16.3m from US\$16.7m, reflecting US\$2.6m in ramp-up costs stemming primarily from flight crew compensation and training for the expanding Amazon and DHL CMI operations. Adjusted EBITDA from continuing operations, as adjusted for the same items excluded from adjusted pre-tax earnings, increased 2% to US\$52.1m. Net Earnings from continuing operations on a GAAP basis were US\$11.5m in the second quarter, versus US\$10.6m a year ago.

Magnetic MRO opens new warehouse in the UK

Estonia headquartered Magnetic MRO, has opened a new warehouse at Gatwick International Airport, UK, reflecting the continuous expansion of its business and the growing demand from customers. This new facility will allow Magnetic MRO to provide

its customers inventory and product availability as well as short shipping times due to the locational advantage of MAC Interiors – aircraft interiors specialists owned by Magnetic MRO. Gatwick International Airport offers daily connections to critical locations in the Magnetic MRO customer network, which will further improve response times for vital AOG deliveries. "This was a natural step for the company in respect to its international growth strategy outside of Tallinn home base," says Jonas Butautis, CEO of Magnetic MRO, "The UK is seen as a logistical hub for our European and global customers in spare parts trading and other MRO services. Our expansion into aircraft part-out projects demands a dedicated, centrally located warehousing hub and Gatwick is a natural fit."

Lufthansa Technik nominates production and sales partner of its "chair" aircraft seat

Lufthansa Technik has selected INAIRVATION, its joint venture with F/LIST, to coordinate production and sales of its "chair" aircraft seat. This approach combines the outstanding core competencies of the two shareholders, having both the capabilities and the capacity to provide high-end customized products. The modular VIP product family "chair", received 9g and 16g ETSO approval in May 2016. Lufthansa Technik's Original Equipment Innovation (OEI) Division in Hamburg/Germany is responsible for all airworthiness requirements and the final certification, whereas F/LIST takes care of the production of the skeleton and all rigid surfaces at its site in Thomasberg, Austria.

RUAG signs long-term contract with Airbus

RUAG Aerostructures and Airbus sealed their cooperation by signing a contract for long-term cooperation at the aviation trade fair in Farnborough. The contract comprises the production of assemblies for the A320 family and the Airbus A330, and includes deliveries over a period of at least five years. RUAG Aerostructures provides the rear fuselage section ("section 18/19" and "section 19.1") as well as the floor, rear bulkhead and side fuselage panels for the middle section of the fuselage for the Airbus A320 family. The signed contract also includes an important contribution to the Airbus single-aisle cost-cutting drive SCOPE+.

Vector Aerospace signs exclusive PT6A service agreements with multiple Australian operators

Vector Aerospace, an independent provider of aviation maintenance, repair and overhaul (MRO) services, has entered into exclusive Pratt & Whitney Canada (P&WC) PT6A engine service agreements with four leading agricultural aviation and aerial firefighting operators in Australia. The four affiliated operators entrusting Vector with their PT6A support are Aerotech Australasia, based in Kent Town, South Australia; Aerotech Northern Territory, based in Batchelor, Northern Territory; Pays Air Service, based in Scone, New South Wales; and Dunn Aviation, based in Ballidu, Western Australia. Under the terms of the three-year agreements signed with these four operators, Vector will provide comprehensive engine MRO services in support of the combined fleet of Aerotech Australasia, Aerotech Northern Territory, Pays Air Service and Dunn Aviation PT6A turbo-prop applications, which currently numbers 44 aircraft. The fleet includes the Air Tractor AT-802/802A/802AF/802F, the Air Tractor AT-502B, the Cessna 208B Caravan and the Beechcraft King Air B200. Vector will provide these services from its P&WC authorized PT6A Designated Overhaul Facility (DOF) in Brisbane, Queensland.



Technician works on PT6A engine at Vector's Brisbane, Australia facility
Photo: Vector Aerospace

for carry-on baggage by up to 50%, depending on the airline's configuration. Alaska Airlines launched Boeing's in-production Space Bins program last year and by 2017, will have almost half of its fleet outfitted with Space Bins.

Alaska Airlines to build new US\$40m maintenance facility in Anchorage, Alaska

Alaska Airlines plans to build a new US\$40m airplane maintenance facility at the site of the current Signature Flight Support building on Old International Airport Road. Located on the east side of the Ted Stevens Anchorage International Airport, the new hangar will be located about a half mile from Alaska's existing 37,500-ft² facility. The hangar is scheduled for completion in the second quarter of 2018. The new hangar in Anchorage is part of an almost \$100 million investment the airline is making across Alaska, which also includes up-

dating and, in some cases, expanding the 11 airline-owned terminals throughout the state. Also included in this figure is an investment by Alaska Airlines to add three 737-700 freighter aircraft to its fleet, improving the ability to serve cargo customers' needs with scheduled freighter service.

Volvo Aero MRO receives revised FAA operations specifications

Volo Aero MRO has received its revised FAA operations specifications allowing for the repair and overhaul of Rolls Royce 501D engine components. This increase in ratings is in addition to its established capabilities to provide precision grinding services and is the next step in Volvo Aero MRO's expansion plans. Volo Aero MRO is an FAA certified repair facility # FP7R098J based in East Longmeadow MA with limited ratings covering Powerplant, Airframe and Accessories for Precision Grinding. Providing services for repair as well as new manufacture from its 4,500 ft² facility.

Alaska Airlines to install Space Bins on existing 737 fleet

Seattle-based Alaska Airlines will begin modifying in-service Boeing Sky Interior 737 airplanes with more spacious Space Bins in the coming year. Alaska Airlines is the launch customer for Boeing's retrofit Space Bin program. In total, the airline plans to modify 34 airplanes – primarily 737-900ERs (Extended Range) – with the new overhead bins. Boeing's new overhead bins increases the room



Boeing 737 Space Bin Photo: Boeing

AEI announces order for fourth MD-80SF series freighter conversion from Aeronaves T.S.M.

Aeronautical Engineers has announced the fourth order for an MD-82SF freighter conversion from Aeronaves T.S.M. (TSM). The aircraft (MSN 49990) will commence modification at the end of August and will be re-delivered to TSM in early 2017 to fly for the DHL network in Mexico. Commercial Jet's Miami, Florida facility will perform the modification and maintenance requirements on the aircraft. TSM represents the largest overall operator of AEI's MD-80SF series freighters.



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HAECO PJS ACJ319 cabin design
Photo: HAECO

HAECO PJS extends cooperation with HongKong Jet and Nanshan Jet

HAECO Private Jet Solutions (HAECO PJS) completed private jet maintenance work for Hongkong Jet in May and June. In July, it established a relationship with Nanshan Jet, a new customer. HAECO PJS redelivered an Airbus Corporate Jet ACJ319 and a Boeing Business Jet as scheduled to Hongkong Jet. The two companies have a strong relationship and have worked together extensively in the past, with HAECO PJS providing the VIP aircraft operator with maintenance, livery design, exterior painting and AOG support. In July, HAECO PJS welcomed its newest customer, Nanshan Jet, completing a 36-month check on a Boeing Business Jet operated by the company. Nanshan Jet was impressed by the skill and professionalism of the HAECO PJS team, leading to an auspicious start for this new business partnership.

Aviall extends agreement with UTC Aerospace Systems

Aviall, a wholly owned subsidiary of The Boeing Company, has extended its relationship with UTC Aerospace Systems by entering an agreement to act as exclusive stocking distributor of airframe pneumatic de-icer, de-ice system hardware, and propeller de-ice product lines, including Goodrich FASTboot and SILVERboot pneumatic de-icers. Goodrich pneumatic de-icing systems satisfy a variety of performance and aesthetic criteria for the aviation community. They offer superior performance and reliability features such as fluid resistance, lightweight construction, surface or recessed mounting options, a smooth surface and tapered edges, and built-in protection against ozone, weathering, oxidation and erosion. Goodrich brand de-icers improve

environmental impact by reducing chemical usage through a pre-applied pressure-sensitive adhesive on their FASTboot pneumatic de-icers.

