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Aircraft lease and maintenance reserves



Company profile
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Industry interview
Satair

MRO News
from around the world

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latest appointments

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MRO

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Registration

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Opinion

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

Navigating lease negotiations

Our cover story in this issue of AviTrader MRO covers the ever complex topic of aircraft leasing in relation to maintenance reserves.

We received plenty of interest in this subject from our our expert panel of contributors and a huge thanks to all of them. Notably, Rob Watts from Aerotask who provided some in depth analysis. Below is an extract from his comments that did not feature in the cover story but makes for some very interesting reading.

“A critical element of lease negotiations is the definition of work scopes and qualifying events; and the terms that govern how and how much is to be reimbursed by the lessor on reserve drawdown. For example, the reimbursement for a 6C check may include only the work specified in this check but may not cover any other work relevant to other lower level C checks carried out at the same time. Furthermore, if the check is performed just before

returning the aircraft to the lessor, the lessor may not pay for any work that is considered necessary in meeting the minimum return conditions.

“Engines and their associated maintenance reserves account for a significant portion of asset value, from around 40% when an aircraft is new, to nearly 100% as it approaches the end of its economic life. The definitions surrounding engine maintenance reserves are complex and given their value implications, are one of the most important elements of the lease contract to get right. The lease should clearly define what is a qualifying event and what is not. This definition is particularly important as lessees are only able to draw on reserves where the work scope meets the definition of a qualifying event; where the definition is inadequately defined, lessees may end up leaving significant amounts money on the table.”.

Keith Mwanalushi
Editor



Lessors are seeking maximum return on their assets.
Photo: Boeing

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Magnetic MRO tool store
Photo: Magnetic MRO

Magnetic MRO launches RFID to manage inventories between all facilities

Magnetic MRO, a global total technical care and asset management organization, has launched another unmanned RFID (Radio Frequency Identification) Tool Control system, resulting in two advanced Tool Gates and one RFID Kiosk in total throughout its facilities in Tallinn, Estonia. The project is designed and upgraded for fully automated inventory transactions, supported by CribMaster's latest software, so that all hangars can communicate with each other without any manual input. Upgrading its RFID systems to an advanced level, Magnetic MRO is now able to provide full quality control for calibration servicing and testing, as well as ultimate convenience for issuing tools and equipment accompanied by easy returning options. The system also allows employees to assign the relevant tools to respective task cards in order to improve preparation period and optimize operational safety and control. Magnetic MRO is also preparing to launch CribMaster Mobile to improve the user experience and avoid unnecessary time consumption arising from obligatory desktop interactions.

FL Technics lands Comair as new client

FL Technics, a global provider of integrated aircraft maintenance, repair and overhaul services, has signed an agreement with Comair, a private domestic airline operator in the Republic of South Africa, listed on the Johannesburg Stock Exchange (JSE). Comair is a South African aviation and travel company, offering scheduled and non-scheduled airline

services within South Africa, Sub-Saharan Africa and the Indian Ocean Islands, as its main business. The company operates under its low-fare airline brand, kulula.com, as well as under the British Airways livery, as part of a license agreement. According to the agreement, Comair will receive extended Base maintenance services. "The first aircraft, a Kulula.com Boeing B737-800 is being completed a 6YR C Check", – said Zilvinas Lapinskas, CEO at FL Technics.

Werner Aero Services acquires one Embraer E-190

Werner Aero Services has acquired an Embraer E-190, MSN233. This jet will be used to support Werner Aero Services continued expansion of its E-Jets asset management programs. Werner Aero Services E-Jets business includes pooling access, repair management, engine leasing, as well as nacelle and spare support.

C&L Aerospace purchases ERJ145

C&L Aerospace, A C&L Aviation Group company, has purchased an ERJ145 aircraft to be parted out. All parts from the aircraft will be stocked in C&L's warehouses in the U.S. and around the globe. Parts from the ERJ will supplement existing inventory and be used to support PBH and rotatable parts contracts as C&L currently has with operators. It will also be utilized on aircraft in heavy maintenance at their Bangor, Maine Part 145 maintenance facility where C&L performs heavy maintenance on a variety of regional aircraft, including the

ERJ. "Our ability to finalize the deal and close quickly was the main reason we won this deal, unlike other potential buyers that would need approval at various levels before being able to make a commitment," said Jameel Wazir, Executive Vice President of C&L Aerospace. The parts, along with their corresponding documentation, are photographed, barcoded and scanned into an electronic location system. The photographs are provided with all customer quotes.

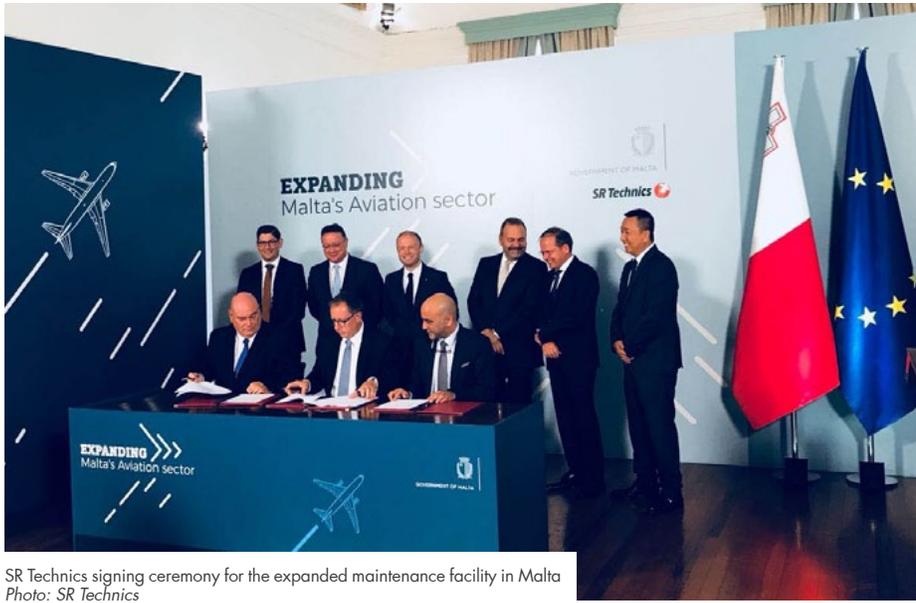
West Atlantic signs on with TP Aerospace

West Atlantic has engaged in a partnership with TP Aerospace for an all-inclusive wheels and brakes program to support their fleet mainly composed of Boeing 737, as well as B767, CRJ and ATP aircraft. The initial contract is for seven years, covering 46 aircraft operated by the cargo airline. Following this new partnership, TP Aerospace will open a new MRO facility in the U.K. to support the fleet of West Atlantic and other customers in the region.

S7 Technics Holding opens new maintenance line station at Sheremetyevo

Russian independent maintenance, repair and overhaul (MRO) services provider S7 Technics Holding has launched a new line station at Moscow's Sheremetyevo airport which currently serves more than 300,000 aircraft movements a year. The new station is managed by S7 Technics' subsidiary S 7 ENGINEERING and is the first located outside of its two main bases at Moscow's Domodedovo airport and at Mineralnye Vody. The latest station is fully approved for the provision of line maintenance, non-destructive testing (NDT) and structural repairs on the Airbus A320 family of aircraft, as well as for Boeing 737NGs and Russian-built Sukhoi Superjet 100 regional jets. Several Russian charter carriers which base their aircraft at Sheremetyevo have become the new line station's first customers.

Three line maintenance stations within S7 Technics Holding are run by its other subsidiary, Novosibirsk's Tolmachevo-based Sibir Technics. They are located at the large airports of Siberia and the Far East region, at Irkutsk, Yakutsk and Vladivostok. Sheremetyevo is the fourth MRO location for the specialist company, and the first in the European region of Russia. S7 Technics Holding's facilities are certified by EASA, Bermuda DCA, the Russian Aviation Authority, and a number of other national authorities to carry out maintenance for different types of Boeing, Airbus, Embraer and Sukhoi Civil Aircraft airliners.



