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Farnborough Special Report

Company Profile
Ramco

MRO News
from around the world

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latest appointments

ICF Analysis



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MRO

Published monthly by

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

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

Editorial

Keith Mwanalushi, Editor
Email: keith@aeropublications.co.uk
Mobile: +44 (0) 7871 769 151

Design

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

Advertising inquiries

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

Registration

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Opinion

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Farnborough showdown

Air shows are always an interesting place especially when it comes to observing the competition from the big players. This year Airbus stole the limelight in terms of order numbers at Farnborough leaving American rival Boeing trailing behind. Airbus announced \$35 billion in completed and committed orders for passenger jets beating Boeing, which logged in \$26.8 billion. Boeing however found more favour in China, announcing new or confirmed orders from five operators.

But the biennial airshow - it alternates with the Paris Airshow - may not have been the blockbuster festival of orders of previous years. After six years of booming orders for passenger jets, it seems like now is the time to buckle down and get the job done of actually delivering these aircraft.

In our cover story, we steer away slightly from the big airframe orders and look at the deals and

exhibitors from the wider supply chain. We came across companies such as Pattonair in the UK and Aergo Capital that are making a mark in the industry. Its interesting to lean for instance how Pattonair is using sophisticated forecasting techniques to determine the needs of its parts and inventory business at a global scale.

Elsewhere, ICF International provides an analysis of the UK aviation industry post Brexit. Clearly there will be some tough negotiating in the months and years to come in order to maintain and enhance Britain's position in the global aerospace scene. The UK's ability to keep some of these agreements to a certain degree will be crucial.

Happy reading!

Keith Mwanalushi
Editor

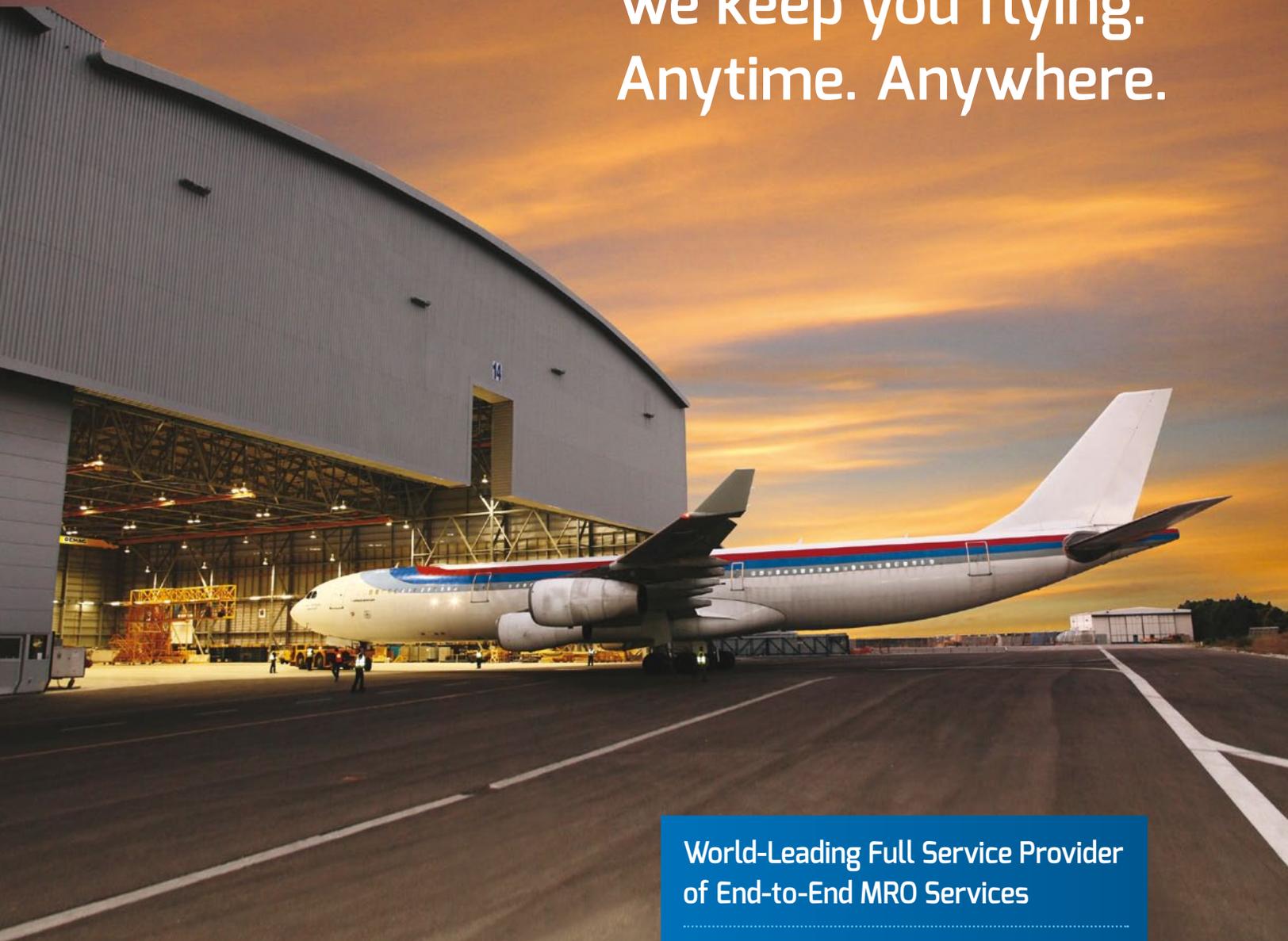


FA16 saw a slowdown in commercial jet orders. Photo: Airbus

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WHEN RESULTS MATTER



DHL signs A330-300P2F conversion launch contract with EFW
Photo: EFW

DHL signs A330-300P2F conversion launch contract with EFW

Elbe Flugzeugwerke (EFW) reported the signature of the Airbus A330-300P2F (passenger-to-freighter) conversion launch contract with express and logistics company DHL Express. Under the agreement, EFW will convert four Airbus A330-300 passenger aircraft to a 26-pallet cargo configuration, capable of carrying up to 61 metric tonnes of payload. The first aircraft will be inducted into EFW's Dresden-based facilities in July 2016, scheduled for redelivery to DHL Express by end 2017. The A330P2F conversion programme, launched in 2012, is a collaboration between Airbus, EFW and ST Aerospace. ST Aerospace, as the programme and technical lead for the engineering development phase, is responsible for applying for the supplemental type certificates for the freighter conversions from the European Aviation Safety Agency and the US Federal Aviation Administration. Aircraft OEM Airbus contributes to the programme with OEM data and certification support, while EFW leads the industrialization phase and marketing for the freighter conversion programme.

HAECO Americas signs LOI with Mitsubishi Aircraft

HAECO Americas, a subsidiary of the HAECO Group with headquarters in Greensboro, North Carolina, USA, confirmed has signed a letter of intent with Mitsubishi Aircraft Corporation at the Farnborough International Airshow to become a preferred airframe Maintenance, Repair and Overhaul (MRO) partner for the Mitsubishi Regional Jet (MRJ) in North America. The collaboration will provide MRJ customers with a best-in-class airframe MRO

service solution through an established authorized maintenance organization, capable of delivering full-spectrum support. Through Mitsubishi's preferred MRO provider network, HAECO Americas will offer scheduled and unscheduled airframe maintenance as well as special maintenance services, including service bulletin incorporation and post-production modification.

Liebherr-Aerospace on board with TRJet for 328 Series

Liebherr-Aerospace signed two contracts regarding the TRJet's 328 Series at the Farnborough Airshow. The company will supply the complete air management system for the aircraft. The scope includes design and service of the bleed air system, precooling, cabin and cockpit environmental conditioning, as well as the pressurization system. It will be operated by a single integrated controller and ensures a safe, healthy and comfortable environment during flight. Furthermore, Liebherr-Aerospace will supply the flap and spoiler actuation subsystem for the 328 Series.

AFI KLM E&M extends services for Thai Airways A350s

AFI KLM E&M has won a major call for tenders from Thai Airways (THAI), covering component support for its future fleet of Airbus A350s, with twelve aircraft joining the fleet from this summer. AFI KLM E&M was selected as MRO for Thai Airways, providing a wide array of services including access to its global pool of A350 components, maintenance, logistics, and a comprehensive material support at Thai Airways main base in Bangkok.

GE signs multiple TrueChoice agreements at the Farnborough International Airshow

Emirates has extended its TrueChoice Flight Hour agreement with GE for the maintenance, repair and overhaul of 54 GE90-115B engines that power its Boeing 777-300ER aircraft. The extended agreement is valued at more than US\$400m over the life of the contract. Emirates operates the largest fleet of Boeing 777 aircraft with 118 in service flying to six continents. The airline continues to build on a successful partnership with GE on technology sharing and innovation in engine maintenance and related services, contributing significantly to the aviation industry.

Austrian Airlines and GE have expanded a TrueChoice Flight Hour agreement to provide maintenance, repair and overhaul services to 10 GE90-90B engines that power Austrian Airlines' Boeing 777-200ER aircraft. The agreement is valued at US\$70m over the life of the contract.

Turkish Airlines and GE have signed extensions to its TrueChoice Flight Hour and TrueChoice Overhaul agreements for the CF6-80E engines that power its fleet of seven Airbus A330 aircraft. Along with the maintenance, repair and overhaul services, GE Aviation will also partner with Turkish Airlines on leadership training as part of these agreements, which are valid until 2026. With a fleet of more than 300 aircraft, Turkish Airlines is the major airline in Turkey and operates routes to the Americas, Europe, Middle East, Asia and Africa.

Thomas Cook Group Airlines has signed a five-year TrueChoice Transitions agreement with GE Aviation for the time and material to repair and overhaul its fleet of CF6-80C2 engines that power its eight Boeing 767 aircraft.

Icelandair has signed a TrueChoice Transitions agreement with GE Aviation for three overhauls of its CF6-80C2 engines powering its Boeing 767 aircraft, as well as an engine lease.

EGYPTAIR and GE have signed a TrueChoice Materials agreement for maintenance, repair and overhaul consulting services to assist in the development of overhaul capabilities for the CFM56-7B engine. The comprehensive agreement covers technical support and consulting for MRO operations, facility readiness, tooling optimization and other necessary services required to achieve facility certification.

Spirit AeroSystems installs one of the world's largest autoclaves at its Wichita, Kan., facility

Spirit AeroSystems is installing one of the world's largest autoclaves at its Wichita, Kan., facility to support increasing production levels in the company's composite fuselage business and to grow overall composite production capability. The new autoclave has a 30-foot diameter and an internal volume of more than 78,000 cubic feet. The autoclave, which is 120 feet long, is one of nearly 40 at Spirit's Wichita location. The addition is part of a 94,000 ft² expansion to Spirit's Composite Fuselage Facility, where the company makes the carbon-fiber nose section for Boeing's 787 Dreamliner. An autoclave is a pressure chamber used to cure composite material. Spirit has composite expertise for large, complex aerostructures as well as jet engine nacelles. Spirit AeroSystems is one of the largest manufacturers of aerostructures in the world with both design and build capabilities for a variety of applications.



Spirit AeroSystems is installing one of the world's largest autoclaves at its Wichita, Kan., facility
Photo: Spirit AeroSystems

Air Canada signs Pratt & Whitney PurePower engine services agreement

Air Canada has signed a services agreement with Pratt & Whitney for maintaining their fleet of PurePower PW1500G engines, powering their 45 firm and 30 option C Series aircraft for 15 years. The final assembly of the PW1500G engine is done in Mirabel, Quebec, Canada.