Lufthansa Technik to provide component support for Ethiopian Airlines' A350 fleet

Ethiopian Airlines has contracted Lufthansa Technik to provide comprehensive component support for the airline's future Airbus A350 fleet. The corresponding Total Component Support TCS agreement will run for a period of ten years and includes 14 aircraft. The contract comprises component maintenance, repair and overhaul as well as access to a pool of spares. The contract underscores Lufthansa Technik's many years of collaboration with Ethiopian Airlines as MRO in a number of different areas. These include an extensive Total Component Support for the carrier's Boeing 787 fleet as well as material support for Ethiopian Airlines' Bombardier Q400 regional aircraft fleet.

SR Technics successfully completes cabin modification project for SAS

SR Technics reported the successful delivery of the cabin modification project of 12 wide-body aircraft for its partner Scandinavian Airlines (SAS). In late 2014, SR Technics teamed with SAS to enhance the cabin experience of SAS's Airbus A330-300 and A340-300 aircraft, and the two companies have just completed this joint project on time. Cabin modifications represent a strategic focus for SR Technics, and the on-time delivery of this type of complex project demonstrates SR Technics' commitment to meeting the schedules of its

customers. The design support and multi-disciplinary teams of logistics, kitting, finance, production, procurement and project management all under one roof is what enabled the successful delivery of each aircraft.

Avtrade signs new repair management contract with leading airline

Avtrade has reported the expansion of its Euro Asian frontiers with the signature of a new repair management contract with a leading cargo airline based at Istanbul Atatürk International. The contract covers a growing fleet of Airbus A300s. Operating scheduled and charter cargo services within the Middle East, Europe and Asia, Avtrade's UK based Global Headquarters and network of regional offices based in Dubai, Singapore and Guangzhou are ideally positioned to support the airline with a dedicated, high quality local service. Offering experienced aircraft support, Avtrade utilizes strong independent MRO and OEM relationships to supply efficient on-time processes, quick turnaround and delivery of customer components removed and sent to Avtrade HQ for repair management.

Lufthansa Technik launches laser-based system for installation support

Lufthansa Technik AG has launched a laser-based system for installation support (Augmented Reality) when equipping VIP aircraft cabins in the framework of its research and innovation projects. The mobile projection system can be adapted to suit every installation situation. It can be positioned and aligned flexibly and robustly in the aircraft fuselage. Components can therefore be installed with high precision and significantly more efficiently than using conventional measurement and alignment tools. The required installation template is projected directly into the work environment for the structural employee. This template corresponds to the component contours selected in the virtual 3D model, which are projected onto the aircraft structure in the correct position and therefore act as a positioning and alignment aid for the component that is being installed. The precision is increased as a result and the level of work required reduced significantly. In contrast to Virtual Reality, Augmented Reality offers users additional information in real time over and above what they actually perceive. This allows real spatial worlds to be augmented by virtual elements and data that interfuse the real and virtual world.



Magnetic MRO and Component OH Services sign partnership agreement for landing gear repair Photo: Magnetic MRO

Magnetic MRO signs long-term partnership agreement with Component OH Services

Magnetic MRO, Estonia-headquartered Total Technical Care MRO organization, has signed a long-term exclusive partnership agreement with Component OH Services in the USA in order to provide landing gear overhaul and repair services for its customers in Europe, Africa, Russia and Asia. Component OH Services is a landing gear shop that Magnetic MRO has been using to overhaul landing gear sets from tear downs, as well as its repair services for Magnetic MRO base maintenance customers. As a result of the company's positive experience regarding the high-quality, TAT and their process management, Magnetic MRO, has decided to upgrade its existing relationship with Component OH Services into a long-term partnership. Instead of investing in its own landing gear shop, Magnetic MRO has followed a more synergic way of expanding its business and become exclusive partners with a highly professional team. "On account of their proper

equipment and highly developed service process, we believe that this partnership will create additional values for both Magnetic MRO and its customers," says Simona Verbiene, Head of Spare Parts, Magnetic MRO.

SkyWest Airlines and ExpressJet Airlines extend heavy maintenance agreements covering Bombardier CRJ Series

Bombardier Services Corporation has extended Heavy Maintenance Agreements with SkyWest, carriers SkyWest Airlines and ExpressJet Airlines, for a further 10 years. The agreements cover the airlines' fleets of CRJ Series regional jets. The two airlines operate a total of 433 CRJ Series aircraft, including 234 CRJ200, 135 CRJ700 and 64 CRJ900 regional jets for Delta Air Lines, United Airlines, American Airlines and Alaska Airlines. SkyWest Airlines is based in St. George, Utah while ExpressJet is headquartered in Atlanta, Georgia. The maintenance can be performed at any of Bombardier's maintenance facilities in the U.S.A. in-

cluding the Tucson Air Center, West Virginia Air Center, and Macon Air Center.

Embraer and AIAC sign an MoU for aeronautical engineering development in Morocco

Embraer and the Mohammed VI International Aviation Academy (AIAC), signed a Memorandum of Understanding (MoU) at AIAC Headquarters in Casablanca for engineering development in the country. According to the MoU, Embraer will contribute with its experience as an OEM, training engineers in Brazil. The Company will work closely with AIAC to identify and implement initiatives to develop world-class training programs for engineers in aeronautics-related fields in this region of Africa.

SR Technics extends its line maintenance capabilities to the Boeing 787 in Geneva

SR Technics, a leader in MRO services, will extend its maintenance capabilities for the new Boeing 787 at its Line Maintenance station in Geneva, Switzerland, effective as of August 1, 2016. The new service includes on-call maintenance, transit checks, daily and weekly checks, cabin inspections and defect rectification. Geneva is the second line station after Zurich to introduce the B787 capability within the SR Technics network. SR Technics has more than 40 line maintenance customers in Geneva, and it provides services from assistance to full technical handling. The new capability will supplement the existing local offer, which includes maintenance capabilities for A300 / A310 / A318 / A320fam / A330 / A340 / B737 / B757 / B767 and B777 aircraft for line and light maintenance, up to A & P-checks.



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AeroCentury earns US\$299,000 in the 2nd quarter of 2016

AeroCentury, an independent aircraft leasing company, reported second quarter 2016 earnings of US\$299,000, compared to US\$1.4m for the second quarter of 2015, and US\$434,000, for the first quarter of 2016. Earnings reported for the second quarter of 2016 included gains of US\$2.2m related to an aircraft disposition pursuant to a sales-type finance lease and insurance proceeds for one aircraft. In 2015, gains of US\$2.7m related to dispositions of aircraft pursuant to sales-type finance leases boosted earnings. In the first half of 2016, net income totaled US\$732,000, compared to US\$2.1 million in the first half of 2015. Net income for the six months ended June 30, 2016 included gains of US\$2.2m related to aircraft dispositions pursuant to sales-type finance leases, as well as insurance proceeds for one aircraft and, in 2015, gains of US\$4.5m related to dispositions of aircraft for cash and pursuant to sales-type finance leases.