SR Technics signing ceremony for the expanded maintenance facility in Malta
Photo: SR Technics

SR Technics expands presence at Malta International Airport with modern new hangar

MRO service provider SR Technics has signed a contract with Malta Enterprise and Malta Industrial Parks Limited to expand its aircraft maintenance facility in Malta, following last year's Memorandum of Understanding (MoU). The agreement includes the construction of a modern multi-bay hangar facility for narrow- and wide-body aircraft at Malta International Airport. With a size of 30,000m² including workshop space, the new infrastructure will enable SR Technics to increase its capacity for heavy maintenance, C-checks and any cabin modifications or retrofits to up to six narrow-body aircraft at a time. Construction will begin this year, with a scheduled completion date of November 2019 for the first four bays. Operations will initially focus on the Airbus A320 family and the Boeing 737NG. To handle demand while the new hangar is being built, SR Technics will incorporate a third bay as of November 2018 in a temporary hangar next to the existing facility. Since the opening of the Malta operation in October 2010, SR Technics Maltese employees – currently 260 in number – have serviced over 250 aircraft. With the support of the Malta government, SR Technics will hire and train approximately 350 new employees including B1 and B2 engineers, structure mechanics and technicians to join its highly skilled and motivated workforce. The Malta facility will continue to support both SR Technics' strategic operations in Europe and the overall aerospace strategy of its shareholders.

Boeing signs exclusive agreement with Sabena technics

Boeing through its subsidiary Aviall, has signed an exclusive agreement with Sabena technics to distribute its Vigiplane security monitoring system for aircraft on ground. Under this agreement, Aviall will provide exclusive supply chain distribution support for Vigiplane in North America. Using the latest technologies, Vigiplane offers 24/7, 360-degree monitoring for aircraft on ground and is accessible from all mobile devices. Its high-definition cameras operate autonomously from aircraft systems and are monitored through a secure, cloud-based server. The device, which does not require any certification or cabin modification, can be easily and quickly installed on all aircraft types.

Leonardo looks to improve supply chain with launch of LEAP2020 program

Leonardo, the Italian global high-tech company, has launched the LEAP2020 (Leonardo Empowering Advanced Partnership 2020) program as a new model for the company's supply chain in the aerospace defense, and security sector, with visible results anticipated within the short as well as long term. According to Leonardo, the program is: "an initiative outlined in the Company's 2018-2022 Industrial Plan which will create a new model for the relationship between Leonardo and its suppliers. The project's aim is to drive the growth of Leonardo's supply chain in terms of both scale and quality, starting with the Company's Italian supply chain but

extending internationally. Named to evoke the concepts of momentum and progress, LEAP2020 will see Leonardo and its suppliers sharing future challenges and opportunities, enabling Leonardo to improve its performance in areas such as quality and on-time delivery." Alessandro Profumo, CEO of Leonardo, commented that: "The LEAP2020 program, one of the initiatives in our 2018-2022 Industrial Plan, is an innovative approach to supplier management," adding: "It will create a virtuous circle that will strengthen the Company and, more broadly, the industry as part of country system as well as presenting more consolidation opportunities in the sector. The project is based on an open platform that, starting with one-to-one relationships with each supplier, will lead to real, mutually beneficial partnerships". In its initial phase, LEAP2020 will focus on suppliers considered to be of strategic importance to Leonardo, those that the Company spends around €1 billion (US\$1.17 billion) with and which supply to multiple Leonardo divisions. The program defines a model for the selection of a new "growth partner" based on an independent assessment of a supplier in terms of capability, competitiveness, transparency, traceability and sustainability. Leonardo believes the LEAP2020 program will generate benefits in the short term, with larger gains, in some cases in the region of 20% improvements in deliveries and quality, expected in 2020.

Magnetic MRO completes painting project for a VVIP Business Jet

Magnetic MRO, global total technical care and asset management organisation, successfully completed a VVIP Business Jet repaint project for an undisclosed customer, once again proving itself in the VIP arena by painting a Bombardier Global 5000. "We approach every single paint project as a distinctive artwork as they all need a special attention and require customised solutions. However, painting a business jet, regardless of how exciting it is, refers to a totally different category due to excessive quality demands and required meticulous attention." stated Rihards Priedkalns, Magnetic MRO Aircraft Paintshop Manager. The project involved 20 painters who dedicated 3450 man-hours and used 550 liters of primers, paints and clear-coats to provide a distinctive result. Priedkalns underlined that the preparation period is the key to deliver a quality result for every project. Following the completion, Painting Department polished every square meter not only to increase the aircraft's lifetime but also to sustain the quality of the painting.



Monarch Aircraft Engineering to open £2 million component maintenance centre in Northampton
Photo: MAE

Monarch Aircraft Engineering to open £2 million component maintenance centre in Northampton

Independent MRO provider Monarch Aircraft Engineering (MAEL), is to open a new Component Maintenance Centre in Northampton in September 2018. The new Centre, in which MAEL has invested approximately £2 million, is being located in Northampton as that is midway between its Luton and Birmingham base maintenance facilities and on the motorway network within four hours' drive of all of its UK line maintenance stations. 20 people will work at the new Component Maintenance Centre, with 10 new jobs being created. The Centre will be led by Lee Burgess, MAEL's Head of Maintenance. Since becoming an independent MRO provider in October 2017, MAEL has announced a wide range of new agreements with airlines which, in addition to Thomas Cook, include Virgin Atlantic Airways, China Airlines, Wizz Air, Icelandair and La Compagnie.

Pattonair renews parts support agreement with McBrida

Rounding off a highly successful Farnborough Airshow last week, Pattonair, the expanding global supply chain provider for the aerospace and defence industry, renewed its parts support contract with Bristol, UK-based McBrida for a further three years. McBrida Group is a high precision, high quality machined parts supplier to the UK and international aerospace industries. It manufactures high precision engine and other aerospace components. Both companies have been working together for more than 15 years, and this latest long-term agreement fully solidifies their long-term relationship, with a view to further grow the businesses together. McBrida fully supports and is on track to achieving the Pattonair Gold Standard, a programme created by Pattonair to enhance their supply base.

328 Support Services GmbH and USA's AMC Aviation sign LOI to develop multi-role/multi-mission humanitarian D328 turboprop

328 Support Services GmbH (328 SSG), the type certificate holder of the Dornier 328, has signed a Letter of Intent with AMC Aviation, the North Carolina, US-based aircraft sales and leasing company to develop a multi-role/multi-mission humanitarian version of the D328 turboprop. Working with its partners, Jetran International and Jetcor Aviation Services, the group has committed to an initial three aircraft in the conversion programme. The deal was ratified at last week's Farnborough International Airshow between 328 SSG's CEO Dave Jackson and Chris Stern, General Manager of AMC Aviation. The first two D328s are ex-Corning aircraft and are planned to enter modification and maintenance this August at 328's Oberpfaffenhofen Airport, near Munich base, to be ready for delivery in early 2019. A third aircraft, with the same modifications and additional systems plus Air Operable AFT cargo door and oversized windows on either side of the aircraft, will follow. The initial programme of work on the first two 328s will cover – C1 through to C4 maintenance checks; upgrades to the existing avionics systems; modifications such as ADS-B out, Dual Flight Management (FMS), plus SATCOM with Wi-Fi and satellite tracking capabilities. The installation of gravel kit for better unapproved runway operations and provisioning for systems including retractable turret for EO/IR camera installations and other systems will further enhance the aircraft's operational advantages. The 328s will be delivered with 12 different interior options in Passenger/Passenger-Cargo (Combi)/ Medevac/Casevac versions. In each the toilet and galley system will be relocated to the forward portion of the aircraft for AFT loading and Air Dropping of cargo. 328 SSG is currently engaged on a "Re-Entry into Service" inspection programme, taking the aircraft to the latest standards for maintenance. This certifies

the Type Certificate holder has inspected and repaired the aircraft to near production level standards so they can operate into jurisdictions that have strict aircraft age limitations.

Piedmont expands maintenance network to Albany, NY

Piedmont Airlines, a wholly owned subsidiary of the American Airlines Group, will open a new maintenance operation at Albany International Airport (ALB) to service its growing fleet of Embraer 145 aircraft. Piedmont expects to begin hiring for the base in August bringing more than 50 jobs to the area. The new facility will provide maintenance support for Piedmont's northern routes, including international routes out of Philadelphia. "We selected Albany based on a number of factors, including its attractive facilities and proximity to many of the cities we serve out of Philadelphia," said Bill Arndt, vice president, Maintenance and Engineering. "We look forward to growing our Piedmont family and the American Eagle brand in Albany and the great state of New York." Piedmont will hire airframe and power plant mechanics, quality control inspectors, aircraft parts clerks and avionics technicians for the new base.