Airbus and Rolls-Royce partner to deliver integrated parts availability service for Cathay Pacific Airways' A350 fleet

Airbus and Rolls-Royce have created a new integrated parts availability service for the Cathay Pacific Airways A350 fleet, which encompasses both airframe and engine Line-Replaceable-Unit (LRU) components. The service integrates the Airbus Fleets Hours Service (FHS) and the Rolls-Royce TotalCare Availability service through a seamless operational interface. Through this partnership between Airbus and Rolls-Royce, Cathay Pacific will be able to access both engine and aircraft parts through the same process to improve speed of response. Supported by both manufacturers, this innovative approach to managing airframe and engine parts provides a cost-effective and lean operational solution for the airline. The airframe and engine parts will be hosted in the same warehouse in Hong Kong so that they can be made available locally when needed

to secure the airline's A350 operations. Airbus and Rolls-Royce believe that this approach will suit the needs of other customers and will seek further opportunities to develop seamless integrated services for the A350.

Dowty Propellers to supply electronic propeller control system for XAC's MA700 twin-engine regional aircraft

Dowty Propellers has signed a letter of intent to develop and supply the propeller electronic controller (PEC) on twin-engine MA700 regional aircraft from Xi'An Aircraft Company (XAC), a subsidiary of China's AVIC. This agreement, announced at the Farnborough Airshow, follows the earlier selection of Dowty Propellers to provide a six-blade propeller system for the MA700's two Pratt & Whitney Canada PW150C turboprop powerplants. To develop the MA700's PEC, Dowty Propellers will be collaborating with GE Aviation's Systems business – a portfolio of companies and operations that includes Dowty Propellers.

Rotable Repairs and Aircrafters sign exclusive European distribution agreement

Aircrafters, a New Castle, Delaware-based supplier of commercial aircraft wheels and brakes and Rotable Repairs, a South of England-based aviation wheel and brake repair specialist agreed on an exclusive stocking agreement. The long-term and exclusive consignment agreement provides both companies with the ability to offer key benefits to their European customer base, which includes a significant inventory of lucrative and relevant materials, serviceable parts and new

advance exchange options when urgently required. The new agreement allocates Rotable Repairs exclusive rights to a large inventory managed out of their own Southend-on-Sea based facility, enabling them to access a pool of wheel and brake materials from the likes of Goodrich, Messier and Honeywell, whilst servicing a range of aircrafts such as B737's, B757's, B767's, A320 and A321.

GE Aviation finalizes GE9X engine program participant agreements

GE Aviation has finalized agreements with IHI Corporation, Safran Aircraft Engines and Safran Aero Boosters as participants in the GE9X engine program. GE9X engine program participants play a significant role, producing a combined total of about a 25 percent share of the components for the GE9X engine that will power the Boeing 777X aircraft.

IHI: With headquarters in Japan, IHI is responsible for the design and manufacturing of various components in the low-pressure turbine and the fan mid-shaft. IHI is a participant on the CF34, GE90, GEnx and Passport engine programs and has been producing GE military engines under license for more than 60 years.

Safran Aircraft Engines: Based in France, Safran Aircraft Engines is responsible for the design and manufacturing of the 3-D woven composite forward fan case, the turbine rear frame and will participate with GE on the composite fan blades through CFAN, its 50/50 joint venture company. Safran Aircraft Engines produces the CFM56 and LEAP engine within CFM International, the 50/50 joint venture company with GE and is a participant on the CF6, GE90 and GP7200 engine programs.



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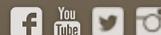
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Safran Aero Boosters: Headquartered in Belgium, Safran Aero Boosters is responsible for the design and manufacturing of the low-pressure compressor as well as the manufacturing of the fan disk. Safran Aero Boosters is a participant in the CF34, GENx and Passport engine programs.

MTU Aero Engines AG is another GE9X engine program participant and is responsible for the design and manufacturing of the turbine center frame.

Engine Alliance adds two new engine overhaul centers to MRO network

Engine Alliance (EA) is adding two new engine overhaul centers to the GP7200 MRO network in Dubai and Singapore: Emirates Engine Maintenance Centre (EEMC) and Pratt & Whitney Eagle Services Asia (ESA), respectively. These new facilities will add capacity to accommodate the growing fleet of GP7200 engines, as they begin to enter their first performance restoration shop visits. Engine Alliance is also expanding capability in Singapore. Previously a center of excellence for GP7200 low pressure compressor (LPC) overhauls, ESA will now become a full engine overhaul center.

Mitsubishi Aircraft names PEMCO preferred MRO service provider for MRJ

Pemco World Air Services has been named a preferred MRO service provider of the MRJ aircraft by Mitsubishi Aircraft Corporation. As an alternative solution for airlines performing airframe MRO in-house or through an outsourced third party, Mitsubishi Aircraft and PEMCO will offer airframe related MRO services to North American MRJ customers, such as applicable letter and heavy checks, structural repairs, modifications, and warranty work. It is the intent of both companies to provide best-in-class services, improved efficiencies, and cost advantages to MRJ aircraft operators. The MRJ has received over 400 aircraft orders, including options and

purchase rights. Mitsubishi Aircraft plans to deliver the first MRJ aircraft in mid-2018 to launch customer All Nippon Airways.

Dowty Propellers begins delivery of propeller systems for Antonov's AN-132D

Dowty Propellers has started component deliveries for propeller systems that will equip the demonstrator for Antonov's new AN-132 twin-engine transport aircraft. Based on an agreement signed earlier this year, the twin-engine AN-132D will utilize Dowty Propellers' R408 propeller systems, which already are in widespread service worldwide. For the AN-132D's ground and test flights, Dowty Propellers is providing two R408 propeller systems for the Ukrainian aircraft manufacturer's demonstrator, along with a spare.

Asiana Airlines selects UTC Aerospace Systems to provide landing gear services

UTC Aerospace Systems has been selected by Asiana Airlines to provide landing gear maintenance, repair and overhaul (MRO) services for its fleet of Boeing 747-400 aircraft. The work will be performed at the UTC Aerospace Systems Center of Excellence in Miami, a leader in performing overhauls on Boeing landing gear. Asiana Airlines Inc., established in 1988, is a Star Alliance member airline in South Korea. Headquartered in Seoul, the airline's domestic hub is at Gimpo International Airport, and its international hub is at Incheon International Airport.

Latvia's airBaltic signs up for Bombardier C Series Aircraft Smart Parts Program

Latvian flag carrier Air Baltic has selected Bombardier's Smart Parts Program to provide component support for its fleet of 20 all-new C Series aircraft. The five-year agreement positions airBaltic as the second customer for the

C Series aircraft Smart Parts Program and will provide the airline with comprehensive component maintenance, repair and overhaul (MRO) services, access to a strategically located spare part exchange pool, and an on-site inventory based at the airline's main hub in Riga, Latvia. airBaltic is the launch operator for the CS300 aircraft, and the airline's first aircraft is scheduled to be delivered by Bombardier in the fourth quarter of 2016. airBaltic has ordered 20 CS300 aircraft.

Volga-Dnepr Group and GE announce global strategic partnership

Volga-Dnepr Group and GE Aviation today signed a Memorandum of Understanding (MoU) to develop a strategic partnership that will utilize the two companies' unique strengths and expertise to develop collaborative solutions to benefit each company and their customers. The partnership covers the expansion of Volga-Dnepr Group's TrueChoice Flight Hour agreement with GE for the maintenance, repair and overhaul of 88 additional GENx-2B engines that power its Boeing 747-8 Freighters. The TrueChoice Flight Hour agreement is valued at close to US\$1.4bn over the life of the contract. In addition, the MoU incorporates a long-term Logistic Support Program in which Volga-Dnepr Group's Boeing 747-8F and An-124 freighters will provide transportation support for GE Aviation.

StandardAero renews TRUEngine MRO status

StandardAero has renewed its independent TRUEngine authorized maintenance repair and overhaul (MRO) provider agreement for CF34 and CFM56 engines, demonstrating an ongoing commitment to OEM quality engine maintenance. As an authorized TRUEngine MRO provider, CFM56 or CF34 engines overhauled by StandardAero are eligible for TRUEngine status, allowing the engine serial numbers to be included in the TRUEngine database made available to industry appraisers and potential buyers.



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ST Engineering's aerospace arm secures new contracts worth US\$770m in 2Q2016

Singapore Technologies Engineering released that its aerospace arm has secured new contracts worth US\$770m in the second quarter (2Q) of 2016, for projects ranging from airframe maintenance and cabin interiors, to engine wash, and component repair and overhaul. Included in the 2Q2016 contracts are line and heavy airframe maintenance for commercial airlines and military operators, as well as cabin interior modifications for various customers. For component support, the aerospace sector signed a general trade agreement with a European airline, for the Boeing 787 nacelle component exchange and repairs, while securing landing gear work for a military operator. Multiple contracts have also been sealed with customers in Asia Pacific, Europe and the US for EcoPower engine wash services.

Magnetic MRO opens 5 new outstations

Magnetic MRO, the Estonia-headquartered Total Technical Care MRO organization, completed the launch of 5 new Line Maintenance outstations. As part of its international growth strategy outside of its Tallinn home base, the company has expanded its network of operations by adding Milan Malpensa, Vilnius, Copenhagen, Oulu, and Gällivare airports to its operations map. "Magnetic MRO long-term strategy is to focus on new generation aircraft, which demand less Heavy Maintenance hangar work, more Line Maintenance work where the aircraft operate", says Jonas Butautis, CEO of Magnetic MRO. "This strategic imperative is behind the fast expansion of our Line Maintenance network across Europe and, in the near future, across other regions."

Norsk Titanium to build industrial-scale aerospace additive manufacturing plant in New York

Norsk Titanium AS, a pioneering supplier of aerospace-grade, additive-manufactured, structural titanium components released on July 11, that the State of New York, in partnership with SUNY Polytechnic Institute, has placed an order for an initial lot of 20 of Norsk Titanium's patented MERKE IV Rapid Plasma Deposition (RPD) machines. The order is in accordance with an approved state budget allocation to facilitate Norsk Titanium's US subsidiary building and operating the world's first industrial-scale metal additive manufacturing plant in New York. Plattsburgh, New York has been selected

as the location for the first Rapid Plasma Deposition factory, which is supposed to be operational by the end of 2017. Under the terms of the deal, Norsk Titanium US will provide additional investment into the Plattsburgh operation that is expected to bring the total program commitment to the US\$1bn dollar level over the initial 10-year period of operations. A US\$125m New York investment in the Norsk Titanium US Plattsburgh factory was approved in the 2016-2017 State budget and first highlighted by Governor Cuomo on April 1, 2016 during the North County Highlights budget address in Albany. Norsk Titanium US is also partnering with the North County Chamber of Commerce in Plattsburgh to support and promote the successful launch and growth of Norsk's industrial-scale factory including workforce training, economic development and STEM outreach including specific educational programs for SUNY Plattsburgh, local community colleges and other schools in the region. Norsk Titanium's proprietary RPD™ process works by feeding titanium wire into a set of plasma torches protected by a cool argon environment that has made it possible to replace legacy forged parts, which take months and even years to develop and produce, with precision, additive manufactured components. The company has signed numerous contracts with the top echelon of aerospace manufacturers and tier-1 suppliers interested in leveraging RPD™ to cut cost and lead time from airframe and engine programs. Norsk Titanium RPD components have equivalent strength to forgings, but are delivered inexpensively and efficiently, with unprecedented part cost and design-to-market speeds.

Boeing to manufacture 777X components with composite material made in U.A.E.

Boeing has reported that it will source carbon fiber pre-impregnated (prepreg) composite material for the Boeing 777X from a new joint venture formed by Mubadala Development Company and Solvay. Boeing is the first customer for the Mubadala-Solvay joint venture, which will produce primary structure composite material for use in manufacturing the 777X empennage and floor beams. Mubadala and Solvay are planning for the joint venture to be operational by 2021 in a new facility built in Al Ain, U.A.E. Since 2009, Boeing and Mubadala have signed several agreements to advance their collaboration in mutually beneficial ways, including in aerospace composites manufacturing. In 2013, Boeing and Mubadala announced a new Framework Strategic Agreement to increase the long-term role of Mubadala as a direct supplier to Boeing, including support as Mubadala developed prepreg manufacturing in the U.A.E.