ATSG's second quarter results on track toward 2016 targets

Air Transport Services Group reported consolidated financial results for the quarter ended June 30, 2016. Revenues increased 19% to US\$176.5m. Excluding revenues from reimbursed expenses, revenues increased 13%. This increase included contributions from thirty-five Boeing 767 cargo aircraft leased to external customers as at June 30, six more than a year earlier. Eight of those thirty-five leased 767s were operating for Amazon Fulfillment Services Inc. (AFS), a subsidiary of Amazon.com, which ATSG began serving in September 2015. Pre-tax earnings from continuing operations were US\$18.8m, compared with US\$17.2m in the prior-year period. Adjusted pre-tax earnings from continuing operations declined slightly to US\$16.3m from US\$16.7m, reflecting US\$2.6m in ramp-up costs stemming primarily from flight crew compensation and training for the expanding Amazon and DHL CMI operations. Adjusted EBITDA from continuing operations, as adjusted for the same items excluded from adjusted pre-tax earnings, increased 2% to US\$52.1m. Net Earnings from continuing operations on a GAAP basis were US\$11.5m in the second quarter, versus US\$10.6m a year ago.

C&L Aviation Group primed for additional expansion

C&L have announced a new, US\$3m expansion to its facility in Bangor. The project, supported in part by a US\$1.2m grant from the United States Economic Development Administration that was recently awarded to the City of Bangor, will refurbish a newly leased hangar, add two new buildings, increase capabilities and create 100 additional jobs over the next two years. This next phase of growth will add to C&L's corporate interiors capabilities, a quickly growing market for the company, with a newly refurbished interior hangar. Environmental efficiencies will be added throughout the facility, and the increased hangar space and new storage buildings will allow C&L to service more aircraft at once, delivering on its promise to get clients back in the air on time and on budget. In 2014, C&L completed a US\$5m expansion that tripled the company's space and included a 17,000 ft² paint hangar. That expansion was also partially funded by a grant from the EDA and it allowed C&L to move into new markets such as interior refurbishments for executive jets.

DVB Bank posts positive consolidated net income before taxes for the first half of 2016

DVB Bank, the international transport finance specialist, generated consolidated net income before taxes of €14.1m (previous year: €75.7m) for the first six months of 2016. Net income from financial instruments in accordance with IAS 39, generally subject to volatility, amounted to €10.0m (previous year: €63.5m). The considerable decline was primarily due to substantial non-recurring income from the sale of investment securities (the partial disposal of the stake in Wizz Air Holdings Plc.) recognized in 2015 and generated by the bank's Aviation Investment Management activities. (US\$1.11 = €1.00 at time of publication.)

Exchange Income Corporation completes acquisition of CarteNav Solutions

Exchange Income Corporation, a diversified, acquisition-oriented company, has successfully closed the acquisition of all of the issued and outstanding shares of CarteNav Solutions for a purchase price of up to CAD\$17.0m (US\$12.9m), which is subject to an earn-out provision and customary post-closing adjustments. CarteNav, headquartered in Halifax, Nova Scotia, is a leading software developer providing intelligence, surveillance, reconnaissance ("ISR") and situational awareness software solutions for the maritime, land, and air environments to defense, security, and commercial clients. Its flagship product, AIMS-ISR has become the software of choice for both government and non-government customers in more than 30 countries across six continents.

Safran delivers strong performance in first-half 2016

For first-half 2016, Safran's revenue was €8,936m, up 6.3%, compared to €8,403m in the same period a year ago. This €533m increase reflects growth in Aerospace (propulsion and equipment) and in Security. On an organic basis, Group revenue increased by 6.5%, or €547m. Organic revenue was determined by applying constant exchange rates and by excluding the effects of changes in scope of consolidation. Recurring operating margin reached 14.6% of revenue. For first-half 2016, Safran's recurring operating income was €1,309m, up €138m, or 11.8%, compared to €1,171m in the first-half 2015. The improvement on an organic basis was €139m, as the impact of currency was negligible and that of changes in the scope of consolidation amounted to €1.00 million. Adjusted net income was €862m compared with €1,164m in first-half 2015 which included a post-tax capital gain of €419m from the sale of Ingenico Group shares. (€1.00 = US\$1.12 at time of publication.)

Embraer posts second quarter 2016 results

In 2Q16, Embraer delivered 26 commercial and 26 executive (23 light and 3 large) jets. The Company's firm order backlog ended the quarter at US\$21.9bn, compared to US\$22.9bn at the end of 2Q15 and US\$21.9bn in backlog at the end of 1Q16. Revenues in 2Q16 were US\$1,366.4m, representing a decline of 9.7% from the same period last year, principally due to lower deliveries in the Executive Jets segment. Consolidated gross margin in 2Q16 reached 20.8%, up from the 18.9% registered in 2Q15. In 2Q16, the Company

booked a US\$-200m loss contingency in other operating income (expense), net related to the allegations of non-compliance with the U.S. Foreign Corrupt Practices Act (FCPA). Adjusted EBIT and Adjusted EBIT margin in 2Q16, excluding the impact of the loss contingency, was US\$72.6m and 5.3%, respectively. Adjusted EBITDA and Adjusted EBITDA margin in the quarter, excluding this impact, was US\$152.3m and 11.1%, respectively. Embraer's 2Q16 net loss totaled US\$-99.4m.

FLY Leasing reports second quarter 2016 financial results

FLY Leasing is reporting net income of US\$4.7m for the second quarter of 2016, compares to a restated net loss of US\$43.7m for the same period in 2015. Net income for the six months ended June 30, 2016 was US\$11.8m. For the same six-month period in 2015, there was a restated net loss of US\$23.8 million. Adjusted net income was US\$15.0m for the second quarter of 2016 compared to US\$12.4m for the same period in the previous year. For the six months ended June 30, 2016, Adjusted Net Income was US\$31.4m, compared to US\$42.6 million in 2015. At June 30, 2016, FLY's total assets were US\$3.2bn, including investment in flight equipment totaling US\$2.7bn. Cash and cash equivalents at June 30, 2016 totaled US\$476.9m, of which US\$382.1m was unrestricted. In addition, FLY had eight unencumbered aircraft with a net book value of US\$531.8m. The net book value per share at June 30, 2016 was US\$18.97. At June 30, 2016, FLY's 76 aircraft were on lease to 43 airlines in 29 countries.

Palm Beach Capital announces sale of CTS Engines

Palm Beach Capital, through one of its investment entities, has announced the sale of CTS Engines, jointly owned by Palm Beach Capital and CEO Brian Neff, to Platte River Equity, along with management, including Mr. Neff. CTS is headquartered in Fort Lauderdale, Florida with testing operations in Jupiter, Florida. The company provides a full spectrum of maintenance, repair and overhaul (MRO) services for established engine platforms, and performs developmental testing on next generation engines. The company serves leading cargo, passenger, military and OEM customers. CTS has grown to be a world leader in mature jet engine maintenance and operates one of the largest independent engine test stand.

Airbus Group reports half-year 2016 results and confirms its guidance for the full year

Airbus Group order intake in the first six months of 2016 was €39.1bn (H1 2015: €53.9bn), with the order book value totaling €978bn as of June 30, 2016 (year-end 2015: €1,006bn). The order book of Airbus Defence and Space decreased by €4.6bn due to perimeter changes. Airbus received 183 net commercial aircraft orders (H1 2015: 348 net orders) with gross orders of 227 aircraft including 27 A350 XWBs. The second half of the year started positively with 279 orders and commitments announced at Farnborough, including firm contracts for eight A350-1000s from Virgin Atlantic Airways and for 100 A321neos from AirAsia. Group revenues were stable at €28.8bn (H1 2015: €28.9bn). Despite lower deliveries of 298 aircraft (H1 2015: 304 aircraft), revenues were stable at

Airbus Commercial supported by the strengthening US dollar hedge rate. Helicopters' revenues declined nine percent, reflecting an unfavorable mix despite higher deliveries of 163 units (H1 2015: 152 units). Airbus Defence and Space's revenues were broadly stable. Group net income rose to €1,761m (H1 2015: €1,524m) with earnings per share of €2.27 (H1 2015: €1.94) further supported by an accretion of around two percent related to the share buyback. The finance result was €-148m (H1 2015: €-344m). Free cash flow was €-1,119m (H1 2015: €549m) and included €1.2bn from the sale of Dassault Aviation shares, €750m from the implementation of the second phase of the Airbus Safran Launchers JV and €310m from the sale of the Business Communications activities. The net cash position on June 30, 2016 was €7.2bn (year-end 2015: €10.0bn) with a gross cash position of €19.5bn (year-end 2015: €19.1bn). As the basis for its 2016 guidance, Airbus Group expects the world economy and air traffic to grow in line with prevailing independent forecasts, which assume no major disruptions. (€1.00 = US\$1.10 at time of publication.)