CFM International and IATA sign landmark agreement

CFM International (CFM) and the International Air Transport Association (IATA) have signed a commercial settlement agreement concerning CFM's MRO (maintenance, repair and overhaul) policies and activities. Under the terms of this agreement, CFM reaffirms its commitment to maintain and foster robust and open competition within the MRO market, as well as the competitive nature of its MRO model, which serves as a reference in the jet engine industry and has been a key element in the ongoing success of the CFM product line. As part of this agreement, CFM will be publishing its Conduct Policies and associated Implementing Measures, specifying its product support policy and guidelines related to such aspects as licensing, warranties, servicing, technical support, repairs, communication, and contracting. These documents help to confirm, clarify, and complement CFM's aftermarket practices. CFM expects that the resulting publication of the Conduct Policies and Implementing Measures will facilitate the awareness of CFM's principles with its customers and support IATA's intent to expand the application of such policies to other stakeholders in the aerospace industry.

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MTU Maintenance Berlin-Brandenburg lays foundation stone for new logistics center
Photo: MTU

China Eastern Airlines selects AFI KLM E&M for component support of 787 fleet

AFI KLM E&M and China Eastern Airlines have signed a component support contract for the Chinese company's Boeing 787-9 fleet, which will eventually include 15 aircraft. The agreement covers repair services, access to a regional spare parts pool as well as the provision of a local parts stock, and additional services in the field of training and industrial development support. AFI KLM E&M has designed a competitive and tailor-made offer to convince the Chinese company, which was looking for an MRO service provider capable of providing excellent component support, combining expertise, availability and quality. With its "airline-MRO" profile, backed by both airlines KLM and Air France flying the 787, AFI KLM E&M has developed a unique experience on this product regarding both maintenance and operations. In total, AFI KLM E&M has already contracted sixteen airlines around the world.

AJW secures support contract with Electra Airways

AJW Group has secured a support contract with start-up Bulgarian charter airline, Electra Airways. The Pool Access Support contract will see AJW use its expertise to support the growth of Electra Airways. Electra Airways currently operates charter flights with Airbus A320-231 aircraft in Europe, North Africa and the Middle East.

AJW Group and Electra Airways share a commitment to prioritising the needs of customers. This support contract is specifically aligned to the requirements of Electra Airways and will see the delivery of complex logistic solutions to improve supply chain efficiencies.

MTU Maintenance Berlin-Brandenburg lays foundation stone for new logistics center

MTU Maintenance, one of the world's leading provider of MRO services for commercial aircraft engines and industrial gas turbines, has laid the foundation stone for a new logistics center at its Ludwigsfelde location on July 20. The total investment for the new building with a workspace of 6,500 m² is €11.5 million. The additional floor space is needed to cater to the location's continued growth. Between 2016 and 2018, the number of operating hours has risen 30% and is expected to increase further in the two-digit percentage range in the years to come, the reasons being higher work-loads and the addition of new engine models to the company's portfolio. Plans are to have the logistics center up and running in June 2019. "The construction of the new logistics center marks another important milestone in the development of our company," said André Sinanian, Managing Director & Senior Vice President of MTU Maintenance Berlin-Brandenburg. "The new building is a symbol of the success our location has seen so far. At the same time, this construction project affirms our

commitment to continue to cater to the needs of our customers worldwide in an optimum and flexible manner – true to our company vision 'Excellence made in Brandenburg.'

AAR expands AOG Global Support for airline customers

AAR, a global provider of aviation services to commercial airlines, has expanded its AOG customer support in London-Gatwick and Chicago to empower customer operational excellence. The expansion enables AAR to provide instant solutions, including part sales, ex-changes and loans supported from a global warehouse network with locations in Chicago (near O'Hare International Airport); Hannover, Germany; Brussels; Singapore; Dubai; and Shanghai. AAR delivers solutions in line with customer requested service through both competitive response times and dispatch times from order to receipt. The AOG team provides world-class support and no customer is too small or big for AAR to accommodate in their time of need.

Honeywell awarded exclusive maintenance contracts for Allegiant Air's power and avionics systems

Honeywell has been selected by Allegiant Air to provide maintenance, repair and overhaul services for its auxiliary power units and select avionics components across its fleet of new Airbus A319 and A320 aircraft. The agreement also includes the replacement of non-Honeywell auxiliary power units (APUs) with Honeywell's 131-9A version, ensuring commonality across the Allegiant fleet. Allegiant will benefit from Honeywell's highly-efficient APU, the 131-9A, through lower maintenance costs, enhanced reliability and annual fuel savings of \$7,000 to \$13,000 per aircraft. The 131-9A will also help reduce flight delays and cancellations, creating a more pleasant flying experience for Allegiant's customers. In addition, the airline will enjoy direct support with Honeywell's APU and cockpit technology maintenance and service offerings. All maintenance, repair and overhaul work for avionics and APUs will be completed at certified Honeywell facilities.

Finance News

Willis Lease Finance reports second-quarter pre-tax profit of US\$11.6 million

Willis Lease Finance Corporation has reported a pre-tax profit of

US\$11.6 million in the second quarter of 2018, driven by strong sales in each of its leasing, spare parts and asset management businesses. The Company achieved record quarterly lease rent revenue of US\$43.1 million in the period driven by continued high utilization

and 14.9% growth of its portfolio to US\$1.542 billion at quarter-end compared to US\$1.343 billion at December 31, 2017. Aggregate lease rent and maintenance reserve revenues were \$65.1 million for the second-quarter 2018, up 37.5% and 85.5% respectively. As of June 30, 2018, the Company had a total lease portfolio consisting of 246 engines and related equipment, 15 aircraft and 10 other leased parts and equipment with a net book value of US\$1.542 billion. As of December 31, 2017, the Company had a total lease portfolio consisting of 225 engines and related equipment, 16 aircraft and 7 other leased parts and equipment, with a net book value of US\$1.343 billion.

Rolls-Royce increases annual earnings outlook despite Trent 1000 engine problems

Rolls-Royce has delivered better-than-expected half-year results, allowing the company to raise its full-year earnings outlook. Pre-tax profit of £81 million was reported for the first half of 2018 compared to a loss of £126 million for the same period last year. Underlying operating profit was reported at £141 million compared to a loss of £84 million for the same period last year. As a result, the Company anticipates being able to post an underlying operating profit on the region of £450 million, give or take £100 million, for the full year 2018. The news comes on the back of the announcement earlier this year of the shedding of 4,600 jobs over the next two years in a bid to save £400 million, the largest reduction in the

company's workforce since 5,000 jobs and 1,000 contractors were shed in 2000. Chief executive Warren East commented that: "Financial results were ahead of our expectations, with strong growth from civil aerospace and power systems, and we achieved a number of operational and technological milestones. "Reflecting our progress to date and growing confidence for the full year, we now expect both underlying profit and cashflow for 2018 to be in the upper half of our guidance range." He then added that Rolls-Royce continues to be "impacted by the challenge of managing significant Trent 1000 in-service issues". A £554 million writedown followed from a raft of technical issues with its engines, having uncovered durability problems with numerous Package C Trent 1000 engines, followed by revelations in June of issues with a small number of its Package B Trent 1000 engines. Rolls-Royce said: "The Trent 1000 in-service engine issues have caused significant disruption for a number of our customers, which we sincerely regret. "We continue to work hard to remedy this situation and have made further good progress on the implementation of long-term solutions in the first half of the year." (£1.00 = US\$1.30 at time of publication.)

Boeing HorizonX Ventures invests in high-speed metal 3-D printing company Digital Alloys

Boeing has announced its investment in Digital Alloys, a Burlington, Mass.-based company developing high-speed, multi-metal additive manufacturing systems that produce 3-D-printed parts for

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aerospace and other production applications. Digital Alloys' Joule Printing™ technology can rapidly combine multiple metals into each part, which enhances thermal, electrical, magnetic and mechanical properties. The process allows metals like titanium and high-temperature alloys to be 3-D printed for parts that could be used on Boeing products. "Our investment in Digital Alloys will help Boeing produce metal structural aerospace parts faster and at higher volume than ever before," said Brian Schettler, managing director of Boeing HorizonX Ventures. "By investing in companies with emerging additive manufacturing technologies, we aim to strengthen Boeing's expertise and help accelerate the design and manufacture of 3-D-printed parts to transform production systems and products." Formed in January 2017, Digital Alloys developed a patented 3-D-printing approach that avoids the cost and complexity of powder-based systems and delivers higher resolution than other wire-based 3-D-printing techniques. Additive manufacturing generates value for Boeing by reducing the cost and time needed to design, build and deliver products to customers. Today, Boeing has more than 60,000 3-D-printed parts flying on space, commercial and defense products. This investment is the latest example of the company's commitment to additive manufacturing innovation. Boeing HorizonX Ventures participated in Digital Alloys' Series B funding round led by G20 Ventures, with participation by Lincoln Electric and Khosla Ventures. The Boeing HorizonX Ventures investment portfolio is made up of companies specializing in autonomous systems, energy and data storage, advanced materials, augmented reality systems and software, machine learning, hybrid-electric and hypersonic propulsion, and Internet of Things connectivity.