NORDAM adds new product type to Airbus portfolio

NORDAM CEO Meredith Siegfried Madden has announced the aerospace company has been awarded an Airbus contract to manufacture a lightweight composite part that supports the A350-1000 aircraft's cargo floor. The new contract represents NORDAM's first provision of a structural component for Airbus. NORDAM's Interiors & Structures Division fabricates the part – known as a 'crutch' – from HexMC, a proprietary Hexcel product that transforms AS4 carbon fiber strips into a randomly-oriented mat, which then can be cut and compression-molded into complex geometries. The Tulsa-based company is one of only two licensed molders of this unique material worldwide. The first A350-1000 started final assembly process in Toulouse earlier this year; NORDAM crutch program has been ramping up since 2015 with more than 1,000 parts already completed to date. Under the terms of the crutch supply agreement, full production volume will entail manufacture of more than 1,500 crutches per year over the life of the program. No additional NORDAM personnel or equipment are needed to fulfil this production commitment.

Norwegian and Boeing sign agreement for GoldCare Coverage

Boeing has released that Norwegian has committed to GoldCare coverage for its 737 MAX fleet and expanded coverage for the airline's entire 787 Dreamliner fleet. The new services agreements represent the largest commercial services order in Boeing history. Norwegian will launch Boeing's 737 MAX GoldCare offering when its first airplane is delivered in May 2017. Under the agreement, Boeing will provide coverage through 2034.

AJW Aviation renews power-by-the-hour contracts with Air Blue and Air Peace

AJW Aviation, the integrated aircraft support specialist, has renewed power-by-the-hour contracts with Air Blue, Pakistan, and Air Peace, Nigeria. Air Blue first signed an agreement with AJW in 2005, becoming one of the organization's longest-standing PBH customers. It is testimony to the reassurance and flexibility provided by the service that they are moving into their eleventh year of sustained support. Air Blue has now extended its PBH contract for a further five years in support of their fleet of three Airbus A320s and four Airbus A321 aircraft.

Lufthansa Technik at this year's Farnborough Airshow



Lufthansa Technik Puerto Rico opened a third bay in July
Photo: LHT

Lufthansa Technik Puerto Rico opens third bay

Lufthansa Technik Puerto Rico has started operating its third bay at the beginning of July. The new bay is a heavy maintenance line, performing C-Checks and cabin modifications similar to the existing two operating bays in the hangar. It will be the second line for Spirit Airlines. There are already 15 checks scheduled in 2016 for the new bay and 17 for 2017. A third standalone cabin modification line for Spirit Airlines is planned to open in September 2016. Lufthansa Technik Puerto Rico started its operation in July 2015 and has currently a workforce of 270 employees. It is planned to grow up to a workforce of 400 in 2017.

Lufthansa Technik signs agreements for GE9X and GEnx-2B services

Lufthansa Technik and GE Aviation signed new long-term agreements for maintenance services for the GE9X and GEnx-2B engines as part of a continued effort to expand maintenance choice and shop capacity for customers operating the latest generation of engines. The GE Branded Services Agreements (GBSA) for the GE9X and GEnx-2B include comprehensive TrueChoice Materials agreements and provisions for technical support and assistance on overhaul workscoping, component repair licenses, joint repair development and training. The agreements facilitate establishment of a planned GE Aviation and Lufthansa Technik joint venture overhaul facility due to open in 2018.

Pratt & Whitney and Lufthansa Technik sign strategic agreement

Lufthansa Technik has signed a strategic network agreement to become a key member of the Pratt & Whitney Geared Turbofan (GTF) engine MRO network offering the full scope of MRO services on PW1100G-JM and PW1500G engines. The Pratt & Whitney GTF engine network currently includes Pratt & Whitney and its GTF engine collaborators, MTU Aero Engines and Japanese Aero Engines Corporation. Together with Lufthansa Technik, these companies will deliver the highest level of maintenance support and value to customers with facilities strategically located worldwide. "The PW1000G family will be one of the main

engine types in commercial aviation for the next decades. Lufthansa Technik will serve the full scope of MRO services and will bring long-lasting and leading expertise in engine overhaul, engine parts repair, and engineering support to this co-operation," said Dr. Johannes Bussmann, chairman of the Executive Board of Lufthansa Technik. Furthermore, the two companies announced that Lufthansa Technik will become Pratt & Whitney's principal provider of mobile engine maintenance services for V2500, PW1100G-JM, PW1500G and PW1900G engines. This new cooperation will provide Pratt & Whitney customers with more-efficient and cost-effective engine maintenance.

Lufthansa Technik to open component warehouse in London

Lufthansa Technik AG is opening a new warehouse for component supply at London Heathrow Airport. With this local presence in the United Kingdom, Lufthansa Technik is further consolidating its supply network for customers within Europe and significantly shortening the supply times for British customers. In opening this new warehouse location, Lufthansa Technik is underlining the importance of its British customers and the British aviation market. The state-of-the-art facility, in operation 24/7/365, and the seamlessly integrated transport concept allow the company to even better fulfill the high quality expectations of its customers.



Dr. Johannes Bussmann (chairman of the Executive Board of Lufthansa Technik) and Matthew Bromberg (president Pratt & Whitney Aftermarket) during the signing ceremony
Photo: P&W



Magnetic MRO receives PART 21J Design Organisation Approval
Photo: Magnetic MRO

Magnetic MRO received PART 21J Design Organisation Approval

Magnetic MRO has been approved by EASA as PART 21J Design Organisation that will allow the company to design and approve minor changes and minor repairs to aircraft related to structures, installation of avionics, electrical systems and cabin interiors including galleys and other interiors equipment to small and large airplanes. Under PART 21J Design Organisation Approval Magnetic MRO has the privileges to approve minor changes to type-certificate design and as well approve minor repairs, to issue information or instructions, to approve minor revisions to the aircraft flight manual and supplements. Design Organisation Approval is a significant milestone for Magnetic MRO and complements the existing EASA Production Organization Approval Part 21G EE.21G.0001. With the addition of this new approval, Magnetic MRO is now able to develop, produce and certify all replacement parts or new products for aircraft cabin

reconfiguration and refurbishment within the company. The benefit of shortest possible lead times and full oversight, as well as reduced time loss for design process – from aircraft survey to installation, means the company can meet customer expectations under both heavy maintenance visits as well as ad-hoc projects.

Spirit AeroSystems upgrades historic Plant 2

Since 2014, Spirit AeroSystems has invested in upgrades to its historic Plant 2 and its Wichita facilities to support growing demand for its products. Spirit builds 70% of the 737 structure in Plant 2, including the entire fuselage of the airplane. "We are constantly looking at ways to modernize our factory and support our customer's production needs," said Shawn Campbell, Spirit vice president of the 737 program. "The factory of the future will look much different than it does today. Many investments the company is making

will ensure even better quality than we deliver today." The upgrades include projects like installation of robotic drilling and fastening, expansion of the propulsion manufacturing facility, building additional rail spurs for increased transportation needs and a re-investment in the facilities across the Wichita campus. Since Spirit's formation in 2005, it has doubled its 737 output while using essentially the same footprint. Continued increased production rates will require additional modernization to the historic Plant 2 building and a pipeline of employees to support this record demand. Spirit is responsible for the Boeing 737 fuselage, nacelles, pylons and wing flaps and slats. Spirit's history with the program dates back to the 1960s, when the 737 Classic launched and the site was a Boeing facility. The company transitioned to work on the 737 Next Generation program beginning in 1996, and the evolution continues today, as Spirit enters production of the 737 MAX.

PEMCO wins Longhao contract for passenger-to-freighter conversion

Pemco World Air Services (PEMCO) has secured an agreement with Guangdong Long Hao Aviation Group for a B737-300 passenger-to-freighter conversion. The agreement marks the first PEMCO-converted aircraft for the Longhao Aviation Group, with options for additional conversions to assist the company's aviation business. The conversion will be performed by STAECO in Jinan Shandong, China, one of PEMCO's three conversion partners throughout the world. The aircraft will be inducted in July and is scheduled for redelivery in October. Since 2006, PEMCO has redelivered over 50 Boeing 737-300 and -400 freighter modification projects to Chinese operators.

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The opening of ATR's new aeronautical maintenance site, at Toulouse-Franczal airport Photo: ATR

ATR inaugurates main maintenance base at Toulouse-Franczal airport

ATR inaugurated its new aeronautical maintenance site on July 4. ATR's application was approved by OSAC, the French body for civil aviation safety, which awarded it with a certificate of accreditation as a maintenance organization. This certification gives ATR the go-ahead to conduct maintenance activities at this site. ATR decided to invest substantially in Toulouse-Franczal airport in order to secure high-quality facilities over the long-term and these facilities will provide employees and customers with excellent working conditions while complying with aeronautical regulations. The new site amalgamates ATR's Part 145 maintenance activities for all of its customers worldwide, i.e. maintenance, servicing and repairs plus related training activities. It will also be possible to conduct Part 147 on-the-job training activities (maintenance, servicing and repairs) for airline technicians. Qualified ATR teams based at the site will provide services to operators, either in the form of major maintenance work in coordination with the design offices, or via secondments to the customer. Last but not least, 'prototype' activities will also be based at Franczal. Two prototypes – ATR 42-600 and ATR 72-600 – will be prepared for testing and analyzing of new technologies.

Haeco Xiamen completes Boeing 747-400 cabin modification for Virgin Atlantic

HAECO Xiamen has completed a cabin modification on a Boeing 747-400 aircraft for Virgin Atlantic Airways. The scope of the project included a C-check and extensive cabin modifications, which focused on the first class and business class areas of the aircraft. Major

tasks included reconfiguring the upper deck, lavatory relocation, galley installation, Wi-Fi modification, a full-cabin IFE upgrade and mood-lighting control modification. Over the years, HAECO Xiamen has garnered vast experience in cabin modification, having completed more than 300 projects for airlines around the world and covering a wide range of aircraft types, including Virgin Atlantic's Gatwick-based 747s in 2012. The successful completion of the project for Virgin Atlantic is yet another testament to HAECO Xiamen's technical expertise, quality workmanship and dedication to competitive turnaround times.

Rolls-Royce renews global supply chain contract with Pattonair

UK global aerospace and defense supply chain provider, Pattonair, has been awarded a renewed and expanded contract for global supply chain services by Rolls-Royce through to 2022. Pattonair is a strategic partner to Rolls-Royce in the provision of supply chain services and C-class parts and represents a significant development in what has been a 20-year relationship between the two companies. Under the significantly expanded contract Pattonair will support Rolls-Royce in ramping up production of new engine programmes including the Trent XWB, Trent 1000 and Trent 7000. The contract is a global award for Pattonair, whose headquartered site is close to Rolls-Royce in Derby, UK, and will include Pattonair's dedicated facilities in Germany, North America and Asia.

Jota Aviation to lease new hangar at London Southend Airport

Jota Aviation is currently finalizing the lease of a 23,000 ft² hangar facility which will be

ready in July. The company intends to house its own spares for its BAe 146/Avro RJ aircraft and create the future opportunity to establish its own Part 145 line maintenance for its own fleet. Heavy maintenance on the regional jets will continue to be outsourced and is currently handled by MRO partner Avalon Aero at Cranfield. Jota is also exploring the market to acquire or lease the freighter variant BAe 146QT, as well as further Avro RJs, and will be actively recruiting more type-rated pilots and cabin crew so it can increase passenger and freight flying in response to demand.