Boeing reports 2016 Q2 loss of US\$234 compared to 2015 Q2 profit of US\$2.45bn

A US\$2.1bn charge for R&D is predominantly responsible for a massive swing in Q2 operating profit for Boeing between 2015 and 2016, though consolidated revenue was up 0.9% year-on-year (YOY) at US\$24.76m. Prior to the R&D charge the Q2 operating profit for 2016 was US\$2.43bn, which, YOY, was down 23.9%. The company has reported a consolidated loss of US\$419m compared to an operating profit of US\$1.68bn in Q2, 2015. According to Dennis Muilenburg, Chairman, President and CEO Boeing, "The underlying operating performance of the company remains solid with our commercial and defense teams again delivering strong revenues and operating cash flow. Actions taken during the quarter that impacted our earnings were the right, proactive steps to reduce risk and strengthen our position for the future." The Commercial Airplanes division of Boeing reported US\$17.46bn in revenue for Q2, up 3.4% YOY, having delivered 199 aircraft during the quarter compared to 197 aircraft delivered in Q2 2015. 152 net orders have been booked for commercial aircraft during Q2 – the current backlog now stands at 5,700 aircraft with a value of US\$417bn. The 787 program R&D write off and pre-tax charges on the 747 and KC-46 tanker programs were responsible for the Commercial Airplanes division's Q2 operating margin for the quarter at a negative 5.6%—reversed from a 7.1% positive operating margin in Q2, 2015. Boeing reported strong operating cash flow of US\$3.2bn, repurchased 15 million shares for US\$2.0bn.

H.I.G. Capital completes sale of Amerijet

H.I.G. Capital, a private equity investment firm with over US\$20bn of equity capital under management, is pleased to announce the sale of its portfolio company, Amerijet Holdings, to an affiliate of ZS Fund L.P., a middle market-focused private equity firm. Since its founding in 1974, Amerijet has grown from a small charter service operator to the leading provider of cargo and logistics solutions to the Caribbean and Latin America. Today, Amerijet operates a fleet of ten aircraft, offering scheduled and charter cargo services and transporting over 200 million pounds of freight annually. The Company maintains its main cargo and flight hub in Miami, a network of

field offices throughout the United States, and has over 200 agents across 137 countries. The company is headquartered in Fort Lauderdale, FL.

MTU Aero Engines provides more precise guidance at half-year

MTU Aero Engines AG generated revenues of €2,299.2m in the first six months of 2016, an increase of 4% (1-6/15: €2,202.0m). The group's operating profit improved by 19% to €254.1m (1-6/15: €212.8m), raising the EBIT margin for the six-month period from

9.7% to 11.1%. Earnings after tax increased by 20% to €176.1m (1-6/15: €147.2m), in line with operating profit. "The successful results for the first half year have enabled us to provide a more precise outlook to the end of 2016," said Reiner Winkler, CEO of MTU Aero Engines AG. With around €4.7bn in 2016, revenues for the MTU group are now expected to reach the upper end of the originally forecast range of between €4.6 and 4.7bn. The company expects to achieve an operating profit of around €480m (adjusted EBIT, 2015: €440.3m). The original outlook was for a stable EBIT margin of around 10%. Earnings after tax are expected to reach around €330m (adjusted net income, 2015: €306.9m) – a growth rate in line with operating profit. (€1.00 = US\$1.10 at time of publication.)

Other News

Global Eagle Entertainment, a provider of satellite-based connectivity and media to rapidly expanding mobility markets, has signed a contract with **Avianca Brasil** to provide inflight connectivity to the carrier's full fleet of over 40 aircraft. Avianca Brasil operates in 24 airports with over 200 daily flights in South America. GEE has been the provider of inflight entertainment content services to Avianca Brasil and its partner airline, Avianca, since June 2015. This agreement, which will expand the relationship with the Brazilian airline, demonstrates the ability of GEE's technology and content solutions to deliver an unparalleled connectivity and entertainment experience to airline passengers. The service will utilize and incorporate certain assets from **EMC**, the company recently acquired by GEE, including already procured satellite bandwidth in the region and the Speednet technology to improve browsing speeds. More details on the service will be provided as Avianca Brasil nears the official launch of inflight connectivity for its passengers.

Panasonic Avionics and **Yahsat** have signed a Memorandum of Understanding (MOU) to explore new ways to offer a broadband connectivity solution serving several mobility markets in the Middle East within the next three to five years. In addition, while final terms are still being negotiated, the MOU allows both parties to further investigate the launch of a Yahsat satellite constellation that would serve Panasonic's general mobility needs in aviation, maritime and terrestrial transportation, and also give Yahsat the ability to use Panasonic communication-related technologies and services where practical. Moving forward, Yahsat and Panasonic will assess the various technical requirements for such an offering. The companies will explore a wide range of factors, including the type of frequency to be used, the coverage and capacity needed to serve flight routes in this region, the type of antenna and radome to be used, and the certification requirements of such a solution.

Information Technology

Aviation engineering and maintenance specialist **Commsoft** has been chosen to supply its MRO IT system, OASES (Open Aviation Strategic Engineering System), to the French business-class airline, **La Compagnie**. The contract represents Commsoft's first direct customer in France and OASES will support La Compagnie's operations for its current fleet of two Boeing 757-200s. Commsoft signed the deal licensing the Paris-based airline for five concurrent users, starting immediately and following strong competition from other suppliers. La Compagnie's OASES license covers a number of engineering and maintenance modules. Its OASES site is hosted on Commsoft's private cloud and the chosen modules include core, airworthiness, planning, materials and line maintenance control.

China Eastern Airlines has selected **Rockwell Collins'** Iridium SAT-

COM aftermarket solution for its fleet of more than 100 Boeing 737 aircraft. Installations are currently in progress. The voice and data communications solution, installed via a Boeing service bulletin for Next-Generation Boeing 737s, will enable reliable long-range global voice communications, flight tracking and Aircraft Communications Addressing and Reporting System (ACARS). The solution is also capable of enabling Future Airspace Navigation System (FANS) for airlines that need it for their operations. The Rockwell Collins Iridium SATCOM solution for China Eastern consists of a triple-channel transceiver that includes two channels for exclusive global voice communications and one for short-burst data link communications. It is the first Iridium three-channel transceiver to be approved by Boeing for FANS and safety services.

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WHEN RESULTS MATTER



Next-generation aircraft maintenance

BA 787 receiving its first B check.
Photo: British Airways

The next generation (NextGen) aircraft present a number of revolutionary changes and capabilities - driven by advances in technology, we now take a closer look at some of the key attributes to consider.

As these new aircraft come to dominate the world fleet over the next 20 years, airplane reliability will improve, and maintenance check intervals will lengthen.

Although this trend will moderate the demand for maintenance technicians, the demand for technicians with the capabilities to work on NextGen technologies is expected to be significant. The labour estimates vary depending on economic growth and retirement forecasts, but over the next 20 years North America will need between 30,000 – 110,000 new technicians (Boeing, 2014; GAO, 2014; GAO, 2003).