Orix to acquire 30% stake in Avolon with an enterprise value of US\$23.7 billion

Avolon, the international aircraft leasing company, has announced that ORIX Corporation, through its wholly owned subsidiary ORIX Aviation Systems (ORIX Aviation), has entered into an agreement to acquire a 30% stake in Avolon from Bohai Capital (Bohai). The Transaction is subject to customary closing conditions and Bohai shareholder approval. Bohai's largest shareholder, HNA Group, has provided its commitment to the Transaction. The Transaction is expected to complete in the fourth quarter of 2018.

Bombardier reports second-quarter 2018 results

During the second quarter 2018, Bombardier Business Aircraft revenues totaled US\$1.3 billion on 34 deliveries, with aftermarket revenue growing 21%, offset by lower aircraft revenues from fewer pre-owned aircraft available. On a year-to-date basis, revenues total US\$2.4 billion, on track with the US\$5 billion guidance for the full year. Year to date, deliveries reached 65 aircraft, in line with this year's and last year's projections, tracking to full year guidance of 135 aircraft deliveries. Margins continued to trend above the greater-than-8% guidance, with EBIT margin before special items reaching 8.5% and 8.7% for the three- and six-month periods ended June 30, 2018, respectively. Aircraft backlog at the end of the second quarter increased to \$14.1 billion, reflecting strong market activity for the third consecutive quarter. Demand continues to be fueled by North America while Asia Pacific, Greater China and Europe are exhibiting good momentum. During the quarter Bombardier Commercial Aircraft delivered 18 aircraft, consisting of 8 CSeries, 5 CRJ Series and 5 Q400 aircraft. With year-to-date deliveries of turboprops and regional jets totaling 18, Commercial Aircraft is on track

to meet annual guidance of 35 deliveries for the regional aircraft platforms. With year-to-date revenues of US\$1.1 billion and EBIT loss before special items of US\$139 million, Bombardier is reintroducing Commercial Aircraft's full year revenue guidance of approximately US\$1.7 billion and EBIT loss before special items guidance of approximately US\$250 million. This reflects the deconsolidation of CSALP from Commercial Aircraft's results starting in the third quarter, replaced by the equity pick-up. The second quarter saw significant order activity with a book-to-bill ratio of 4.2. The CRJ Series backlog grew to 60 aircraft, with two CRJ900 aircraft orders totaling 35 aircraft from American Airlines and Delta. These orders are the first with the new ATMOSPHERE cabin, setting the new standard of passenger experience in the regional jet market segment. Other orders included 16 Q400 aircraft from Ethiopian Airlines and African Aero Trading, bringing the backlog to 56 aircraft.

Spirit AeroSystems reports Q2 2018 financial results

Spirit's second-quarter 2018 revenue was US\$1.8 billion, up slightly from the same period of 2017. This increase was primarily driven by higher production deliveries on the Boeing 737 program, partially offset by lower production deliveries on the Boeing 777 program, lower revenue recognized on the Boeing 787 program as a result of the adoption of ASC 606, and the absence of a litigation reserve reversed in the second quarter of 2017. Spirit's backlog at the end of the second quarter of 2018 was approximately US\$47 billion, with work packages on all commercial platforms in the Boeing and Airbus backlog. Operating income for the second quarter of 2018 was US\$218 million, up compared to an operating loss of US\$-92 million in the same period of 2017. This increase was primarily due to the absence of forward loss charges recognized on the Boeing 787 program in the second quarter of 2017. Forward loss charges of US\$353 million on the Boeing 787 program were recorded during the second quarter of last year as a result of the signed memorandum of understanding (MOU) for agreement with Boeing. Second quarter EPS was US\$1.31, compared to \$(0.48) in the same period of 2017. Second-quarter adjusted EPS was US\$1.63, excluding the impact of the Asco acquisition and debt financing costs, up 4 percent compared to US\$1.57 in the same period of 2017, adjusted to exclude the impact of the MOU with Boeing. Cash from operations in the second quarter of 2018 was US\$231 million, up compared to US\$222 million in the same quarter last year. Adjusted free cash flow in the second quarter of 2018 was US\$171 million, compared to adjusted free cash flow of US\$175 million in the same quarter last year.

GA Telesis MRO Services Group reports record performance

GA Telesis, a leader in integrated aviation services, has reported record LTM performance as well as first-half results for 2018 for the Company's MRO Services Group. Revenue increased by 25% on a year-over-year basis for the first six months of 2018, while new customer growth increased by 9% and existing customer concentration was diluted by 7%. Furthermore, the financial results for the trailing twelve months through June 2018 show a double-digit percentage increase in revenue and nearly double EBITDA when compared to 2017. In January, the MRO Services Group announced a long-term Repair and Overhaul License Agreement and Parts Supply Agreement with Honeywell. Keeping with its OEM-alignment philosophy, the agreement includes repairs of over 175 base part numbers and

line replacement unit (LRU) repair items and sourcing over 1,200 material supply line items from Honeywell Aerospace. Products include electromechanical, pneumatic and mechanical LRU's covering a variety of Airbus, Boeing, Bombardier and Embraer fleet applications. The Company plans to continue its OEM alignment strategy with other OEMs that will allow it to provide OEM-approved repairs while using genuine OEM-approved materials at competitive rates. In addition, the MRO Services Group reported a significant backlog through the end of 2018 which will exceed projected expectations. The MRO Services group was formed during the second half of 2017 to streamline the decision-making process, lean MRO operations, and create a single customer interface and quality experience among the companies in the group.

Embraer posts second-quarter net loss of US\$126.5 million

Embraer has delivered 28 commercial and 20 executive aircraft (15 light jets and 5 large jets) in 2Q18, for a total of 48 jets delivered during the quarter. This compares to the Company's total aircraft deliveries of 59 jets in 2Q17, of which 35 were commercial jets and 24 were executive jets (16 light jets and 8 large jets). For the first six months of 2018, Embraer delivered 42 commercial jets and 31 executive jets (23 light jets and 8 large jets), compared to deliveries of 53 commercial jets and 39 executive jets (27 light jets and 12 large jets) over the first six months of 2017. Embraer remains confident

in its 2018 guidance for 85 to 95 total commercial jet deliveries and 105 to 125 total executive jet deliveries (70-80 light jets and 35-45 large jets). The Company again expects the Executive Jets segment to deliver a significant volume of aircraft during the fourth quarter of 2018, similar to the seasonality of previous years. Consolidated revenues in the quarter were US\$1,256.5 million, representing a year-over-year decline of 29.1% compared to 2Q17, due to a combination of lower deliveries in the Commercial Aviation and Executive Jets segments in the quarter and a significant decline in Defense & Security segment revenues in 2Q18 as a result of cost base revisions related to the KC-390 development contract. In addition, 2Q17 Defense & Security revenues were the highest quarterly revenues reported in 2017 due to the launch of the SGDC satellite in May of 2017. These declines were only partially offset by a 5.6% year-over-year growth in Services & Support revenues in the quarter. Year-to-date, Embraer consolidated revenues were US\$ 2,248.5 million in the first six months of 2018 as compared to US\$ 2,813.7 million in the first six months of 2017, with the decline driven principally by lower deliveries in the Commercial Aviation and Executive Jets segment as well as a 38.9% fall in Defense & Security revenues, driven by the aforementioned factors in the quarterly comparison above. Net income (loss) attributable to Embraer shareholders and Earnings (Loss) per ADS for 2Q18 were US\$ (126.5) million and US\$ (0.69) per share, respectively, compared to US\$ 61.7 million in net income (loss) attributable to Embraer shareholders and US\$ 0.34 per share in Earnings (Loss) per ADS in 2Q17. Over the first

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six months of 2018, net income (loss) attributable to Embraer shareholders was US\$ (138.8) million and Earnings (Loss) per ADS was US\$ (0.76) per share.