World Aero repairs 16,000th component at its EASA/FAA Part-145 wheel & brake repair facility

This week, aircraft wheel and brake MRO World Aero celebrates processing its 16,000th component at its EASA/FAA/TC-CA-certified wheel and brake repair facility. World Aero carried out this work on a Messier-Bugatti-Dowty main wheel for the Boeing 787-8, for one of the world's leading flag-carrier airlines. Concentrating predominantly on the overhaul of wheel and brake products, the World Aero workshop routinely delivers in excess of 130 wheel and brake units per week at its purpose built facility. The custom-designed facility comprises seven energy-efficient industrial units laid out in a modular fashion specifically for wheel and brake repair and overhaul. Their West Sussex location, close to London's Gatwick, Heathrow and City airports and easily accessible from London, is key to the business, allowing it to service a number of the world's largest aircraft spares support organizations, including AJW Aviation.

Vector Aerospace completes first of three AS350 12-year inspections for San Bernardino County Sheriff's Department

Vector Aerospace, a global independent provider of aviation maintenance, repair and overhaul (MRO) services, has completed the first of three 12-year inspections for the San Bernardino County Sheriff's Department's (SBCSD) fleet of Airbus Helicopters AS350 B3 AStars. The SBCSD flew its second AStar to Vector's hangar in Langley, BC on June 20, and returned home with the first completed aircraft, work on which included a full Arriel 2B1 engine overhaul and a comprehensive repaint. Vector is scheduled to receive the third and final SBCSD helicopter early next year for its 12-year inspection.



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P&W Columbus Engine Centre Photo: Pratt & Whitney

Pratt & Whitney to invest US\$65m in Columbus, Georgia for PurePower Geared Turbofan engine maintenance

Pratt & Whitney is making a US\$65m investment in its engine overhaul facility in Columbus, Georgia, to perform maintenance on PurePower Geared Turbofan (GTF) engines. "As the GTF engine continues to enter into service, it is critical that we have a strong maintenance, repair and overhaul network in place to support these engines," said Joe Sylvestro, Vice President, After-market Operations, Pratt & Whitney. "The Columbus Engine Center draws on decades of high volume engine maintenance experience and is well-positioned to provide the highest quality service to our GTF engine customers." The Columbus Engine Center, located 90 miles south of Atlanta, is the first facility to begin maintaining PW1000G engines. It will maintain PW1100G-JM and PW1500G engines, in addition to V2500, PW2000, F117 and F100 engines. The centre's new GTF engine facilities will include disassembly, inspection, assembly and test capability. Construction will start this year on a new test facility adjacent to the existing test cell. In addition to the US\$65m investment, Pratt & Whitney has been investing in upgrading this facility over the past several years, including adding GTF engine MRO capabilities.

PEMCO secures agreement with Vallair for B737-400 Passenger-to-Freighter conversion

Pemco World Air Services (PEMCO) has signed a memorandum of understanding with European-based aviation asset man-

agement company, Vallair, for a B737-400 passenger-to-freighter conversion. The agreement marks the first PEMCO-converted aircraft for Vallair. The aircraft will be inducted this month in Jinan Shandong, China, where the conversion will be accomplished by PEMCO's partner, STAECO. The PEMCO-converted aircraft is scheduled for redelivery in September.

Lufthansa Technik receives approval for new photoluminescent exit signs

Lufthansa Technik AG in Hamburg has received approval across all aircraft types for a new generation of photoluminescent exit signs. With immediate effect the existing maintenance-intensive and non-environmentally-friendly exit signs by the flexible

curtains in the cabin can be replaced with the Lufthansa Technik GuideU material, which is already used for emergency floor path marking. Regular replacement of signs for reasons of aging, as has been the case to date, is now history thanks to a so-called "Multitype STC", an aircraft manufacturer and type-spanning approval for the new material. The exit sign made from the self-illuminating, aging-resistant and completely maintenance-free GuideU material simply has to be installed once directly at the aircraft manufacturer or as part of routine maintenance work. The signs previously had to be replaced after seven years at the latest. 30 different language variants of the bilingual signs are already available, while others are in progress.

Jet Aviation gains ACJ Authorized Service Centre status for Basel MRO facility

Jet Aviation announced that Airbus has appointed its Maintenance, Refurbishment and Overhaul (MRO) facility in Basel an Authorized Service Center (ASC) for Airbus Corporate Jets. The agreement was signed at the 2016 EBACE Convention in Geneva. To enhance the choice and geographical reach of support services for ACJ customers and operators in Europe, Airbus Corporate Jets (ACJ) signed a service contract with Jet Aviation Management to add Jet Aviation's maintenance facility in Basel to ACJ's Authorized Service Center network. The authorization includes line and heavy maintenance, cabin-refurbishing, and cabin and system upgrades.



Airbus appoints Jet Aviation MRO facility in Basel ASC for Airbus Corporate Jets Photo: Jet Aviation

Liebherr-Aerospace and East Air extend long-term maintenance support agreement

Liebherr-Aerospace Saline, Saline (Michigan, USA) and East Air Corporation, Hackensack (New Jersey, USA) have recently extended their long-term agreement from 2011 for component maintenance and exchange pool access. Under the agreement, Liebherr-Aerospace provides exclusive repair and overhaul services for Liebherr equipment in support of East Air's global and diversified customer portfolio and inventory for rapid service loop closure. While primarily focused on the Airbus A320 and A330 family aircraft, both companies will more closely collaborate across all types of aircraft on which Liebherr equipment is installed. Comprehensive services will be coordinated by Liebherr-Aerospace Saline, Inc., Liebherr's OEM service center for the Americas.



Liebherr-Aerospace Saline and East Air extend long-term maintenance support agreement Photo: Liebherr-Aerospace

LORD Corporation signs contract to design and build engine mount system for the Irkut MC-21 aircraft

LORD Corporation – a specialist in the management of vibration, noise and motion control – has secured the contract to design and build the engine mount system for the Pratt & Whitney PurePower PW1400G engine on the Irkut MC-21 family of aircraft. The contract was awarded by Bombardier Belfast, the firm responsible for the design, manufacture and aftermarket support of the complete engine nacelle system. "This is the latest of a list of growing programs secured by LORD in the commercial transport aircraft market," said Marc Papie, Global Fixed Wing Market Manager for LORD Corporation. The MC-21 engine mounting system attaches the engine

directly to the pylon using fireproof stainless steel components in a statically determinant manner. The mount system also comprises internally redundant (fail-safe) design features in the forward and aft mounts to ensure maximum reliability. LORD has been designing and supplying aircraft engine mount systems since 1934 and, to date, these systems have accrued more than one billion flight hours on aircraft such as the B737, B757, B767 and MD90.

AeroVision International to provide asset optimization services to major U.S. Carrier

AeroVision International has signed an agreement with a major U.S.-based operator to provide asset optimization services for an undisclosed quantity of Embraer ERJ-135 air-

craft being removed from active revenue passenger service. AeroVision will manage the ERJ assets on behalf of the carrier, either to disassemble for spare parts or to return to service. Several of the ERJ-135 aircraft have already been inducted into the reduce to spares process, with desirable parts being routed to repair facilities and ultimately offered for sale to the ERJ MRO and operator marketplace. AeroVision is providing on-site personnel to supervise the aircraft disassembly process and the subsequent packaging and shipment to its Muskegon, Michigan parts warehouse, ensuring the carrier's assets are secure and that the process is completed quickly. The disassembly of these aircraft will bring AeroVision's total disassembled Embraer ERJ family aircraft count to 31, making it the largest non-OEM source of ERJ serviceable material in the world.



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PPG introduces FAA-approved repair for Airbus A320 cockpit side windows

PPG has received Federal Aviation Administration approval to repair sliding and aft fixed cockpit windows for Airbus A320 Family jetliners, affording cost savings to airlines and other aircraft operators. The approval authorizes PPG to repair glass window assemblies produced by any manufacturer for Airbus A318, A319, A320 and A321 airplanes and the recently launched NEO (new engine option) Family. The approved procedures include replacing the glass panels with new PPG window panels and reusing and refurbishing frame retainers from PPG or other suppliers.

Rolls-Royce receives regulatory approval for Trent service network changes

Rolls-Royce and its partners have received regulatory approval and met all other closing conditions for its previously announced changes to three Approved Maintenance Centre joint ventures. Approved Maintenance Centres (AMCs) support Rolls-Royce's strategy to develop a competitive, capable and flexible Trent Service Network to meet the changing needs of customers across the lifecycle of engines and to support the growing Trent engine fleet. The changes, announced last November, subject to certain closing conditions that have now been satisfied, relate to three existing AMC joint ventures: Hong Kong Aero Engine Services (HAESL), Singapore Aero Engine Services (SAESL) and N3 Engine Overhaul Services (N3). Under the completion of the agreements these joint ventures will now operate under a new business model where the existing geographic territory-based arrangements used by Rolls-Royce to direct maintenance, repair and overhaul (MRO) work to each AMC will be replaced with a competitive model where each AMC will need to compete to secure their Trent TotalCare engine overhauls. Rolls-Royce believes that this competitive model will encourage greater capability and flexibility across the Trent Service Network. The AMCs are also able to compete globally for MRO Services under "time and material" business terms. The completion simplifies the shareholding structure and management of HAESL and SAESL. The former will become a 50/50 joint venture between Rolls-Royce and HAECO, the latter a 50/50 joint venture between Rolls-Royce and SIAEC. The shareholding arrangements with Lufthansa

Technik for N3 remain unchanged at 50/50 ownership. These changes to create a competitive, capable and flexible Trent Service Network complement the announcement that Delta TechOps will be joining the Trent Service Network as an independent AMC. Additional AMCs to further enhance the Trent Service Network will be announced at the appropriate time. In addition to SAESL, Rolls-Royce and SIAEC have a second joint venture in Singapore, International Engine Component Overhaul (IECO), which overhauls and repairs aero engine components. As part of these new agreements, and to further simplify the joint venture structures, Rolls-Royce and SIAEC intend to take the opportunity to amalgamate the business and operations of SAESL and IECO into a single entity, enabling them to compete more effectively for global component repair business.

MTM Robotics signs multiyear agreement with Airbus S.A.S.

MTM Robotics has entered into a multiyear agreement with Airbus to supply automated manufacturing equipment and machines to be used on existing and future Aircraft production lines within the Airbus Group companies. MTM Robotics designs and manufactures sophisticated automated drilling, fastening and inspection machines, and robotic end effectors utilized by the major aircraft manufacturers throughout the world. One of the many keys to MTM Robotics' success is the unique design architecture that is utilized to minimize the overall size and weight of the machines. Additionally, the systems design allows for autonomous use, including multiple machines operating in conjunction with each other. For enhanced factory efficiencies, MTM Robotics' machines enable aircraft manufacturing flexibility, eliminating bottlenecks often found with traditional large floor-mounted equipment. A major differentiator between MTM Robotics' automated machines and conventional robots is the cohabitive nature of the machines, allowing the factory employee to work alongside the machines without safety concern.

Aero Controls acquires certain assets of Skytronics

Aero Controls has reported the acquisition of certain assets of Skytronics. These assets include test equipment, tooling, exchange

pool retables, and a large inventory of expendables which all primarily support ATA Chapter 27 transmission equipment for Boeing and Airbus aircraft. "The strategic addition of Skytronics' equipment and inventory will have an immediate positive impact on Aero Controls' revenue and expands our existing repair capabilities to include repair services for the A320 THSA" said Mike Olesik, CEO of Aero Controls. "This acquisition is yet another example of our desire to better support our worldwide customer base." Founded in 1984, Aero Controls (AERO) is a privately held diverse FAA/EASA-approved repair station #IU6R626N. AERO HQ is located in Auburn, WA 10 miles away from SeaTac airport and has 3 facilities in the greater Seattle area.