As a new fleet of modern commercial airliners takes wing, so does a new breed of maintaining them. New aircraft are becoming a rich source of big data as many of their systems and components are constantly being monitored. The information allows OEM, operators and MRO to constantly monitor the health of planes as well as improve the decision making process around maintenance. While the technology promises much, a new report highlights that so far a business case remains elusive.

Big data has been making headlines in a number of industries, promising to revolutionise the way in which businesses are able to make decisions, thereby leading to greater operational efficiency, cost reduction and reduced risk. One of the sectors slated to benefit from the use of big data, and associated analytics, is the aviation

industry. Maintenance of aircraft through the collection of data has the potential not merely to create transparency and improve maintenance outcomes – such as decreased downtime – through aircraft health monitoring systems, but also to improve long term outcomes through predictive maintenance system.

In a new report from Oliver Wyman, titled ‘MRO Big Data - A Lion or a Lamb?’ the consulting firm explores the current state of big data deployment within the aviation industry, as well as consider the current challenges faced by OEM, operators and MRO. The report is built from a survey of the wider industry, and is predominantly based on C-suite respondents.

Following a marked decrease in fuel prices, as well as increased interest in travel – especially within the Asia-Pacific region – investment in next-generation aircraft and supporting technology infrastructure has picked up in recent years. The growth of next-generation aircrafts is projected to rise rapidly, reaching more than 15,000 by 2026. As the number of planes grow, so does the amount of information gathered from the fleet.

The newest aircraft lines have technologies on board that are able to measure and record an extremely wide variety of metrics across a range of areas – at the system and part level. Currently, around 2 exabytes of data are generated every year, by 2026 this may have grown to a staggering 98 exabytes per year – by comparison, the total global IP traffic reached around 966 exabytes in 2015.



Demand for technicians with the capabilities to work on NextGen technologies is expected to be significant. Photo: BA

The utilisation of the currently generated large volumes of information remains relatively low. From all respondents, 27% say that they rely on aircraft health monitoring (AHM) systems to manage all the aircrafts in their fleet, while 29% say they rely on it for select fleets – 44% of respondents however, do not use the data they gather for health monitoring.

The data on engines is the most interesting to respondents, cited by 89% as an area where health monitoring is used, followed by airframe maintenance, at 55%, and component maintenance, at 43%.

The use of predictive maintenance (PM) technology is less often deployed by respondents. A total of 56% do not use the method at all, while 25% use it in select fleets only and 19% on all aircrafts. Again, engine maintenance is the major focus in this category, although airframe maintenance and component maintenance are closer in use, at 29% and 33% respectively.

The generation of large amounts of information which needs to be combed for actionable – maintenance related – insights remains daunting for a number of respondents, and creates new storage, organisation, and application challenges. Many operators are opting, initially maybe, for more modest data analytics programmes that focus on a restricted subset of the information – often aimed at creating high impact advantages. 59% of the respondents are planning to restructure AHM to small sub-sets of data – either themselves or through third parties. For those using PM, 83% focus on narrow subsets, while only one in five expect to apply predictive techniques to all available data.

The business case for a wide-scale deployment of big data solutions within the aviation industry remains elusive for many respondents. The report asked respondents that have implemented AHM and to a lesser extent PM about the improvements to operations. AHM is shown to be the most effective at reducing reliability issues, as cited by 63% of respondents, followed by a decrease in engine maintenance costs, cited by 35%. The technology is considered to improve costs in technology maintenance and total cost of ownership by 20% in each category. Many of the indicators on the maintenance side do not show a noticeable improvement from the adoption of AHM.

On the PM side, particularly a cost reduction in airframe maintenance is noted, at 37%, followed by a decrease in engine maintenance, at 33%. A noticeable increase in reliability is further noted by 30% of respondents using the technology.

According to the report, “Outcomes like reliability gains and cost savings are tangible benefits operators can point to in justifying further investment in analytics – hardware, software, and people. And yet, other sources of value traditionally required in investment cases (such as spare parts reductions, shorter turn times) are less commonly experienced, suggesting significant work remains to tap the full potential big data technologies offer.”

Concerns about the effectiveness of the technology is reflected in respondents’ reflection on whether organisations believes AHM systems have reached a level of maturity. As it stands, 8% believe the technology has reached the level of sophistication anticipated for this technology, while 22% believe it is rapidly becoming a core decision-making tool. A large proportion of respondents see the technology as gradually becoming a core decision-making tool, at 37%, while 22% of respondents believe the technology is still at an early state, and 8% of respondents say it is not ready for a thorough investment.

The consulting firm adds: “we expect investment will continue as users integrate these technologies further into airline technical and MRO organisations, possibly even ahead of an established history of tangible benefits. Tellingly, half of respondents (53%) said they plan to invest further in AHM over the next three years.”

“We’re excited to be able to work on such an advanced aircraft.”

Lauren Stacey, British Airways Maintenance Cardiff 787 project team leader

The aviation industry is challenged to develop and hire qualified technicians with the experience and skills that employers require.



Data on engines is the most interesting according to a survey. Photo: Iberia



New aircraft are becoming a rich source of big data.
Photo: Airbus

Currently, many employers are reluctant to hire recently certificated A&P mechanics. While the A&P certificate may signal an aptitude and a level of general aircraft knowledge, most employers observe that many graduates generally require an additional 1 to 3 years of on the job experience to become fully proficient as a mechanic.

The 787 is a good example of a highly sophisticated new type now coming online for maintenance checks. In May, British Airways' team of expert engineers at Cardiff welcomed one of the airline's 16 Boeing 787s for the first time for planned maintenance.

The aircraft arrived at British Airways Maintenance Cardiff (BAMC), the airline's long-haul aircraft heavy maintenance facility in South Wales, for a planned 12 day 'B' check, conducted every three years.

The in-depth inspection was successfully completed by a specially trained team of engineers and included emergency evacuation slide checks, engine ground runs, and a top to bottom review of the cabins, which saw all of the seats removed and transported to British Airways' Interior Engineering (BAIE) in Blackwood for a full overhaul.

Preparation for the aircraft almost a year ago with dedicated 787 training programmes for BAMC experts including mechanics, technicians and safety specialists. The facility now boasts more than 120 specialists with the specific training to work on the 787 aircraft fleet.

Sixteen of the airline's licenced aircraft engineers have successfully completed the intensive 45-day 787 course allowing them to certify the maintenance work carried out at BAMC.

British Airways Maintenance Cardiff 787 project team leader, Lauren Stacey, said: "We're excited to be able to work on such an advanced aircraft."

"We've received the best training and have the very best equipment to ensure the 787s are maintained to the highest standards.

"We are pleased to be able to do our bit to make sure our customers have enjoyable flights wherever they are flying on our 787s."

The aircraft, with the registration G-ZBJA, is the airline's first of a total of 42 Boeing 787 Dreamliners on order. All 42 of the airlines ordered Dreamliners are planned to arrive with the airline by 2021.

Sources: Consultancy.uk, Saint Louis University, British Airways.



Investment in next-generation aircraft and technologies has picked up.
Photo: Direct Maintenance

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When asked by non-industry people what GA Telesis does, Founder and Chief Executive Officer, **Abdol Moabery**, often chuckles and replies with, "How much time do you have?" The truth is that since he founded the company in 2002, the company has quickly transformed into an organization, with institutional shareholders such as Bank of America Merrill Lynch and Tokyo Century Corporation, which is globally recognized for its financial innovation and its lead into developing integrated aftermarket services for the aviation industry. What does that mean exactly? We have caught up to Mr. Moabery at an airport, what he calls his home away from home, to learn about GA Telesis and its quest to do what the company calls Intelligently Defining Aviation.