MTU Aero Engines issues higher and more concrete forecast at half year

MTU Aero Engines generated revenues of €2,148.6 million in the first six months of 2018, up 9 % on the previous year (1-6/17: €1,977.0 million). The group's operating profit increased by 13% from €296.3 million to €334.6 million, resulting in an EBIT margin increase from 15.0% to 15.6%. Earnings after tax also increased by 13% to €237.0 million (1-6/17: €210.1 million). MTU recorded the highest revenue growth in the first six months in the commercial engine business. Revenues grew by 15% from €643.2 million to €738.9 million. The V2500 engine for the A320 and the GENx for the Boeing 787 and 747-8 accounted for the greatest share of these revenues. In the commercial MRO business, revenues rose by 9% to €1,288.5 million (1-6/17: €1,181.0 million). CFO Peter Kameritsch commented: "In U.S.-dollar terms, the increase in revenues was, at 22%, far more pronounced and once again demonstrates the high demand for maintenance services. We are meeting this demand both by expanding and adding to the portfolio of our worldwide MRO locations." The main revenue driver in the commercial maintenance segment was the V2500. At €15.5 billion, the order backlog reached a new record level at the end of June 2018 (December 31,

2017: €14.9 billion). Most of these orders relate to the V2500 and to the Geared Turbofan™ engines of the PW1000G family, foremost among them the PW1100G-JM for the A320neo. In the OEM business, MTU increased its half-year earnings by 19% from €192.3 million to €228.9 million. The EBIT margin rose from 22.8% to 24.4%. In the MRO segment earnings increased to €105.5 million, after €103.7 million in the comparative period. The EBIT margin in this segment amounted to 8.2% (1-6/17: 8.8%). "In the first half of the year, the commercial spare parts and commercial MRO business in particular developed better than expected," said Reiner Winkler, CEO of MTU Aero Engines AG. "We are expecting this trend to continue and are therefore able to substantiate and at the same time raise our forecast today." MTU anticipates that its commercial spare parts business will see organic growth of around 10% in 2018. So far, the company had projected a mid-single-digit increase. In the commercial maintenance business, revenues expressed in U.S. dollars are forecast to increase by around 20%. Initially, MTU had anticipated a growth rate in the high teens. The outlook for the other segments remains unchanged, with the commercial series production business looking set to achieve the highest organic growth with around 30%. MTU expects revenues from military business to be at the 2017 level. "Overall, group revenues should reach around €4.2 billion in 2018, slightly higher than previously assumed," said Winkler. (€1.00 = US\$1.17 at time of publication.)



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Maintenance reserves and leasing

The age of an asset or its economic useful life are all determining factors.
Photo: Boeing

The importance of maintenance reserves to protecting asset value is a key consideration for lessors. **Keith Mwanalushi** examines how it affects aircraft leasing.

An extract from a report by *Aircraft Monitor* explains that maintenance reserves serve as a mechanism to mitigate credit risk and therefore are generally imposed on weaker credit airlines. However, in the event a lessee negotiates to not pay maintenance reserves they may still be required to provide collateral security in the form of an end of lease financial adjustment or through a Letter of Credit (LOC). These reserves are, in turn, based on the industry norm for that aircraft type, or in the case of a new aircraft, based on manufacturers' recommendations.

Maintenance reserves are often the most contentious part of a lease negotiation; the lessor views reserves as a cost-covering exercise, while the lessee views it as a burden on their cash flow resources. Often undervalued as a discipline, an understanding of maintenance reserves is critical to gaining a perspective on the risk and rewards of aircraft leasing.

Rob Watts, CEO and VP Financial Solutions at Aerotask agrees that that maintenance reserves are a key element in protecting asset value for lessors, however, in most cases they are independent of the lease rate itself.



Rob Watts, CEO & VP Financial Solutions at Aerotask

"Theoretically, the purpose of maintenance reserves is to keep lessors 'synthetically whole', that is to say, for every dollar of maintenance value consumed by the lessee the lessor should be compensated with the equivalent value loss in cash."

Watts gives an example of when a six-year airframe check on an A320 falls due, and where maintenance reserves were accurately calculated, the lessor

should have in its accounts an equivalent amount of cash as the cost of performing the six-year airframe check.

"Functioning efficiently, the maintenance reserve mechanism allows lessors to calculate the lease rate free of variations in value driven by an aircraft's maintenance cycle," says Watts

He adds that for a new aircraft, the lessor delivers the aircraft in "full-life" condition and where maintenance reserves are in place, the lessor expects to receive the aircraft back also in "full-life" condition, albeit with a combination of aircraft value and compensatory cash. "In this case, the lease rate then becomes a simple function of the lessor's cost of capital and the expected value depreciation in the full-life value across the lease term – the swings in maintenance value are effectively neutralised by the maintenance reserve mechanism."

For higher credit airlines, Watts says maintenance reserves may not be collected throughout the lease term, being replaced instead by an end of lease compensation mechanism.

David Rushe, Director, Sales and Marketing – Europe at Megellan stresses that maintenance reserves are not always payable during the lease term of an asset (be it a whole aircraft or an engine). "The lessor and lessee may agree to have specific maintenance performed on the asset ahead of lease return or agree a compensation amount payable at lease end for calendar time or hours and cycles consumed on the asset. Often, if a lessee is seen to have a risk attached (be it credit-related, political, or juris-



David Rushe, Director, Sales & Marketing – Europe, Megellan



There is a difference between airframe and engine MR calculations.
Photo: Boeing

dictional), a lessor will insist on maintenance reserves being payable.”

The age of an asset or its stage in terms of its economic useful life are also determining factors in whether to go with reserve payments. Rushe says Magellan has seen recent examples of “green-time” engine leases whereby a lessee will agree to use the remaining stub-life on an engine. “In such cases, the lease rate and maintenance reserve rates may be blended into one monthly payment as opposed to separate payments.”

Ian Malin, Treasurer, Director and Chief Investment Officer at AJW Group highlights that rent, and maintenance reserves are completely separate from each other. “The rent is paid by the lessee to the lessor for the use of the engine and is what the lessor relies on in order to make its investment return in the engine.”

The maintenance reserves are collected monthly, in arrears, and are calculated based on the use of the engine, determined by the hours and cycles consumed by the engine’s operations, Malin explains. He says such reserves are parked on the lessor’s balance sheet in order to cover the cost of the engine performance restoration and to cover the cost of replacing certain Life Limited Parts (LLPs).

“Maintenance reserves rates can be very challenging to estimate accurately due to operational factors, flight length, engine de-rate and environment of operation. This generally leads to vigorous negotiations between the lessor and lessee,” Malin speaks.



Ian Malin, Treasurer, Director and Chief Investment Officer, AJW Group

According to Martin Friis-Petersen, Managing Director, MTU Maintenance Lease Services B.V, from a lessor perspective, maintenance reserves are about ensuring asset value retention and being able to ensure sufficient performance remains to permit their follow-on strategy for the asset post return. “Lessees have different

concerns, they want to reduce operational cost and minimise exposure at end of a lease.”

Mr Friis-Petersen says MTU Maintenance has established strong relationships with both lessors and lessees and has an outstanding reputation when it comes to MRO. Through its engine leasing division MTU Maintenance Lease Services B.V., the company uses its expertise to ensure both parties are protected in such agreements and minimises risk for all concerned.

As the aviation market is very volatile, the maintenance reserves – or MRs allow Vallair to retain a certain value within the asset, mentions Anca Mihalache, Head of Trading and Leasing Business Unit at Vallair.

“Asset prices vary a lot, but maintenance costs are more or less stable,” comments Mihalache. She explains the MR calculation is factored into the lease contract by putting a dollar value – on a monthly basis, or on the hour and on the cycle ratio - for various items such as airframe checks, LDG, APU and engines. If the LDG costs U\$500,000 to overhaul and the customer is leasing the aircraft for a five-year term the U\$250,000 (half-life) cost of the overhaul will be charged at a monthly figure over the 60- month lease equivalent to the \$250,000. The same method applies to the heavy maintenance visits for the airframe. The APU, if it is not life limited, will be charged on an hour-to-cycle ratio.

Mihalache points out that the lessor and lessee will always have a different view when it comes to maintenance reserves. On one hand the lessor, such as Vallair, is trying to maintain the integrity of their asset by factoring every possible item into the lease agreement to ensure that at the end of term the asset is in a condition that it can be instantly re-leased to a new lessee.

“Whereas, the lessee only looks at what it is required to pay for during the period of the lease itself. The most interesting part of the lease negotiations will always fall upon the subject of lease return condition and lessor and lessee contributions.



Martin Friis-Petersen, Managing Director, MTU Maintenance Lease Services B.V.

“It is a fine line and interpreting the contract always makes for some interesting discussions. As an example, the outright prices and overhaul costs for landing gears change dramatically during short periods of time and I think, at the moment, that these represents a high risk for airframe maintenance reserves,” Mihalache states.

Mikhail Podhvatilin, Magnetic Parts Trading Limited (MPTL) CEO observes that usually the main issue between the lessee and the lessor is the amount of maintenance reserves: how to reimburse it, which events are covered by maintenance reserves, who covers the shortfall in case the maintenance reserves are not enough, and what is the lessor’s contribution for previous operations and so on.