Eirtech Aviation launches new Composites Division

Eirtech Aviation has announced the expansion of its aviation services with the launch of a dedicated Composites Division, which offers clients a range of new composite services including repair, training and manufacture of composite components. The Ireland-headquartered company is already recognized as one of the world's leading specialist aircraft services companies and the addition of composites augments its total client offering, affirming Eirtech Aviation's position in the marketplace. The new offering will complement Eirtech Aviation's existing services, which include: Engineering – Part 21J Design Organisation (DOA); Production – Part 21G Production Organisation (POA); Materials – Sourcing and supply of Materials; CAMO – Part M Continuing Airworthiness Management and Technical Services with the company's technical services consultants supporting, for example, aircraft redeliveries and record reviews. The announcement coincides with the appointment of Paul Kennedy who has a wealth of experience and knowledge on composites and is developing the National Policy document for Composites in Ireland. Paul's role will be to develop and grow Eirtech Aviation's Composites Division.

HNA Aviation to acquire majority stake in SR Technics

SR Technics reported that sole shareholder Mubadala, the Abu Dhabi investment and development company, has agreed to sell an 80% stake in the company to HNA Aviation, a global enterprise group based in Haikou, China. SR Technics, a world leading MRO service provider for the civil aviation sector, will remain a standalone business within HNA Aviation's portfolio of aviation business. Mubadala, a shareholder since 2006, will retain a 20% stake in the company.

Rolls-Royce Holdings acquires outstanding stake in ITP from SENER

Rolls-Royce Holdings will purchase the outstanding 53.1% shareholding in Industria de Turbo Propulsores SA ("ITP") owned by SENER Grupo de Ingeniería SA ("SENER"). The acquisition strengthens Rolls-Royce's position on its Civil Aerospace large engine growth programmes by capturing significant additional value from its long-term aftermarket revenues, including the high volume Trent 1000 and Trent XWB engines, where ITP has played a key role as a risk and revenue sharing partner. It also enhances the group's manufacturing and services capabilities and adds value to the defense aerospace business, particularly on the TP400 and EJ200 programmes. Rolls-Royce will pay SENER a total consideration of €720m (US\$791m), subject to due diligence, for the outstanding 53.1% of ITP. This follows a decision by SENER to exercise its put option. Under the existing shareholder agreement, consideration will be settled over a two-year period following completion in eight equal, evenly spaced instalments. The agreement allows flexibility to settle up to 50% of the consideration in the form of Rolls-Royce

shares. Final consideration as to whether the payments will be settled in cash, or cash and shares will be determined by Rolls-Royce during the payment period. Completion, which is subject to regulatory clearances, is expected in early 2017.

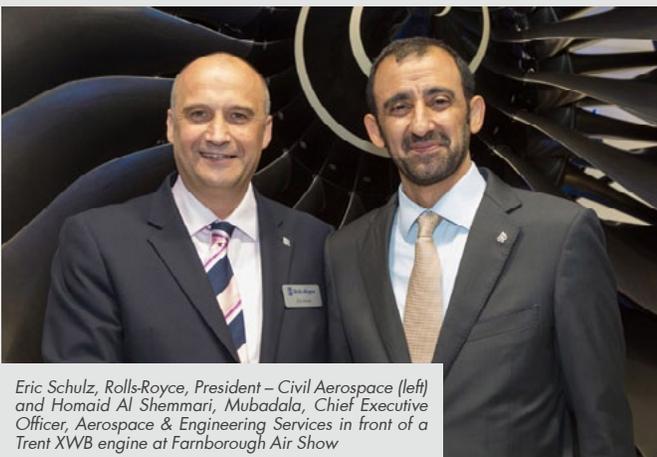
Aircastle announces new US\$400m term financing

Aircastle Limited has entered into a new US\$400.5m term facility secured by 17 aircraft. The facility has a maturity of seven years and includes an accordion feature allowing for US\$67.5m in additional future funding. Funding of the facility will take place through several draw-downs, with the first one, for US\$167.3m, having taken place on June 28. The financing was led by BNP Paribas, Credit Agricole Corporate and Investment Bank and The Bank of Tokyo-Mitsubishi UFJ (London Branch) as Joint Lead Arrangers as well as SGBT Asset Based Funding S.A. as Arranger and ING Bank and Columbia State Bank as lenders. BNP Paribas also acted as Agent and Security Trustee.

Liebherr Group's turnover in 2015 reaches €9,237m

Liebherr's total turnover in 2015 was €9,237m, the highest figure in the Group's history and an increase of €414m or 4.7% compared with the previous year. In 2015 the Liebherr Group recorded a surplus of €294m, €22m below the 2014 figure. The operating result was slightly above the previous year's level. The financial result was lower, primarily because of negative exchange-rate influences. (€1.00 = US\$1.13 at time of publication.)

Other News



Eric Schulz, Rolls-Royce, President – Civil Aerospace (left) and Homaid Al Shemmari, Mubadala, Chief Executive Officer, Aerospace & Engineering Services in front of a Trent XWB engine at Farnborough Air Show

Rolls-Royce and **Mubadala Development Company**, the Abu Dhabi-based investment and development organization, have announced further details of a new Approved Maintenance Centre (AMC) in the Emirate and have confirmed plans for a manufacturing facility that will produce aero engine components.

Rolls-Royce is committed to developing a competitive, capable and flexible Trent Service Network to support the growing number of Trent engines that will enter service as it increases its installed base to more than 50% of the wide-body passenger market. This will be the second AMC in which Rolls-Royce does not hold an equity stake. The first, Delta TechOps, was announced in October 2015. Mubadala will create a purpose-built facility that will carry out work on the Trent XWB engine that powers the Airbus A350 XWB. The Middle East region is forecast to have one of the world's largest concentrations of Trent XWB engines with more than 20% of the 1,600 sold to date due to be operated by airlines in the region, including the 62 A350s to be operated by Abu Dhabi-based Etihad Airways. Rolls-Royce is also creating a world-class, competitive global supply chain within growth regions and key strategic markets, which gives Rolls-Royce the flexibility it requires as it increases engine production. To support those developments, Mubadala will open a new manufacturing centre that will deliver parts for the Trent engine family, including the Rolls-Royce Trent XWB. This new manufacturing center will complement the existing disk manufacturing investment that Rolls-Royce has previously made in Washington, UK and Crosspointe, US. The announcement, made at the Farnborough Airshow, follows the

Strategic Framework Agreement signed at the Dubai Airshow in November 2013 to establish the Emirate of Abu Dhabi as a key member of Rolls-Royce's global network for maintenance and manufacturing.

Willis Lease Finance Corporation has entered into an agreement to use **GE Aviation's** Engine Health Validator app to evaluate engine condition, so reducing time and cost to transfer engine assets between lessees. The app replaces the need for performance verification test cell runs by providing an accurate prediction of engine condition for engines maintained in the OEM configuration. "Our customers have been very pleased with the rollout of this new offering and, when executed with our managed lease return product, it greatly reduces the time, administrative and financial burden of transitioning engines between lessees," said Brian R. Hole, President, Willis Lease. "We are working hard to deliver innovative solutions to our customers, and collaborating with GE on this project is a very clear step in the right direction."

Israel Aerospace Industries (IAI) has signed significant cyber deals, worth more than US\$40m, with customers in Asia. The deals include establishing an advanced nationwide system for monitoring and analyzing of cyber events, an advanced cyber protection suite for mission critical systems. Cyber security is a strategic sector and core competency for IAI. The company is developing cyber solutions and unique solutions for intelligence, protection, monitoring, identification and accessibility. These advanced capabilities are possible due to the unique technologies developed by IAI's research, development and excellence centers, offering IAI's customers a wide range of capabilities for handling evolving and ever-growing cyber threats. IAI operates four cyber research and development centers – one in Singapore, one in Switzerland, and two in Israel – the most recent of which was opened in the city of Beer Sheba. IAI leads the Israel Cyber Company Consortium (IC3) which offers end-to-end solutions for national cyber systems and is comprised of leading Israel cyber companies.

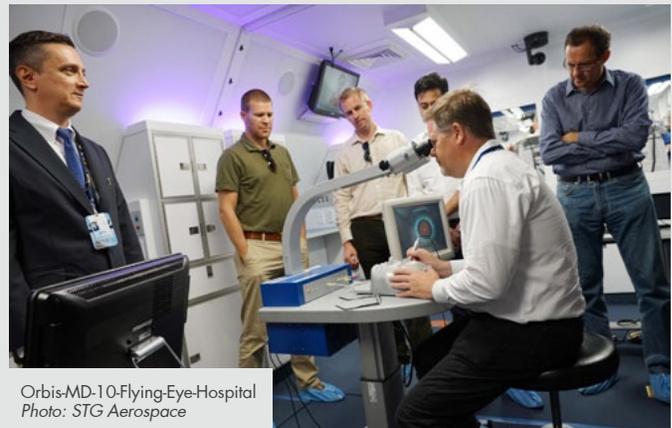
China Eastern Airlines has increased its commitment to **Panasonic Avionics' (Panasonic)** for global broadband connectivity services to 84 total aircraft. The leading Chinese carrier, which, in partnership with **China Telecom Satellite**, was the first to offer broadband Wi-Fi connectivity on flights over Chinese airspace, and this agreement strengthens its long-term relationship with Panasonic. The extended agreement – following the announcement of 20 Boeing 777-300ERs last November – includes 35 line-fit aircraft with and an extensive retrofit program covering an additional 49 aircraft.

Panasonic Avionics (Panasonic) and its partner **China Telecom Satellite (CTS)**, have announced a one-year extension of their Ku-band inflight connectivity trial. With this milestone, all approved Chinese and international airlines can now select Panasonic's Global Communications Services and enjoy connectivity services worldwide. Per the terms of the license, over 20 foreign airlines with more than 1,000 aircraft are expected to begin operating connected flights over Chinese airspace, with more in process. In addition, Panasonic's Chinese airline customers, including China Eastern Airlines, Xiamen Air, Hainan Airlines and China Southern Airlines have begun preparations to offer connectivity services across their global route structure.

Avio-Diepen has been appointed by AirFi for the sale and

worldwide distribution of the AirFi Box, a compact portable Wi-Fi streaming solution that requires no aircraft modification enabling customers to connect their personal electronic devices to a secure in-cabin network while allowing passengers to read newspapers, magazines, view RSS-feeds, chat with others onboard, play games and more. Avio-Diepen will provide a full spectrum of support for AirFi's product line which will include its latest Venus Box version.

Rolls-Royce and **Microsoft Corp.** are collaborating to harness the power of digital technology to transform the aerospace industry. This collaboration brings together best-in-class solutions for aerospace engineering and cloud computing, including advanced analytics and the Internet of Things (IoT), to fundamentally change engine-related operations and services. This capability will be incorporated into Rolls-Royce's industry-leading TotalCare services to significantly reduce cost, improve on-time performance and provide better value to our customers and the industry as a whole. Built on the Microsoft Azure cloud platform and utilizing Microsoft's Azure IoT Suite to collect and aggregate data from disparate, geographically distributed sources, and Cortana Intelligence Suite to uncover data insights, the new digital capability is able to manage and integrate much broader quantities of airline operational data. Using a range of smart data analysis capabilities and predictive tools, and engineering expertise to add additional insight, the results will help airlines reduce fuel usage, fly routes more efficiently, and ensure the right teams and equipment are in place to service engines more quickly and to maintain the highest levels of availability. Rolls-Royce is targeting a significant improvement in airline efficiency, a step-change in resolving engine-related issues, supporting a vision of every journey, for every passenger, taking off and landing on time, every time



Orbis-MD-10-Flying-Eye-Hospital
Photo: STG Aerospace

STG Aerospace announced that its emergency floorpath marking system, saf-Tglo, has been installed on the Orbis Flying Eye Hospital. Orbis, a non-profit organization that fights blindness around the world and based in New York, operates the Flying Eye Hospital, the world's only mobile ophthalmic teaching hospital on board an MD-10 aircraft, taking the very latest ophthalmological knowledge and surgical skills to local hospitals around the world. The aircraft, an MD-10-30CF was previously operated by FedEx who subsequently donated it to Orbis. Today the aircraft is flown by a team of volunteer FedEx pilots.