AviTrader MRO: Let's start with Intelligently Defining Aviation. Don't you feel that this is a pretty bold statement?

Moabery: Actually, I do not. It started on day one with our name, GA Telesis. Telesis is defined as: progress intelligently planned and directed through human effort. Innovation and careful planning have always been at the forefront of our thought process. As our business grew and developed we found ourselves offering new products and services to our customers. We also combined products with services to provide our customers with the most innovative structures. These structures are changing the way our customers think about things and we are all better off as a result. This is the key factor in why and how GA Telesis grew an average of 30% per year since inception.

AviTrader MRO: Looking at your growth, it is amazing how you grew from one location in 2002 to a vast network that includes finance and leasing, MRO and component distribution worldwide? How does one do that?

Moabery: We currently operate 15 locations around the world. Financial and leasing services are centralized in Denver, CO, with key people based strategically in Europe and Asia. Our MRO services are on two continents and our component distribution and services on three continents. Our idea has always been to serve our customers in real time. The best way to be in front of the customer – all the time.



Engine transactions are part of the business.
Photo: Keith Mwanalushi

AviTrader MRO: Can you elaborate on your component distribution operations?

Moabery: Our Component Solutions Group is headquartered in Ft. Lauderdale, but has global sales reach. We have sales and distribution operations in the USA, United Kingdom, Turkey and China, but we have sales offices on every continent and some cases

we have several. We offer our airline customers a number of services from ad-hoc component support to program services, like power-by-the-hour or VMI. We can do as little as regularly supplying replacement parts to small regional airline to covering the entire supply chain of a major airline.

AviTrader MRO: What about your MRO operations? What do they do and what made you enter into this area of business?

Moabery: We currently have three major MRO operations. Based in Miami, FL we have GA Telesis Component Repair Group SE. At CRGSE they repair and overhaul hydraulics, pneumatics, electro-mechanical, servo, power-systems, electronics and instruments. In Ft. Lauderdale, we have GA Telesis Composite repair Group where they perform the repair and overhaul of aerostructures with a particular focus on engine nacelle systems. In Helsinki, Finland we have GA Telesis Engines Services that repairs and overhauls General Electric CF6-80C2, CFM56-5B/C and CFM56-7B jet engines.

AviTrader MRO: Help me to understand why a company that is known worldwide for providing parts and MRO services has a financial and leasing business?

Moabery: Our leasing business, or as we refer to it, our Asset Transaction Group, is a specialty finance house. Frankly, I say specialty because we find it too competitive and therefore difficult to do cookie cutter lease transaction. Where we shine is when an airline or financial institution has a need that doesn't fit inside the box. We have creative solutions and structures that allow us to meet our customers' objectives. Whether that is off-balance sheet financing, residual value protection, asset portfolio balancing or just a means to raise cash, we have the capital and the flexibility to get things done.

AviTrader MRO: Earlier, you mentioned integrated services, what does that mean to GA Telesis?

Moabery: I would strive to say that what separates GA Telesis from its competitors is its unique ability to integrate or bundle all of its services into a single product/service offering that allows its customers to have a more efficient supply chain. For example, we have several customers that lease aircraft from us. In addition to that, we provide them with jet engine, aerostructures and component maintenance as well as component replacement services; a sort of nose to tail coverage. Our ability to bundle these services and to provide them in a single flexible solution, that is adjustable to fleet size and seasonality, is the differentiator and what makes GA Telesis the leader in integrated aviation services.



Abdol Moabery,
Founder and Chief Executive Officer

In the hot seat.....

Karl Drusch, CEO and President of TrueAero.

AviTrader MRO: What attracted you to this business?

Drusch: I come from an airline family from the early days of aviation. My father was a pilot and my mother was a flight attendant. As for my two brothers, one is a pilot for a major US airline and the other was a former executive with, what was at the time, the world's largest airline. My wife was even in the industry as a gate agent. My interests bounce within a venn diagram of technical, financial and business. As some might say, I have Jet-A running thru my veins and can't see myself doing anything else.

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

Drusch: In aviation, there is not a typical day. However, I do spend most every day communicating with our investors, customers and team members on a variety of topics. We have spent the last six months reorganising our structure that empowers each of the department heads to handle their business as well as coordinate daily with the other departments to provide a superior product support and service for our customers and investors.

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

Drusch: Talent acquisition. Finding qualified, hardworking, trusted people that share our vision and passion for providing world class service and support is the greatest daily challenge for us in our time of growth. As we are expanding our global footprint to include Asia and more of Europe, these individuals that fit our mold become integral to our success. We are a unique bunch that push ourselves and expect nothing less from each other. When we do find that perfect fit, they tend to stick around and grow with us.

AviTrader MRO: Generally speaking, what trends are you seeing in the end of life asset management business today?

Drusch: Today's industry is ultra-dynamic due to a myriad of variables on a global scale. That is to say each platform has a different value matrix that is very volatile both positively and negatively. An asset that traded six months ago can drop in value by 30-40% today with little to no foresight. So,

we need to be disciplined in our valuation and planning as well as speed to market of all acquired assets. We also need to look for all value drives at the piece part level and adjust as the market demands.

AviTrader MRO: Teardown and redistribution is a major part of your business, how is this sector performing?

Drusch: Performance is measured in a number of ways but our metrics are designed to exceed all expectations and maximise value for all stake holders. Since we are disciplined in our valuations and don't need to deploy capital for the sake of putting money to work at all cost, we can afford to be selective to only those deals that we truly believe in. That's not to say that forecasts aren't met, but we severely reduce the exposure and risk of all deployed capital. Many factors out of everyone's control (i.e. unexpected scrap rates, unexpected AD's, fleets being dumped on the market etc.) give us challenges and require our team to be creative and fast on finding solutions. That's the reason we wake up each morning, excited for the unknown chaos that each day provides. We all are addicted.

AviTrader MRO: Which aircraft types are you seeing the greatest demand for teardown and which parts in particular?

Drusch: On the airframe side, 737NG and A320s are still the greatest demand. On the engine side, it's still the CFM56-5B/7B and V2500-A5s. We do see a good future in E170/190 with CF34-8/10 engines.

AviTrader MRO: The average shelf life of an aircraft or engine has shrunk from 25 years to just 17. Why is this happening and how are you responding to this?

Drusch: The airframes are seeing downward pressure as newer fleets are being retired. Cheaper access to capital and shorter lease terms are providing airlines with more flexibility to modify their fleet as needed and this is pushing younger and younger aircraft into early retirement. The engines don't necessarily follow this pattern as their lives are primarily driven by life remaining value opposed to performance restoration costs and can be redeployed on other aircraft. With the younger fleets retiring, asset owners may need to take write downs on the aircraft that they expected to generate revenues from, but



Karl Drusch CEO and President of TrueAero

due to market changes, will no longer realise. It is definitely a double edged sword.

AviTrader MRO: With the lower cost of fuel are you seeing more demand for parts for mature engines and if so, which types?

Drusch: I know this is the common perception, but we tend to see it only in the spot market and not a wide trend. Maintenance condition/costs are a bigger driver in the useful life of an aircraft than fuel prices.

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

Drusch: We are beginning to consolidate my companies to offer a range of services within the mid to end of life asset management business including engine management, lease management, redelivery and asset EOL evaluations, etc. Most of the industry knows me from PSG Turbines but TrueAero and SK Aero are affiliates that will become synonymous with TrueAero's brand. We are closing on another A340-600 as well as spare engines (CFM/CF6), all for immediate teardown. We have also increased the lease portfolio with three additional A330s and continue to evaluate 737NGs, newer A320s, 777s and A330s. For teardown and lease assets we prefer to buy in quantity as it helps mitigate those unknowns (i.e. unexpected scrap rates, credit risk) and is a better allocation of our resources.