“Collecting of maintenance reserves is very important for every lessor,” Podhvatilin suggests. Firstly, he says, it’s additional guarantee for lessor in case of a lessee default scenario.

“Secondly, it helps a lessor to support residual value of the airplane within the lease period and helps to have enough money to close all technical issues at any moment and have an airplane or an individual engine in good flight conditions. For sure it is more complicated when it comes to individual asset and individual lease deals, but this is what most of the lessors, including us, are targeting,” he states.



Anca Mihalache, Head of Trading and Leasing Business Unit - Vallair

calculations are all based in reasonable and justifiable numbers based on industry standard pricing this can be zero-in factor," says Sosa.

During a lease negotiation there are several contentious issues to be negotiated and it takes considerable technical, legal and aviation expertise to reach resolution, emphasises Watts from Aerotask. "The lease negotiation is a team effort and requires the right expertise, which lessors and lessees should seek to procure even if they need to source in specialists on a project basis."

Indeed, one such element of contention is the negotiation of maintenance reserves. As Watts explains, because maintenance reserves are forecasted over a long period of time there can be no formula that will predict the exact cost of a future maintenance event, and often, the interval required to get there. "The problem is compounded by the fact that there are numerous MROs that compete and differ on quality, man-hour rates and downtime. The cost of performing a heavy airframe check in China may be entirely different from the cost of the same work scope in Germany. In most leases the lessor must approve the MRO, whilst the cost responsibility is on the lessee."

Watts argues that theoretically, no side of the table should benefit from maintenance reserves; lessors should collect the correct amount of cash to offset the maintenance utility lost on their assets, and lessees should reserve no more cash than is needed to draw down when it comes time to perform a qualifying maintenance event. "In practice however, there are many issues that arise for both lessors and lessees in the process of negotiating maintenance reserve rates and drawdown mechanisms."

Mihalache notes the difference between airframe and engine MR



Mikhail Podhvatilin, Magnetic Parts Trading Limited (MPTL) CEO

Founder, CEO and Managing Director of Wingbox Aviation Inc. Darmilo Sosa mentions that one of the main purposes for the lessors or lease management team other than to make the aircraft profitable is to maintain the optimal value of the asset. "Unless the airplane is under the technical management of the lessor, the team that normally manages the value of the asset are the airlines people or operators.

"The monthly lease rates are separate to the complicated MR calculation. As long that the MR

calculations are all based in reasonable and justifiable numbers based on industry standard pricing this can be zero-in factor," says Sosa.

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Mihalache notes the difference between airframe and engine MR

calculations – "The two main factors that Vallair considers here are the operating cycles and the operational remit for the engine. Some regions of the world are harsher on engines than others, so this is factored into the hour or cycle cost," she describes.

In respect to engines, Malin from AJW believes maintenance reserves are to some extent subjective as both parties must estimate a future cost against which payments are reserved for. He says lessors will have different investment

strategies. "Some expect to overhaul the engine themselves to return the engine into service by way of future leasing opportunities. Others expect to dispose or disassemble the engine at the point LLPs expire or performance fails acceptable limits. Regardless of each approach, the value of the engine is eroded as lessee operations continue. One might argue that a shop visit event requires more discipline. We would argue that until the future of an engine is decided, the management of engine reserves is the same and that lessors should prepare for any eventuality."

The more an engine is operated by the lessee, the more its value deteriorates due to the limited life nature of the LLPs and the performance degradation of the engine. Malin states that leases are written so that the lessee is responsible for such degradation and reserves are paid as the engine is used to protect the lessor from having a large credit exposure from the lessee at some point in the future.

Aircraft reserves consist mainly of engine reserves (up to 80% depending on aircraft type). The remaining proportion covers the airframe, landing gear and APUs according to Friis-Petersen from MTU.

"While airframe and landing gear reserves are accrued based on calendar days and are independent on actual equipment utilisation, engine and APU reserves are accrued based on flight hours and cycles. Engine reserves in particular are accrued in two different ways: one covers engine performance restoration costs and is accrued based on flight hours, the other covers engine LLP costs and is accrued based on flight cycles," Friis-Petersen indicates.

David Rushe says the cost of new spare parts and labour used in maintenance are subject to annual escalation, most notably in engines. The use of serviceable or overhauled material can often prevent against such escalation, when applicable. He says it is important that a lessor protects against such escalation in negotiating reserve rates to ensure there is enough reserves to draw-down on to cover a future maintenance event. For example, in an engine shop visit, up to 90% of the cost can be related to spare parts in put. With new OEM engine material often subject to escalation rates more than 5% per annum, a \$2 million shop visit in 2018 can cost upwards of \$2.5 million in 2023.



Darmilo Sosa, Founder and CEO Managing Director of Wingbox Aviation Inc.

The operating environment of an aircraft has a significant impact on determining maintenance reserves, notably in engine maintenance, Rushe continues. "Engines may see on-wing intervals reduced by upwards of 50% when operating in the Middle East or parts of Asia, where local climate, geological or environmental factors require more intensive usage profiles or lead to increased wear and tear.

When expressed against a shop visit or maintenance event, the cost per flight hour or cycle will be increased.

In conclusion, Rushe advises that a lessor must ensure that reserve rates are enough to cover such "harsh environment" costs.

In the hot seat.....

Paul Lochab, Chief Commercial Officer, Satair

AviTrader MRO: Can you give us a brief background about Satair?

Lochab: Scandinavian Air Trading Co A/S (SAT, which later became the SAT in Satair) was founded in December 1957 in Kastrup, Denmark, when 11 colleagues from Scandinavian Airline Systems (SAS), many of whom had worked in aviation maintenance, decided to create a new company to buy and trade aviation spares. The sales in the first year amounted to about \$ 20,000. The company developed throughout the years to become a major player in the global aviation aftermarket and was acquired by Airbus in 2011. On January 1, 2014 the merged organisation between Airbus Material & Logistics Management and Satair A/S was launched under the name Satair Group. Four years later, in February 2018, Satair Group went through a corporate revamp, revealing a new visual identity and a name change back to Satair. Today, Satair is a key part of Airbus customer services unit and is a \$1.8 billion-turnover global company with more than 1,400 employees operating from 10 locations worldwide.

AviTrader MRO: What kind of services and solutions do you offer the airline sector?

Lochab: We support the complete life cycle of the aircraft with a full and integrated portfolio of flexible, value-adding material management products, services and tailored support modules across all platforms. We enter into distribution arrangements for aerospace component manufacturers, and supply parts to multi-fleet (Boeing, Airbus, etc.) customer airlines and MRO companies. We fulfil the material service support obligation for the in-service fleet of more than 7,000 Airbus aircraft.

In addition, we provide full integrated material solutions for operators to cover the full element of their supply chain needs. Other services include new technologies (additive manufacturing), repair, tools and battery maintenance services. Within our portfolio is providing supply chain services that extend up to full-scale outsourcing solutions. We are providing entire material management for consumables and expendables including rotables if needed, which benefits both airlines and suppliers who want to focus on their core business mission.

We have various programmes to take care

of material management for the airline and MRO sectors allowing them to focus on their core operations. Our Integrated Material Services (IMS) offering is a fully customised solution developed in conjunction with our airline/MRO partner. We collaborate with the customer and provide a wide range of parts and supply chain services. IMS offers a competitive advantage as it reduces the total cost of ownership significantly at a guaranteed performance level.

AviTrader MRO: Generally, the global airline industry is in good health, would you say the same about the aftermarket sector?

Lochab: The aviation market is favorable - at the moment. This is of course positive for our company. We are increasing warehouse capabilities with our new facility in Prague-Pardubice, in Space Way next to Heathrow, UK and in Dubai. We have a strong focus on continuously improving the customer experience when it comes to quality, services and fulfillment velocity. On that account, 2018 has been an interesting year for us. All of our key strategic initiatives revolve around one topic – the customer experience. In support of our customers' expectations, we are increasing regionalisation of our customer order desk operations and improving delivery commitments.

AviTrader MRO: Satair recently added a UK facility at Heathrow. What necessitated this?

Lochab: Our UK business is a bit different from the rest of our locations in that it operates one of the world's largest commercial aircraft battery servicing businesses. We currently overhaul some 7500 batteries per year for over 180 customers that encompass airlines, business jet operators, helicopters and MRO companies. It is one of the world's largest battery distributors, representing the top battery manufacturers – ACME, Concorde, Hawker Enesys, Marathon Norco Aerospace and Saft. Our battery business is growing. This is one of the reasons we decided to invest in this new site. It is six times the area and 11 times the cubic capacity of the previous facility in Heston, Middlesex.