SK AeroSafety, which specializes in the repair and overhaul of aircraft safety components, has selected **Quantum Control** MRO and Logistics software for worldwide rollout to its five locations. Implementation across all facilities is expected by end of the third quarter 2016. SK AeroSafety, the aviation business unit of the SK FireSafety Group based in the Netherlands, consists of five companies, including Avia Technique based in the United Kingdom, Hugen in the Netherlands, Team Aero Services in the United States, Destini Avia Technique in Malaysia, and a franchise operation in Dubai operated by Aero Technics.

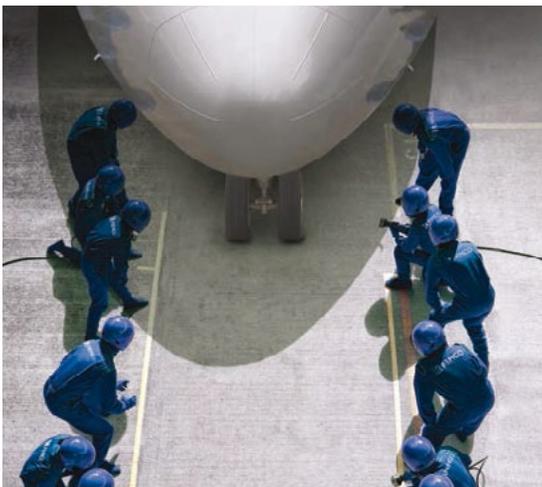
Sabre Corporation has expanded its long-term technology agreement with **LATAM Airlines Group** with the implementation of Sabre's Flight Plan Manager and broadening the adoption of Software-as-a-Service solutions from the Sabre AirCentre operational suite. Sabre's AirCentre Flight Plan Manager, which provides fully-automated flight planning capabilities and significant productivity savings, will help the group unify flight operations and fuel policies across its domestic operations in seven countries – Chile, Brazil, Peru, Argentina, Colombia, Ecuador and Paraguay – as well as its international network. Sabre's Flight Plan Manager brings together real-time information on a number of key variables – including weather, air space restrictions, aircraft performance and schedule information – and then calculates the most optimal flight route. Sabre's technology aims to help LATAM Airlines Group to deliver a wide range of enhancements in flight planning and operational efficiency, including a subsequent reduction in CO2 emissions.

Commsoft, the aviation maintenance and engineering IT systems provider, has signed a contract with **Bravo Airways** of the Ukraine to supply its leading MRO IT system, OASES (Open Aviation Strategic Engineering System). Bravo Airways has become the second Ukrainian customer for OASES. Bravo Airways is in the process of a new launch, following recent major investments. OASES will support the Bravo Airways' fleet, which currently consists of one Boeing 737-500 and one Boeing 737-300, for its airline ACMI (Aircraft, Crew, Maintenance and Insurance) operations. Bravo Airways' OASES license will run for five years and will allow five concurrent users. It covers five crucial MRO modules, including core, airworthiness, planning, materials and warranty. Bravo Airways' OASES site will be hosted on Commsoft's Private Cloud for maximum customer support and convenience.

Rockwell Collins has been selected by China-based **Shenzhen Airlines** to provide its full suite of advanced avionics and PAVES Broadcast overhead In-Flight Entertainment (IFE) on 44 new airplanes, including 37 Boeing 737 MAX and seven Next-Generation Boeing 737 aircraft. Deliveries are expected to begin in July 2017. Avionics highlights of Shenzhen's selection include Rockwell Collins' MultiScan ThreatTrack weather radar, GLU-2100 Multi-Mode Receiver and TTR-2100 next-generation Traffic Alert and Collision Avoidance (TCAS II) traffic computer. Shenzhen also selected Rockwell Collins' Head-up Guidance System (HGS), which will give the airline greater access to airports in China. Currently there are 14 airports throughout China approved for lower landing minima by the Civil Aviation Administration of China (CAAC) for aircraft equipped with authorized head-up displays (HUDs) such as Rockwell Collins' HGS.

Commsoft reported that its MRO IT system, OASES, has been selected by new Cyprus-based **Orion Airways** to support a fleet of Boeing 737-300 and -800 aircraft. Orion is Commsoft's first customer in Cyprus and brings the total number of countries in which OASES is being used to 43. OASES offers a high level of technical sophistication whilst being intuitively user-friendly. To allow for scalability, the system is structured in a modular format and Orion has selected the Core, Airworthiness, Planning, Materials, Warranty and Line Maintenance modules. The OASES system for five concurrent users will be hosted on Commsoft's OASES Private Cloud service. Orion Airways plans to start operations in September 2016 and will be the first Cypriot carrier to offer low-cost charter and scheduled flights to major European destinations as well as Israel, providing links with the wider Middle East.

Lufthansa Technik AG has entered into a strategic partnership with the aviation data and records management software provider **FLYdocs**. As part of this agreement, Lufthansa Technik has become shareholder in the FLYdocs business, replacing the Private Equity partner GCP. FLYdocs will remain an independent entity that continues to drive the digitalization of paper-based processes under the current management team. As part of Lufthansa Technik's digital strategy, this agreement is a big first step to accelerate the digital transformation of the aviation industry. Together, FLYdocs and Lufthansa Technik plan to develop new digital services that will be of high value for operators and lessors globally.



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The A380 and A350 made impressive flying displays.
Photo: Airbus

This year's Farnborough Air show witnessed a slowdown in jet orders but when it came to the supply chain market it was still somewhat business as usual. **Keith Mwanalushi** reports on the highlights.

At the close of the Farnborough International Airshow (FIA16) five-day trade exhibition, organisers confirmed that the show had recorded orders and options to the value of US\$123.9 billion. Farnborough International's internal order tracker recorded a total of 856 aircraft valued at US\$93.98, 1407 engines valued at US\$22.7 billion and a variety of other business deals totalling £7.2 billion.

The show kicked off to a cloudy start as torrential rain forced a soft evacuation of the show and the cancellation of the flying display by the end of the first day. However, starting proceedings on a high, the event was opened by former Prime Minister, David Cameron and Virgin Atlantic boss Richard Branson who welcomed senior aerospace executives, military officials and international government representatives at the official opening ceremony with a fly past by the F-35 Joint Strike Fighter flanked by the Red Arrows.

Notable deals over the week included Virgin Atlantic concluding its purchase for 12 Airbus A350-1000 and the UK Government confirming the purchase of 50 Apache helicopters and nine Boeing P-8 Poseidon aircraft. Topping the order chart was AirAsia who signed up for 100 Airbus A321neos.

Aside from the sexier big airframe orders FIA16 saw a considerable number of deals across the supply chain. Aergo Capital Limited founded in 1999 as an aircraft leasing and trading company was keen to capitalise on the opportunity that Farnborough provides to

network with airlines, manufacturers, MROs and other industry players. "It also allows Aergo to highlight our capabilities and how these can bring mutual advantage to partners such as Pakistan International Airlines with whom we've just concluded a significant deal," a spokesperson told AviTrader MRO.

Aergo has added eleven aircraft to its portfolio in the first half of 2016 with a value of circa \$250million. "We're expanding both our business and our appetite for further growth and the show offers us the chance to talk directly to existing and potential new customers about what this can bring to them. We are working on a number of exciting projects that we hope to progress at Farnborough," the company says in a statement.

MRO services provider AAR Corp had a number of executives on site meeting with customers and potential customers. The company was also working in conjunction with some OEM partners to announce new agreements that will allow AAR to use its global network of warehouses and sales staff to exclusively distribute the OEMs components to governments around the world. OEM aftermarket solutions like this are seen as a growth area for AAR that allow OEMs to leverage aftermarket expertise while also allowing AAR to expand its supply of factory-new parts for commercial and government business.

Announced at the show, Crane Aerospace & Electronics appointed AAR, as their parts distributor and repair provider for Crane foreign military sales, exclusive of Japan and Israel. The distribution and



Pattonair's senior management team at FIA16.
Photo: Pattonair

sales agreement covers engine and fuel, brake control, and secondary power systems that support military aircraft platforms including F-15, F-16, F/A-18, C-130 and KC-10. AAR was also selected by Crane to provide commercial retrofit and spare part sales for a key fuel system component on the MD-11/DC-10 fleet.

"AAR offers a broad selection of products for these platforms," said Brendan Curran, President of Crane Aerospace & Electronics. "With AAR's global network of sales and service locations, and close relationships with foreign military entities, we are confident that AAR will provide outstanding service and support."

Israel Aerospace Industries (IAI), and Honeywell announced that they will jointly develop a sense-and-avoid (SAA) capability for IAI's Heron family of Unmanned Aerial Systems (UAS). Approved for funding from the Bi-national Industrial Research and Development (BIRD) Foundation, the system will be demonstrated for the first time on the Heron medium-altitude, long-endurance (MALE) UAS platform in 2018.

"Developing a sense-and-avoid system for our Heron UAS is a significant step forward in integrating MALE UASs into civilian airspace," said Joseph Weiss, President and CEO, Israel Aerospace Industries. "This collaboration demonstrates IAI's ground breaking capabilities, innovation and technological development once again. We're excited to work with Honeywell, a leading company in avionics and safety systems, and view this effort as the first step in a series of cooperative efforts."

Just prior to FIA16, Pattonair a UK global aerospace and defence supply chain provider, was awarded a renewed and expanded contract for global supply chain services by Rolls-Royce through to 2022.

Under the significantly expanded contract Pattonair will support Rolls-Royce in ramping up production of new engine programmes including the Trent XWB, Trent 1000 and Trent 7000. The contract is a global award for Pattonair, whose headquartered site is close to Rolls-Royce in Derby, UK, and will include Pattonair's dedicated facilities in Germany, North America and Asia.

"With these orders adding to the already large backlog, it looks like the aerospace industry is going to be busy for some years to come."

Shaun Ormrod, Farnborough International Chief Executive

"We signed the first Rolls – Royce contract in 1999, and that really was the launching pad for the kind of services we are talking about now," Pattonair's CEO, Wayne Hollinshead tells AviTrader at Farnborough.

"I think we are quite unique in what we do. We are a lot more supply chain and inventory management," Hollinshead says. In comparison to others that are more into brokering and use that to create the market.

"So the key for us as an organisation right at the front end is to manage thousands of parts and it's the forecasting and the data control for those parts – it's a lot of parts to manage," Hollinshead explains.

Unique to Pattonair (the system is currently being trademarked) is a sophisticated forecasting and inventory tool.

Pattonair's biggest successes was about 18 months ago when one of its biggest clients was changing onto SAP (forecasting and replenishment) solution. "They could not give us a forecast for six months so we run off the Pattonair forecast and didn't miss a beat. We then worked with the customer to get SAP corrected."

Hollinshead declines any involvement with PMA parts or DER repairs - "We don't manufacture anything and the reason is we don't want to dilute the business. We are strictly supply chain."

Having established facilities in Europe, North America and Asia Hollinshead is keen to see further expansion, with Poland coming online. "We have 50 people there now [Poland]. We are hoping with the contracts that could be coming our way to have 200 people

in Poland. We think it is a real great opportunity for us. We have different entities throughout Europe."



A320 Air Asia commercial announcement at FIA16.
Photo: Airbus

Further afield Hollinshead confirms that plans to grow in India are also on track. "India is going to be the next one – We have already started to put people in Bangalore and we are looking to have a facility there probably next year."