Can PMA parts compete with OEM aftermarket?

In addition to providing a high quality part, working with smaller PMA suppliers instead of large OEMs can offer major advantages.

Perception of PMA replacement parts rises with increased awareness of the comparable quality and significant cost savings versus the OEM

When it comes to replacement parts, the large OEMs would prefer to have a monopoly on the aftermarket business. But as with any industry, the presence of alternative aftermarket products of comparable, or even better, quality drives down prices. For the aviation industry, this competition comes from smaller independent MROs as well as PMA parts manufacturers.

In response, OEMs attempt to retain as much of the aftermarket as possible by marketing its parts as the highest quality, most reliable parts available, through warranty and contracts with air carriers and leasing companies, and now through new bundling strategies designed to lock out alternative suppliers.

According to Tom Wolfe of FAA-certified MRO component repair facility AeroKool Aviation - a company that specialises in environmental control systems, air cycle machines, valves and heat exchangers - the OEMs have a vested interest in discouraging the use of third party repair stations and PMA part providers.

"The OEMs invest heavily in product development on the front end and hope to recoup some of that investment in aftermarket programmes," says Wolfe.

Techniques designed to keep the repair and part replacement business in-house include contractual agreements that specify the use of OEM replacement parts only.

OEMs may also employ repair "bundling" strategies for complete packages of repair for entire systems – and even other parts of the aircraft – under a single, blended rate. This makes it difficult for the air carrier to get information on individual part costs to evaluate if switching to a PMA part might be advantageous.

"The aviation industry benefits from the competition, which drives down prices for the airlines," says Wolfe. "There is no competition when the OEM is the only option in the market."

That being the case, PMA parts are still at a disadvantage when compared to OEM parts – not because of price or quality, but rather a lack of education about alternate options.

Parts Manufacturer Approval (PMA) is an authorisation granted by the Federal Aviation Administration (FAA) to a manufacturer of aircraft parts. PMA parts must pass the same rigorous quality and testing requirements as OEM parts, but are often significantly lower in price.

The perception and adoption of PMA parts can vary based on geography, the category of customer (air carrier, leasing company, parts broker, independent MRO), and in some cases, simply the familiarity and confidence of the customer with the quality of these alternatives.

In North America, the majority of air carriers already accept PMA



PMA parts are still regarded at a disadvantage when compared to OEM parts.
Photo: Iberia Maintenance

parts. However, in Europe, Asia and developing countries there remains a perception that OEM parts are higher quality and more reliable.

"There is a perception in some parts of the world, which I believe is changing, that PMA parts may be inferior in quality and design robustness to OEM parts, but as has been proven many times, PMA parts meet the requirement of being equal to, or better, than the OEM," says John Grimshaw of Triumph Accessory Services, Wellington, a Part 145 Repair Station.

As for other segments of the industry, aircraft leasing companies largely continue to specify in lease agreements that only OEM replacement parts may be used. For parts brokers and distributors, the decision to use OEM or PMA parts is often driven by the customer so they offer both options.

According to Grimshaw, independent MROs tend to specialise in specific components or sub-systems within the aircraft. For Triumph Accessory Services that means electrical generators, hydraulic pumps, pneumatic valves, air cycle machines, various types of actuators, and power generation and transmission equipment.

The bulk of the work comes from air carriers that no longer perform in-house repairs, from parts brokers and distributors that need components tested, repaired and overhauled to resell, and from freight carriers converting passenger aircraft.

OEM repair shops, on the other hand, can offer a broader portfolio of parts. In addition, they can offer air carriers parts at below-catalogue rates, while the MRO often must pay full price.

Therefore, to compete effectively, third party repair shops often

promote the use of PMA parts.

Rich Simmons, Operations Manager at Texas Pneumatic Systems (TPS), a third party MRO that specialises in pneumatic, fuel and hydraulic components, concurs.

"If a customer is looking for a cost effective solution, we want to be able to offer them the PMA parts because they are less expensive than the OEM," says Simmons. "For our service, we would be remiss if we didn't offer that."

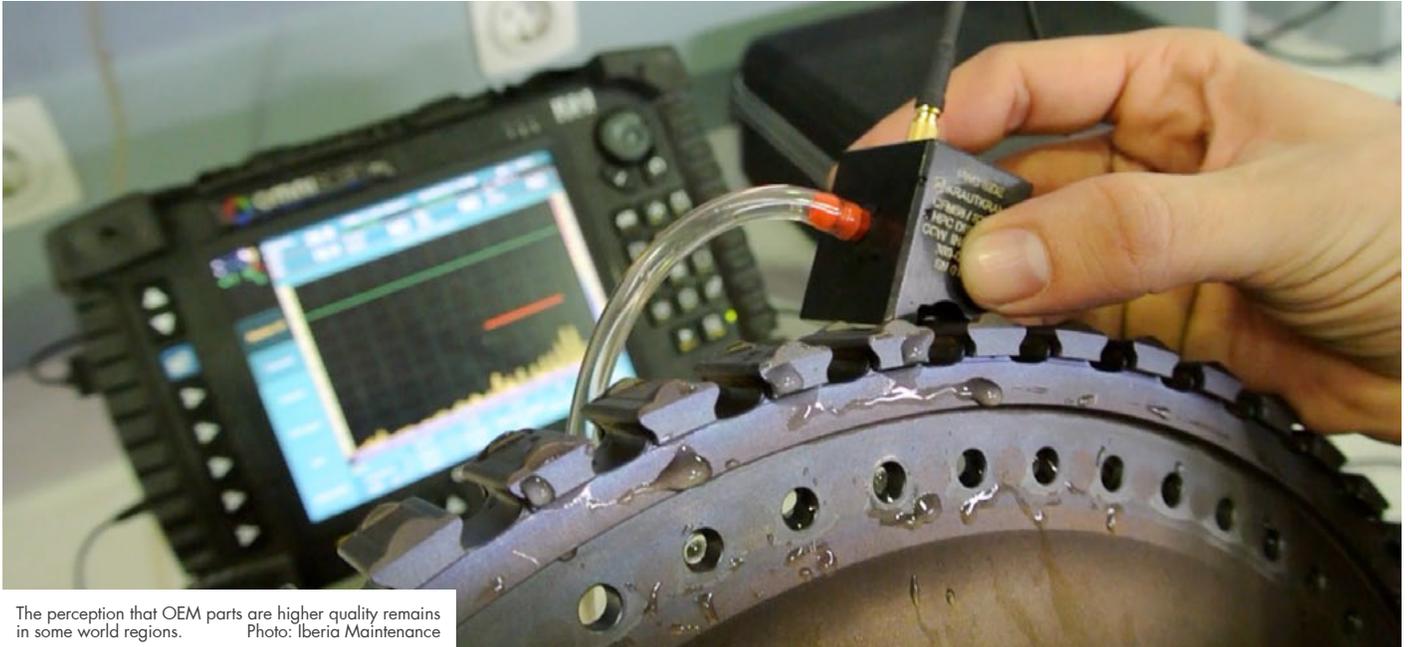
Environmental control systems

A prime example of the push-pull between OEM and PMA provider can be found in the maintenance and repair of Environmental Control Systems used in most military and commercial aircraft.

Environmental Control Systems (ECS) provide air supply, cooling and heating and cabin pressurisation for the crew and passengers. Major OEMs such as Honeywell, United Technologies Corporation Aerospace Systems (UTAS), and Liebherr dominate the market.

A key component in these systems is the Air Cycle Machine (ACM). To produce cool air without the uses of a refrigerant, such as Freon, this high speed rotating machine utilizes sophisticated foil air bearings that conform to the shape of a mating rotating shaft. Most commercial and military aircraft today utilize ACMs with this type of bearing.