In addition to the battery business, the new warehouse and workshop space gives us the room to expand our scope of offerings to the market. We plan to offer electrically-based



Paul Lochab, Chief Commercial Officer, Satair

product repairs, particularly for Airbus proprietary parts.

AviTrader MRO: How is your cooperation with VAS going?

Lochab: The cooperation and partnership continues to progress in a positive direction. The joint partnership has been very promising to-date and continues to grow as we had expected.

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

Lochab: As already mentioned, 2018 is really the year of the customer for Satair. Besides improving the proximity of customer services in the regions, we are also working on integrating the SatairSpares and AirbusSpares portals into one portal, which will launch in the beginning of 2019. The new portal will be a one-stop shop for our customers so they don't have to visit two portals when handling their business with us. Moreover, the new portal will have new features that we are developing with outset in customer feedback and engagement. These include enhanced search functions, easier overviews and personalised interfaces.

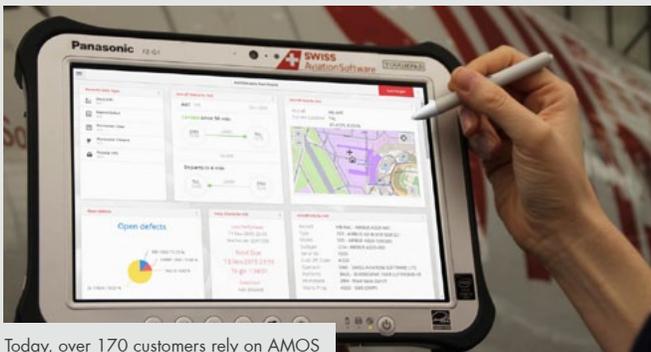
Delivering Swiss quality



Swiss-AS, a 100% subsidiary of Swiss International Air Lines.
All photos: Swiss-AS

The MRO software solution **AMOS**, developed and marketed by Swiss AviationSoftware (Swiss-AS), stands for innovation, high quality and continuity due to its proven track record of success – Swiss quality at its best. Swiss-AS addresses the demands of the dynamic aviation industry by incorporating industry trends at the earliest while competing each day anew for the company’s market-leading position.

Swiss-AS, a 100% subsidiary of Swiss International Air Lines and embedded in the Lufthansa Group, unites almost 30 years of IT experience with profound MRO expertise and offers its customers a functionally unsurpassed, technologically state-of-the-art, end-to-end maintenance software solution allowing its large circle of customers’ to comply with the demanding airworthiness standards.



Today, over 170 customers rely on AMOS

Over the many years in business, Swiss-AS has always succeeded in promptly reacting to new or changing needs and requirements of the market with its innovation-rich product. The introduction of paperless maintenance and AMOSmobile, the deployment of multi-entity and multi-operator functions in airline groups, the launch of the AMOS MRO Edition, which supports large pure-play MRO organizations with a set of highly specialised modules have been recent achievements well received in the market.

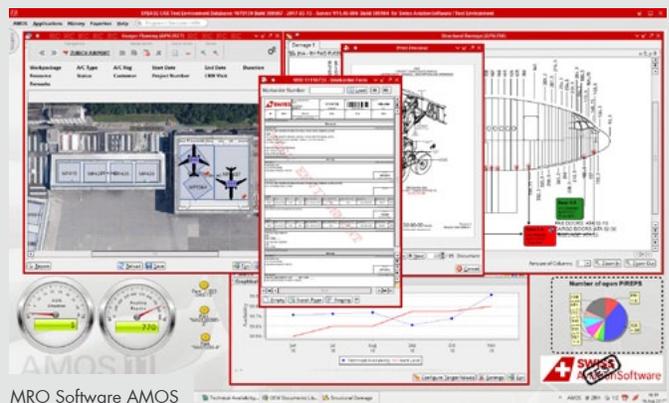
The agility and innovative force of the company is best reflected in the recently announced development of **AMOScentral**, a cloud-based message broker that will allow the members of the AMOS community to connect and shift the boundaries of their current organisation – shifting the current boundaries of MRO software solutions and revolutionising the industry. By spanning a virtual cloud over all AMOS instances, AMOScentral will allow AMOS customers

to individually open their platforms to collaborate to the desired extent with other members of the AMOS community and beyond.

Swiss-AS’ long experience, uncompromising pursuit for innovation, quality and safety, and commitment to equip its customers with a proven solution that increases cost-effectiveness are pillars that steer the development of the system as well as the highly professional service delivery concept, which guides customers through and after the AMOS implementation process.

Based on these facts it is not surprising that the **AMOS** community is constantly growing and that each year many more customers join the community – with the run on AMOS being unbroken. Today, over 170 customers rely on AMOS. Customers range from pure operators, major charter, regional and low-cost carriers up to large airline groups and MRO providers, which shows that AMOS is fit for any environment, regardless of size or geographical origin. Due to Swiss-AS close collaboration with its customers and other industry players a comprehensive knowledge base has been built up and we tap into the vast experience of a large network.

The Swiss-AS commitment to quality and authenticity means that customers buy with AMOS more than just software. AMOS customers rely on a team of experts who know the needs of operators and MRO providers by heart and speak the language of the business. A fact that pays off! Swiss-AS enjoys an excellent reputation amongst its extremely loyal clientele – none of them has ever replaced AMOS by another system. The company’s good reputation in this small but highly attractive niche market has always been precondition for continuing the Swiss-AS story of success.



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Africa – New generation, new opportunities

Air Tanzania has chosen the 787 to operate its long-haul operations.
Photo: Boeing

The African commercial air travel market represents massive amounts of untouched opportunity for new airlines. According to the data from IATA, Africa is home to 16% of the world's population but it accounts for only 2.20% of the global air service market. With a clear need for air travel and a demand for more quality airlines, the African continent is emerging from under the radar and making gains to increase its total market share.

"The reputation of African Airlines and the complicated cross border political matters have been a hot topic of discussions for many years, however, with a new generation new opportunity are presenting themselves to completely rework the image of Africa in the international air travel industry. This new growth of the industry will fulfill the growing passenger demand while establishing control functions to ensure safety in the air and positive return on investments," says Mantas Meizneris, Vice President Sales of AviaAM Leasing.

Positive growth

With a continuously expanding airline infrastructure the African region is showing signs of strong growth. According to data available from IATA the Revenue Passengers Kilometer (RPK) grew by 6.3% and the Freight Tonne-Kilometres (FTK) grew by 24.8%, the highest of any continent. Yet, despite these good numbers put up by Africa indicating strong growth, its traffic share of total passengers remains the lowest of any continent at only 2.20% of the world share. The passenger traffic share trend is improving however, compared to 2016 African airlines saw a 7.5% traffic rise in 2017 but with

existing infrastructure capacity rose at less than half the rate of demand. By 2026 passenger numbers are expected to increase from 100 million to more than 300 million. This explosive growth corresponds to 5.9% year-on-year growth. Financed aircraft could provide the right stimulation the African region needs to meet the growing passenger demand and get the region moving in the right direction to live up to its earnings potential.

Return on Investment

The level of development of the air transportation infrastructure for



Air travel in Africa is forecast to grow at nearly 6% per year.
Photo: Fastjet Plc



Kenya's 787s will begin New York services in October.
Photo: Boeing

a given African country has a direct relationship with the strength of their economies. Aviation plays a vital role in the development of economies and is associated with positive ROI's while 84% of African countries receive contributions from tourism through aviation despite Africa accounting for less than 3% of the world's air traffic. The data from IATA qualifies these claims; for example: in Kenya the aviation industry contributes \$3.2 billion gross value added to their GDP, in South Africa that number is \$12 billion, and in Morocco - \$9.5 billion, which has grown since Ryanair launched its flights to Africa.



Irene Koki Mutungi of Kenya Airways is the first female pilot from Africa to fly a Boeing787.