Pattonair supports blue chip engine and airframe manufacturers including Airbus, UTAS, GE, Pratt & Whitney, Eaton, Parker, Safran and



FIA16 commercial airframe and military presence.
Photo: Keith Mwanalushi

BAE Systems among the over 2,000 customers it supports, which also include MRO providers and systems suppliers.

Pattonair takes responsibility for managing the supply chain complexity and costs on behalf of its customers and tailors each solution to meet its customer's requirements. It has extensive relationships with several manufacturers globally, which gives Pattonair access to a wide range of products while its quality standards and approval system allows for faster, more efficient and cost effective aerospace product distribution according to the company.

In other show news Ankara-based aviation company TRJet announced the company's most recent orders for the comprehensively modernised 328 Series aircraft. Signing a Letter of Intent at Farnborough, the Istanbul Chamber of Commerce (ITO) committed to the purchase of 10 TRJ328 aircraft and Sentinel Aerospace Group of Singapore has confirmed five TRP328 turboprop aircraft for special mission use.

"We needed a proven aircraft we could trust for delicate and complex tasks such as rescue and military missions," said Sentinel Executive Stan Nonnis. "The TRP328 was the clear choice because of its unique short take-off and landing capability, and its ability to handle the most demanding environments."



Rockwell Collins' dual Head-Up Guidance System is an option on the E-Jet E2.
Photo: Keith Mwanalushi

Embraer brought along its new E2 jetliner on static display. Rockwell Collins' dual Head-Up Guidance System (HGS) was announced as an option on the upcoming Embraer E-Jet E2 aircraft line. "Embraer's selection of Rockwell Collins to provide dual HGS on the E2 is a testament to the operational and safety benefits that HGS brings to the industry," said Gregg Walt, Senior Director, Head-up Guidance Systems for Rockwell Collins. "We are confident that aircraft manufacturers and operators alike will continue to embrace dual HGS benefits as time progresses."

The HGS displays critical flight information in the pilot's forward field of view, which keeps their attention focused on the outside world, enhancing overall situational awareness and safety.

Engine OEMs were also among the big winners at FIA16. Wizz Air selected Pratt & Whitney's PurePower Geared Turbofan (GTF) engines to power its order of 110 firm Airbus A320neo family aircraft with purchase rights for up to 90 more. P&W also signed a deal for PW1100G-JM and V2500 engines to power up to 32 A320 family aircraft with an undisclosed leasing company.

"The lessor community is very important to us and we take pride in offering engines that have a history of dependability and provide the right solution to the industry," said Rick Deurloo, SVP Commercial Engines, Sales, Marketing and Customer Service, Pratt & Whitney.

Speaking at the close of the week, Farnborough International Chief Executive, Shaun Ormrod said, "The extreme weather bought us some additional challenges this week, but it doesn't seem to have stopped our exhibitors and visitors doing business. The halls have been busy all week, which is really encouraging for the supply chain industry. With these orders adding to the already large backlog, it looks like the aerospace industry is going to be busy for some years to come."

Commercial Director, Amanda Stainer further added, "It's been a really successful show for our exhibitors. Our marketing suite has been busy and we have already taken a considerable amount of re-bookings for the 2018 show. The Meet-the-Buyer programme has gone well with over 1700 meetings taking place as has the military delegations and civil and commercial delegations programme which as needs representation from over 60 countries."

Smart thinking with smart software

Ramco Systems is part of the US\$ 1 billion diversified conglomerate, the Ramco Group of companies. It started as an R&D division of Ramco Industries Limited in 1992. Ramco Systems was later established as an independent company in 1999. The company has 21 offices spread across India, USA, Canada, Europe, Australia, Middle East, South Africa and APAC. The company focuses on providing innovative business solutions that can be delivered quickly and cost-effectively in complex scenarios.

Ramco Aviation offers maintenance software solutions catering to the needs of airlines, heli-operators, MROs and charter operations to automate maintenance, engineering, supply chain functions. Ramco Aviation solution is comprehensive in its scope to cover the entire spectrum of organisational needs including finance, HCM and manufacturing functions all in one integrated platform. The Ramco Aviation Series 5 Suite is the most comprehensive enterprise-wide M&E/MRO software available in the aviation industry, as it has been built specifically to address the business and regulatory requirements of the industry. Leveraging the suite's vast array of applications, you can automate operations, end-to-end, reduce overhead costs, manage inventory more effectively, increase aircraft availability, reduce AOG (aircraft on ground), and control operations on a business-for-profit basis. Ramco's Series 5 provides a positive impact on reducing Turn Around Time (TAT) while increasing operational performance and compliance through the full integration of engineering, supply chain, maintenance planning and execution, and compliance modules in elegant user-friendly interfaces.



Ramco provides solutions for airlines like Republic.
Photo: Bombardier

Powering 4000-plus aircraft and 17,000 end users globally, Ramco is the solution of choice for Emirates, Malaysia Airlines, Republic Airways, Cobham, Columbia Helicopters and over 70 other companies. Being in a dynamic industry, Ramco has always managed to stay a step ahead by constantly innovating in the maintenance IT space with one basic objective - enable clients to focus more time on business critical activities, while having our solution perform the rest for you.

Ramco Aviation Highlights:

- Ramco is the only software solution provider that can offer integrated end-to-end M&E/MRO & ERP offering in the global aviation arena which can be deployed on cloud and on premise

- Ramco's 'One role One screen' HUBS feature that helps to cut down user navigations and improves usability by providing multiple key functions in one go through a single screen
- Ramco's smarter aviation solution is now available on next gen wearable devices – smart watches and holo lens – in addition to being on tablets and phones. This will drive significant productivity gains in maintenance function
- Ramco 'Anywhere Apps' help MRO supervisors, mechanics, pilots, storekeepers and customers to seamlessly execute critical operations on the go anywhere, anytime, using iPhone, iPad
- Fast tracking MRO operations through Ramco's automated process - Straight Through Processing (STP). This key concept automates 80% of the work so that one can focus on the critical 20% only.
- An Advanced Planning and Optimisation solution (APO) that enables to optimise maintenance, hangar maintenance, manpower planning, inventory planning & optimisation, and many more in minutes than in hours
- Ramco's new implementation technology plus cloud drives customers to go live in under 40 days

Latest developments:

The MRO Lab-An engineering lab - the first of its kind in Asia - to develop advanced aviation IT solutions such as wearables for ground engineers and drones to inspect aircraft on the tarmac has been opened in Singapore by Ramco Systems with Air France Industries KLM Engineering & Maintenance (AFI KLM E&M) as the first anchor partner. Supported by the Singapore Economic Development Board (EDB), the MRO Lab combines engineering and research talent from Ramco, a global aviation software specialist, with AFI KLM E&M as Ramco's first co-innovator partner for the MRO Lab. Launched at the Singapore Airshow, the lab is working on next-generation applications and develop intellectual property (IP) to solve major problems facing the MRO industry.



Ramco's smarter solutions are available on similar wearable devices.
Photo: SITA

In the hot seat.....

Tom Levin, General Manager, GENx engine programme, GE Aviation.

AviTrader MRO: What attracted you to this business?

Levin: I've been in the aerospace business for more than 20 years, joining GE Aviation right after graduating with a bachelor in aerospace engineering. I've seen all sides of the business from designing components for engines, providing product support to customers, selling MRO and materials on the services side to now leading the GENx product line. Aerospace fascinated me with its advanced technologies, and it still gets me excited today.

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

Levin: My work day varies. When I'm in the office, I spend much of my time working with the GENx team and multiple functions across our business to ensure the product is performing to customer expectations and to facilitate the operational support and services our customers need to maximise the value of these assets for their customers and shareholders. When I'm not in the

office, I'm visiting customers. Close to 40 customers operate GENx engines around the world, and their experience and feedback help us to anticipate customer needs and opportunities further downstream in the product life cycle to ensure we are making the right product management decisions and investments. I also visit customers who are considering selection of the GENx engine to power their Boeing 787 or 747-8 aircraft to share the outstanding performance and reliability that the GENx engines are demonstrating in service. I truly love what I do.

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

Levin: Managing an engine programme entails keeping a lot of parts in motion—from sales to engine production to fleet support to MRO services to product investment. The GENx team is very driven to provide our customers with a great experience flying our engines across the total product life cycle.



Tom Levin, GM, GENx programme

AviTrader MRO: What is the core business activity at GE Aviation today?

Levin: GE Aviation garnered \$24 billion in revenues last year from jet, turboshaft and turboprop engine deliveries and services for commercial, military, business and general aviation. The company also provides component and integrated systems for aircraft. Our newest offering is digital and leverages data science, our domain expertise and software capabilities to be more connected, responsive and predictive and enhanced customers' productivity and minimise down time.

AviTrader MRO: GE Aviation has assembled well over 1,000th GENx engines, just a mere five years after the first production engine was built. How is the engine performing?

Levin: The GENx engine is flying very well in the field with more than eight million flight hours and more than one million cycles. Our customers love the fuel efficiency of the GENx, and its great overall reliability is translating into engine departure reliability rates above 99.95 percent on the 787, enabling our customers to achieve higher levels of aircraft utilisation and revenue generation.

AviTrader MRO: What are some of the efficiency gains that the GENx engine offers 787 operators?

Levin: Of the engines that power the Boe-



Product improvements on the -1B between now and 2018.
Photo: Boeing



Over 1,000 GEnx engines have been assembled.
Photo: GE Aviation

ing 787 Dreamliner, the GEnx-1B engine has set itself apart. Customers recognise the engine's advantages and have made it the engine of choice for the Boeing 787 with more than a 60 percent win rate. The GEnx-1B engine has a 2.3 percent fuel burn advantage for typical Boeing 787 stage lengths in the 3000 nautical mile range, and this advantage increases further for longer range missions. The GEnx-1B has the highest dispatch reliability on the 787, currently above 99.95 percent, and an engine removal rate that is more than 25% lower than the competition. We have product improvements that will be introduced between now and 2018 that will expand our time on-wing advantage even further. The GEnx also emits fewer NOx emissions -- as much as 55 percent below today's regulatory limit, and other regulated gases are as much as 90 percent below today's limit.

AviTrader MRO: Engine maintenance is a key issue (and cost) for airlines. What solutions do you have in place to help operators reduce engine maintenance costs?

Levin: Sales Before taking on the GEnx product line general manager position, I worked as the general manager for GEnx sales and services and also led our ma-

terials services organisation. In these prior roles, I had the opportunity to learn firsthand from customers what they need and expect when it comes to engine maintenance... bottom line, customers want flexible, competitive options. GE has recognised this for many years, and this was the key principle behind our OnPoint services solutions.

To bolster this further, GE recently launched the TrueChoice suite of engine maintenance offerings that emphasise the breadth and depth of our service capabilities and customise offerings across an engine's life-cycle. The suite includes various customer choices, such as the traditional flight hour options, time and material overhauls, material agreements and a unique customised option for operators with shorter ownership horizons.

Each of the TrueChoice offerings is underpinned by GE Aviation's emerging capability and experience with using data and analytics to optimise engine performance, reduce maintenance burden and maximise asset utilisation for our customers. Customer response to the TrueChoice suite is very positive, and we are excited to work with them to tailor solutions that will meet their needs.

Today, about 50 percent of the GEnx fleet is covered under TrueChoice flight hour agreements, while the other 50 percent of customers have selected time and material overhauls or material solutions. We have also established a global network of independent GEnx MRO services providers that compete for GEnx services, motivating continuous improvement, repair development, work scope optimisation and a competitive landscape that ultimately results in more flexible options and lower maintenance cost for our GEnx customers.

AviTrader MRO: Some airlines argue that with the current cheaper oil prices, the cost savings from new generation engines is negligible. What is your opinion?