However, at 30,000 to 45,000 rpms even well-manufactured foil bearings can fail or wear out from constant use over time. When this occurs, the ACM may fail to operate in-flight. More serious



The perception that OEM parts are higher quality remains in some world regions. Photo: Iberia Maintenance

failures or imbalances of the rotating elements can also cause ancillary damage to other components in the air conditioning pack.

Although common, less-sophisticated PMA parts may be available from many sources, some – like foil-air bearings – may only be available from a few. Finding a qualified PMA provider is not difficult. Sources include the FAA's web site, Inventory Locator Service (ILS), trade shows and even through the company's own advertising and marketing efforts.

Among those currently listed is R&D Dynamics (rddynamics.com), a producer and supplier of high quality, FAA approved foil air/gas bearings and other PMA parts for most models of ACMs.

At its facility in Bloomfield, Connecticut, each foil air bearing is developed using exacting design and manufacturing processes that are similar to OEM methods and inspected prior to shipment using stringent FAA quality inspection systems.

Any concerns over the quality of these sophisticated PMA parts quickly vanish when engineering personnel learn more about the company. Established in 1990, the company's founder, Dr. Giri Agrawal, pioneered the design and development of high speed rotating machines supported on foil air/gas bearings for air cycle machines in the 70's and 80's while working at Honeywell and Hamilton Sundstrand.

"One of the benefits that R&D Dynamics has is that the founder was a key driver in the development of foil-air bearing technology," says Wolfe of AeroKool Aviation. "When Hamilton-Sundstrand first developed it, he was the leader of the team of engineers that developed this technology."

As Chief Project Engineer at Hamilton Sundstrand, Agrawal received the "George Mead Medal", the highest technical award from the parent company United Technologies Corporation. He was also cited as the "Father" of the Hamilton Sundstrand Air Bearing Program.

"When you are looking at PMA parts and you're looking at op-

tions at how you can be more competitive with the OEMs, when you see that type of pedigree and credentials, you understand that this company is different from other PMA companies," adds Wolfe.

However, Texas Pneumatic Systems' Simmons is quick to add that the reputation of the PMA provider only gets the company's foot in the door.

Although he was also impressed with Agrawal's background, he says that what ultimately keeps the customer engaged over time boils down to quality and price. It is for these reasons that Texas Pneumatic Systems has purchased foil air bearings from R&D Dynamics for the past 15 years.

"Reputation gets us moving, but reputation won't keep us a customer," explains Simmons. "The proof is still in the pudding; when we use the product, do we get the life out of that we get out of the OEM part? Do we have more or less warranty returns?"

In addition to providing a high quality part, working with smaller PMA suppliers instead of large OEMs can have other advantages as well. Because of their focused expertise, many of these companies can offer OEM-level technical support and are agile and small enough to respond quickly to any situations that arise. This includes expediting delivery of parts when necessary.

"With a PMA parts manufacturer like R&D, there is a willingness to make adjustments in the supply chain, the delivery schedule or if there is a hiccup of any kind, they are able to jump right on to it and get the fix completed with the main guys making the decisions," says Grimshaw of Triumph Accessory Services, Wellington.

"You don't have huge conglomerate and multi-layered management where things are slow to get done, with an agile PMA manufacturer it can get done overnight," he adds.

Source: Power PR
press@powerpr.com



Cheryl Robinson Jackson

Aerospace and defense contractor AAR, a provider of aircraft maintenance and supply chain solutions worldwide, has appointed AAR Vice President **Cheryl Robinson Jackson** as its first President, AAR Africa. Jackson, who has served as AAR's Vice President of Government Affairs and Corporate Development since she joined the company in 2010, more recently added business development to her responsibilities and has been successful in growing AAR's business in Africa. She spent much of the last two years traveling between the U.S. and Africa to solidify AAR's foothold in the continent and building on the company's first power-by-the-hour (PBH) component inventory management and repair services contract with Kenya Airways fleet of 737NGs, aided by the U.S. Commerce Department's Doing Business in Africa initiative.

Certified Aviation Services reported the appointment of **Mike Stafford** to General Manager of Line Maintenance. Mr. Stafford will be responsible for managing the company's eleven line maintenance stations while also growing all of CAS' MRO line maintenance services. Mr. Stafford joins CAS from his most recent position at United Airlines where he held the title of Western Region Manager of MRO Sales.

Guus Dekkers, currently Chief Information Officer (CIO) with Airbus and Airbus Group, has decided to leave the company to pursue other opportunities outside Airbus Group as of end of September 2016. Dekkers will be succeeded by **Luc Hennekens**, currently CIO of Qantas Airways, effective as of October 1, 2016. In his new role, Luc

Hennekens will report to **Marc Fontaine** – Group Digital Transformation Officer – for Airbus Group matters and to **Tom Williams** – Chief Operations Officer Airbus – for Airbus matters.

West Star Aviation reported that **Rob Jolly** has joined its team as Regional Sales Manager for the Western territory covering Arizona, Nevada and California effective August 8, 2016. Rob is taking over for **Terry Lutrick** who announced his retirement earlier this year.

Cláudia Sofia Simões joins Sapphire Innovation as Head of Global Aviation Engagements. Miss Simões joins Sapphire Innovation from Swiss Aviation Software, a subsidiary of Swiss International Air Lines where she was Senior Business Consultant for Finance. Prior to joining Swiss Aviation Software, Miss Simões was Head of Finance Planning and Budgeting & Contracts Manager at TAP Express, formerly PGA.

Kearns Aerospace Maintenance, a member of The Kearns Group, a fast-growing aviation consulting and MRO company, continues to build an industry-leading team with the addition of **Larry Miller** as Quality Assurance (QA) Director and the promotion of **Billy Mitchell** to VP of Operations. As VP of Operations, Mitchell will be responsible for running KAM's 100,000 ft² facility and overseeing its day to day operation. To further support the business' growth, KAM has also expanded its team with the appointment of Larry Miller as QA Director. Miller joins KAM with over 20 years of quality management experience in aviation, including manufacturing, component repair, and aircraft services.

GA Telesis Engine Services (GATES) has announced three promotions to key roles within the company. **Carsten Holm** has been appointed as Chief Operations Officer at GATES, where his primary role will be to drive commercial operations and increase overall productivity and customer satisfaction. **Tommi Valtonen** has been promoted to Senior Vice President of Business Operations and Development. In his new role, Valtonen's responsibilities include developing and enhancing robust technology-led efficiencies for the company's supply-chain

and operational processes. **Sean Miller** has been promoted to Vice President of Sales and Customer Service where his primary focus will continue to be new sales growth by leading GATES' global sales team and developing new business opportunities.

Air Wisconsin reported the appointment of **Janet Huculak** to the position of Vice President of Maintenance and Procurement reporting directly to Senior Vice President and Chief Operating Officer **Bob Frisch**. Huculak will be responsible for leading all Maintenance and Engineering functions associated with Air Wisconsin's fleet of CRJ-200 aircraft, which the airline operates exclusively for American Airlines as an American Eagle regional carrier. Additionally, she will continue to lead all functions associated with Air Wisconsin's Procurement department.



Tom Vansittart

Avtrade has appointed **Tom Vansittart** as Regional Sales Director with responsibility for Europe and the America's. A purchasing and supply qualified expert with 18 years' experience in the aviation industry, Tom brings a wealth of knowledge and expertise to Avtrade's sales department. With a background in engineering stores, aircraft interiors procurement, vendor management and more recently management of Logistics and AOG departments, Tom has the necessary experience to build successful lasting relationships with Avtrade's continually growing global customer portfolio.