Other African countries are noticing these benefits and in response are starting to invest in their own aviation infrastructure; opening additional air routes would add an additional 18,600 jobs in Uganda and 17,400 in Nigeria. But the challenge these countries face is a lack of experience that other regions have expertise in. Aircraft need to be reasonably acquired to build bigger fleets as the African airlines association estimates their members will need to double their combined fleet of 600 to 1,210 aircraft to meet the rising demands. To sustain these growing fleets additional crew, need to be trained and the aircraft will need to be maintained. With only three main maintenance hubs located in Johannesburg, Nairobi, and Addis there exists an MRO niche as well to be fulfilled in African countries. These challenges offer a unique opportunity to aircraft financiers to bring their expertise into a new country and help efficiently widen fleets and ensure regulatory maintenance standards for both national airlines and private airlines. As it stands only about 40% of airlines use finance or operating leases, with ECA financing as the most common form African development banks used to fund the 15% equity exposure. Recently Nigerian aviation services provider Spring-fountain Infrastructure Limited and Boeing signed a joint venture agreement to establish the first aircraft leasing company in Africa that will also offer maintenance and MRO services, which is a sign of advanced leasing businesses starting in the region.

Safety

The safety issue of African Airlines has been a concern in the past. When looking at the root cause of past safety incidents it seems to boil down primarily to the use of aged aircraft that are not regularly maintained to the right global standards. All aircraft who maintain a high level of quality and receive timely maintenance serve airlines



There's a booming middle class in Africa that will stimulate growth.
Photo: Proflight Zambia

reliably for many years, hence it's a question of the investment and control functions of the institutions who manage these aircraft. Older aircraft that have been properly maintained still provide the airline with many years of service. As Africa's commercial aviation sector continues to develop midlife aircraft provide an affordable way for the continent to acquire many fleets. There is quite a gap in quality between the African airlines who properly manage their aircraft and those who are on the aviation blacklist. However, with the development in upcoming 10 years in mind the situation can sequentially start to change. Since 2009 there has been a positive trend of improvement with more African airlines getting to the proper quality standards and running off the blacklist. Efforts to phase out old aircraft and introduce new safety requirements to increase oversight have had drastic effects on the safety record. During the 2016-17 period there were no accidents that resulted in jet hull loss or fatalities. The African airlines who were on the IATA Operational Safety Audit (IOSA) performed over three times greater than the airlines who were not on the registry. The accident rate in Africa is proportional to age of the aircraft that is being operated so newer aircraft would further contribute to the improving safety and image of the airlines. As it stands however, African airlines demonstrating their efforts to obtain new aircraft run into roadblocks that prevent them from obtaining said aircraft. A fund/bank with established financial power could lease aircraft to these African airlines and in the process standardise maintenance and upkeep of the new aircraft to comply with international standards such as ICAO's Universal Safety Oversight Audit Programme (USOAP) or the FAA's International Aviation Safety Assessment (IASA).

A positive outlook

Standardisation of safety and quality is beneficial not only for the individual African countries but for the continent as a whole. The Yamoussoukro Declaration, which became fully binding in 2002, was a declaration of 44 African countries to deregulate their airspace and allow for easier travel between countries. The purpose was to increase ease of travel and tourism. Despite many countries signing the declaration very few have actually implemented it so far. It was good initiative, but the execution ultimately fell short as it was not a concentrated effort by the African countries and faced many political roadblocks and inexperienced policy makers. But as additional countries are seeing the benefits aviation brings them are quickly trying to enhance their own programmes by accepting international standards and in the process looking to outside experience for help. As the barriers in the air are starting to fall and African countries are opening up to foreign operators and accepting foreign legislation the opportunity that exists in Africa for international companies looking to expand their reach can no longer be ignored.

Africa is benefitting from cooperation of political parties and private companies as well as having a friendly aviation taxing system that creates a low barrier of entry for the companies. The passengers have been ready for this positive change for a long time, and now, all signs seem to indicate that the politics are changing as well.

Source: AviaAM Leasing



Jeff Fieldhouse

Jota Aviation, based at London Southend Airport, has appointed **Jeff Fieldhouse** as their new Safety and Compliance Manager. Fieldhouse joins the team from Aviation Safety Training & Consultancy practice Baines Simmons (part of Air Partner Plc) where over the past eight years, has engaged with a large number of clients in both business and commercial aviation. Fieldhouse is a recognized highly-proven specialist in Regulatory Affairs, Quality Management, Compliance Monitoring and Safety Management Systems (SMS).

He also has a deep understanding of the engineering regulatory requirements (Part 145, M, 147 and 66) specifically EASA, FAA and ICAO.



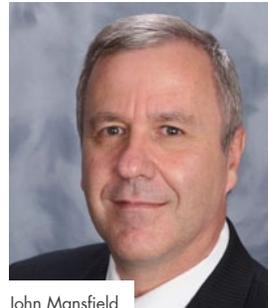
Gaston Sandoval

Panasonic Avionics Corporation (Panasonic) has appointed **Gaston Sandoval** as Global Head of Marketing and Product Management. In this role, Sandoval will lead Panasonic's marketing and product strategy as the company evolves into a digital platform and services company and delivers the next generation of passenger experiences. As Global Head of Marketing and Product Management, Sandoval will oversee Panasonic's branding, market insights, product marketing,

performance marketing, content marketing, creative, communications, as well as product management. Before Panasonic, Sandoval enjoyed a lengthy, successful career at IBM.

GA Telesis has appointed **Devin Adderley** as Vice President, Sales for its MRO Services Group. Reporting to **Pastor Lopez**, the group president,

Adderley will lead a team of seasoned sales leaders to grow GAT's global customer base and increase market penetration, while supporting the larger GAT Ecosystem. Adderley joins GA Telesis MRO Services from his previous position of Vice President, Sales & Marketing at Turbine Controls.



John Mansfield

West Star Aviation has named **John Mansfield** as Manager of Satellite Operations and Mobile Repair. Mansfield began his career over 30 years ago as a Technical Representative at Hawker Beechcraft. He quickly advanced into more progressive roles including Manager, General Manager, and most recently, Vice President MRO Centers Worldwide at Embraer Executive Jets. He will be responsible for overseeing satellite operations and the mobile response team. John has 15 years of proven experience in leadership, relationships with OEMs, as well as customer satisfaction and product support.



Maria M. Danburg

Cadence Aerospace, a provider of highly complex aerospace components and assemblies to commercial and defense customers, has appointed **Maria (Mia) M. Danburg** as Vice President and Chief Human Resources Officer. With Centers of Excellence based in the U.S. and Mexico, Cadence Aerospace serves the world's leading manufacturers of aircraft, aerostructures, aeroequipment and other defense platforms.

Other News

Iridium Communications has announced **Rockwell Collins** as the newest Iridium Certus service provider for the aviation industry. Rockwell Collins will be adding the service to its comprehensive suite of aircraft connectivity applications for commercial, government and ARINC DirectSM business customers. In addition to being a service provider, Rockwell Collins is also a value added manufacturer (VAM) for the design and production of Iridium Certus terminals. As a VAM and a service provider, Rockwell Collins will play a critical role in delivering the next-generation L-band broadband solution to customers around the world. Iridium Certus will bring broadband functionality, with enterprise-grade quality of service, to the aviation industry no matter where in the world an aircraft may fly. The service will soon deliver the fastest L-band broadband speeds on the market at a competitive price with industry-leading small form factor antennas and terminals. The Iridium Certus high-gain antenna (HGA) solutions will provide data speed options of up to 704 Kbps, and eventually as high as approximately 1.4 Mbps following full Iridium® NEXT deployment, with an antenna size of approximately 24 x 10 x 6cm, while the low-gain antenna (LGA) solutions will enable data speeds of up to 176 Kbps.

Spatial, a provider of cabin crew training simulators, is opening a US office to further support its global client base and expansion plans.

Based near Los Angeles, the new office will be Spatial's first permanent presence in the US. It will take advantage of the 12-hour time difference between the U.S. and Dubai and provide true round-the-clock technical support to Spatial's client base worldwide, as well as deliver even stronger ties with existing North American customers such as Spirit Airlines, WestJet and Alaska Airlines, as well as new ones.

Rockwell Collins has signed master contracts with **AVIC Aircraft (AVIC Aircraft)**, a subsidiary of **Aviation Industry Corporation of China, (AVIC)**, to supply its Pro Line Fusion® advanced avionics system and air data systems for MA700 turboprop regional aircraft. AVIC has also chosen Rockwell Collins' HGS™-3500 Head-up Guidance System – an innovative, all-in-one compact head-up display (HUD) solution – as an airline-selectable option. The MA700 is expected to perform its first flight in November 2019 and receive certification by 2021. Work will take place at a number of Rockwell Collins facilities in the United States and Hyderabad, India, as well as with the company's joint venture partner, **Rockwell Collins CETC Avionics Company (RCCAC)**, in Chengdu, China. Additionally, Rockwell Collins has collaborated with the **Aeronautics Computing Technique Research Institute (ACTRI)** in Xi'an, China, to support avionics development and integration with other on-board MA700 aircraft systems.