Levin: One thing everyone knows about oil prices is that they fluctuate. While prices are low today, who knows where they'll be five years from now, or even next year. The new generation of more fuel efficient engines like the GEnx are ready and will help operators when the oil prices rise once again.

AviTrader MRO: In terms of innovation and enhancements what's next in the pipeline for the GEnx family?

Levin: GE and its joint venture companies have developed many new technologies for the LEAP, GE9X and Passport engines. My team is joined at the hip with these other engine programmes, keeping a close watch on these technologies to see where we can introduce future enhancements to the GEnx engine. One example is lightweight, heat-resistant ceramic matrix composite (CMC) components. GE is conducting its second round of testing on a GEnx demonstrator engine that contained several CMC components in the combustor and HPT modules, along with next-generation high pressure turbine blades with advance cooling technology as part of the maturation programme for the GE9X engine. The results from the initial round of nearly 3,000 cycles of testing last year were very positive, and we are performing a second run on this GEnx demonstrator engine as we speak. As we look to the future, we are committed and well positioned to making sure that the GEnx retains its leadership position on the 787 and continues its exceptional performance.



UK aviation and Brexit: Pragmatism Vs politics

UK MROs will face increased competition from emerging aerospace economies.
Photo: BA Engineering

Analysis by Edmond Rose, VP, Airline Advisory, and David Stewart, Head of Aerospace and MRO, ICF International

Aviation, or more specifically commercial air transport, has been an early casualty from the UK's vote to leave the European Union. And no wonder. Air travel is highly influenced by economic headwinds, currency fluctuations and an uncertain climate for business. The Brexit vote brings the prospect of the full trifecta while the reaction has also increased dollar-denominated costs for UK airlines. Stock markets reacted strongly, in the immediate term wiping huge amounts of value not just from UK airlines but from European carriers like Ryanair and Lufthansa too.

One of the greatest uncertainties now facing the airline and aviation community and its investors is regulatory. The UK is not only a major part of Europe's aviation - 28% of seats flying within the EU operate to, from or within the UK - it's also interlocked in Europe's aviation agreements. The two most crucial are membership of the European Common Aviation Area (ECAA) and participation in the EU-US "Open Skies" agreement.

Pragmatically, there are plenty of interests at play both in the UK and in the rest of the ECAA which should want the UK to stay within the Common Aviation Area. Irish, Hungarian and Norwegian carriers have significant operations between the UK and the rest of the ECAA which potentially become disallowed if the UK isn't inside the club. Airline consolidation, still proceeding more slowly in Europe than in the United States, would be hindered by having the UK on the outside. After all, one of Europe's largest existing consolidations, IAG, is anchored by British Airways.

There are also strong interests in keeping the UK within the EU-US aviation agreement. If the UK isn't part of that agreement, it could cause regulatory headaches for the transatlantic joint ventures which include the largest network carriers on both sides of the ocean. It would also disrupt the rights of EU carriers to fly between the UK and the US and UK carriers to fly between EU points and the US, even if they are only sparingly used.

So, there's a good chance that the UK will in time maintain its positions in the Common Aviation Area and within the EU-US agreement, alongside Norway and Iceland. However, politics and trade-offs among multiple industrial strategies will also play a part in what actually happens. Aviation is just one of many areas that the UK has to negotiate with the EU on.

There are also other negotiating ambitions at play. Within aviation, there are questions such as the European Commission's interest in removing ownership and control rules between the EU and the US, while many in the US are calling to restrict access to carriers on grounds of their labour arrangements or alleged unfair competition. These could all complicate and prolong negotiations and definitely add to regulatory risk.

The pragmatic outcome is therefore not a foregone conclusion. Airlines which are exposed to potential risk from changes in the UK's regulatory position in European aviation would do well to look for new ways to serve their markets. That is likely to mean setting up new entities in EU countries (for UK carriers) or in the UK (for carriers from outside the UK).



easyJet has now started a formal process to acquire an AOC in an EU country.
Photo: easyjet

It's no surprise that easyJet is planning just that, making the most of the opportunity to look for the most favourable country to use as a base.

And meanwhile, the airline sector will suffer from continuing uncertainty all round. Nimble adjustment of capacity and cost will be watchwords for some time until the outlook is clearer.

Aerospace and MRO

Meantime, what appears to be the post-Brexit outlook for aerospace and MRO? First, it is important to note that this sector is truly global and highly interconnected. Therefore, short-term uncertainty about the UK and its relations with the EU is hardly about to catalyse a downturn in the whole sector.

The simple observation to make, on the positive side, is that suddenly, those aerospace and MROs with substantive UK-based footprints have, at least in the short-term, become more cost competitive (witness the behaviour of Rolls-Royce's share price post-Brexit). The UK is among the top three aerospace and defence industries globally. It would not be in this position without being highly competitive, from a variety of perspectives such as technology, productivity and skills base. You don't lose such differentiated capabilities overnight.

The simple negative observation to make is that, given the uncertainty in the short term, aerospace and MRO firms looking to make investments in the EU will consider this uncertainty as an undesirable risk, making the UK less attractive. At the very least, some inward-investment decisions will be delayed. However, it is very unlikely that firms such as Airbus or SAFRAN will start looking to de-camp their existing UK facilities to continental Europe any time soon.

A second concern for the UK aerospace sector would be the potential impact of loss of R&D funding. The UK, in the form of both manufacturers and research institutions, is an active member of many EU framework funded research programmes. An expectation that future EU-based funding awards will be directed more towards continental Europe may result in the migration of key project work or experts/academics away from UK. Thus, one aim of UK negotiations with the EU should

be to secure access to research projects and funding, to the benefit of both the EU and UK.

Another (potentially) negative observation is that there are various gentle headwinds facing the commercial aerospace sector that may impact the current cycle. For example, continuing relatively low fuel prices impacts the need for newer aircraft, with the possibility of deferrals and cancellations that will weaken the (admittedly very strong) backlog and order outlook. A second example headwind is the change in US\$ exchange rates in certain developing economies (e.g., Indonesia) that has significantly increased the cost of purchasing aircraft for carriers in those countries. And such developing economies are in some cases key drivers of the afore-mentioned backlog. A third example headwind would be a generally anticipated rise in interest rates globally (although the UK will likely stay low).

Uncertainty in the EU and its economic health is yet another potential headwind, and the key question is: "how many gentle headwinds does it take for the total headwind to be a gale?" The critical industry measure to watch in the coming 18-24 months will be order deferral or cancellation activity, to see if these headwinds begin to bite or not.

This however is a global commercial aerospace cycle risk and less about the UK. And frankly, it would take more of a "storm" to impact materially what is an incredibly impressive backlog, and to reset what is a well-established positive outlook for global, GDP-driven traffic (and therefore commercial aerospace) growth.

However, for the UK's vibrant, leading aerospace and MRO sector, a future outside the EU means it cannot afford to rest on its laurels. UK firms will have to continue to work hard and invest in research, productivity and technology, as it faces increased competition from emerging aerospace-focused economies such as Mexico, Morocco and India. It's also imperative that the new UK government ensures that the UK remains "open for business" and moves such as reduced corporation tax are implemented.



Adil Slimani

BA (International Bureau of Aviation) announced the appointment of new Commercial Director **Adil Slimani**. Adil joins the team this month, where his role will be to develop the airline's customer base and revenue streams, utilizing his deep knowledge of operational support requirements on a global basis, and supporting the Company's current growth strategy.

GA-Finance, the Amsterdam-based regional aircraft leasing company, is changing its name to TrueNoord Regional Aircraft Leasing. Established by founder and CEO **Anne-Bart Tieleman** in 2002, and joined by COO **Joost Schlatmann** in 2007, the business specializes in leasing solutions for the regional aircraft market from its base in Amsterdam. The change of name to TrueNoord coincides with the conclusion of a capital increase program resulting in an investment from the private equity firm Bregal Freshstream. In addition to a change of name and attracting further capital, TrueNoord has also expanded its management team: **Angus von Schoenberg** joins as Chief Investment Officer for the business, **Stephen Couttie** joins as Chief Financial Officer, and **Garry Topp** joins as Chief Commercial Officer. Furthermore, TrueNoord has introduced **Nigel Turner** as non-executive Chairman to the business.

Safety Line, an innovative service provider applying Big Data solutions to air transport, has reported that **François Chazelle**, an experienced Sales Executive and aviation expert, is joining its growing team from mid-August. François will be joining from Aviation Finance Company (AFC), where he was Managing Di-

rector Sales, in charge of originating private placement aircraft financing opportunities with airlines and lessors worldwide.

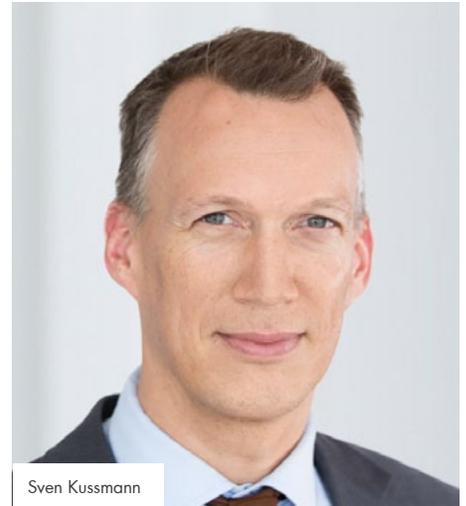
AAR CORP, a leading aviation aftermarket solutions company that serves commercial and government customers worldwide, reported that **Timothy J. Romenesko** has been appointed to serve as the Company's Vice Chairman and Chief Financial Officer, effective August 1, 2016. Romenesko will replace **Michael J. Sharp**, who is retiring from AAR after 20 years with the Company. Romenesko, is a 35-year veteran of the company and currently serves as its Vice Chairman and Chief Operating Officer, Expeditionary Services.



Daver Lau

Sabre Corporation has named **Daver Lau** Regional Director for Sabre Travel Network North Asia. Reporting to newly appointed Sabre Travel Network Asia Pacific Vice President of Sales and Market Development, Todd Arthur, Daver will lead the Sabre Travel Network business in North Asia. This includes China, Hong Kong, Korea and Taiwan. Based out of Taiwan, he will be responsible for business expansion and relationship development in the North Asia region, as well as driving local product and support initiatives for customers in these strategic markets.

SR Technics has appointed **Sven Kussmann** as Chief Financial Officer, effective as of May



Sven Kussmann

17, 2016. He will report directly to the CEO and become part of the SR Technics leadership team. Mr. Kussmann will succeed **Christina Johansson**, who is leaving the company in June 2016. Mr. Kussmann is an experienced corporate finance professional who joins SR Technics from Mubadala Development Company, where he was part of its Corporate Finance Team being responsible for the companies' M&A activities for various sectors as well as the group-wide portfolio activities.

Small Planet Airlines has appointed **Kristijonas Kaikaris** as company CEO. Prior to joining Small Planet Airlines Mr. Kaikaris built an extensive career as EPC Lead of Microsoft Kazakhstan, General Manager of Microsoft Lithuania, Country Manager of Oracle in Lithuania, President of Infobalt Association and Sales Director at IBM. Kristijonas Kaikaris will be replacing **Vytautas Kaikaris**, who is going to lead the Small Planet Group.

Aviation Mart, the online marketplace for aircraft spare parts, has appointed **Gerald Timmermans** as Sales Director for the Asia-PAC region. Launched in June at the Global Procurement Expo in London, Aviation Mart is committed to accelerating the pace of innovation within the aviation sector and pioneering accessible e-commerce for the trading of aircraft spare parts. Its objective is to make the sales of parts easier and faster. Timmermans is based in Sydney, Australia, and has over 25 years' experience within the aviation sector working with Fokker, Rockwell Collins and, most recently, Thomas Global Systems.