MRO BUSINESS TODAY

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Safran opens second assembly line at Grand Prairie, Texas for Arriel 2E engines

Assembling this variant reflects their commitment to invest and grow their presence in US.

Safran Helicopter Engines opened a second assembly line at their facility in Grand Prairie, Texas for the Arriel 2E engine. The first assembled and tested Arriel 2E engines have been delivered to Airbus. These engines power the UH-72B delivered to the US Army as part of the newest Lakota helicopter. Also installed in the H145, the Arriel 2E was until now produced in France.

Thierry Derrien, President and CEO of Safran Helicopter Engines USA said, "Assembling this variant in Texas reflects our commitment to the helicopter industry to invest and grow our US presence, bringing us closer to our customers and allows us to provide increased capability and proximity support."

Safran Helicopter Engines assembles, tests and supports several Arriel variants at the Grand Prairie, Texas facility, including the 2D for the Airbus H125 and the 1E2 for the UH-72A Lakota. The Arriel has a solid footprint in the US, with more than 3,000 engines in service. The US Army is a major operator with over 900 engines in its Lakota fleet. The US Coast Guard fleet of Airbus MH-65 Dolphins are also powered by the Arriel engine.

With power outputs ranging from 650 to over 1,000 shp, the Arriel family powers over 40 different rotorcraft. Certified in December 2012 and in service since August 2014, the Arriel 2E is one of the latest variants. It offers 20 per cent more power than the current Arriel 1E2 in the EC145. The Arriel is the best-selling helicopter engine in its class, with over 12,000 engines produced and 50 million flight hours. An Arriel-powered helicopter takes off every 15 seconds, every day.

MTU Maintenance aims to become numero uno on-site and wing engine service provider in Europe

To achieve this goal, they have opened a dedicated on-site service facility in Berlin Brandenburg.

MTU Maintenance has recently opened a dedicated on-site service facility in Berlin Brandenburg. With this they cim to become the number one on-site and near wing engine service provider in Europe. Opening next month, this new facility will house quick-turn engine bays and be a base for a dedicated on-site and AOG team for CF34-8/-10 and CFM56-7B. It will expand to service CFM56-5B and V2500 engines by next year. This new facility is in close proximity to MTU Maintenance Berlin-Brandenburg in Ludwigsfelde. By doing this they plan to carry our smaller workscopes in dedicated bays to reduce shop visit complexity and to ensure lean processes. The workscopes provided will range from small repairs up to hot section workscopes.

Michael Schreyögg, Chief Program Officer, MTU Aero Engines said, "We made the strategic decision to increase our presence and support in Europe to capture demand post COVID-19. On-site support as a way of prolonging time on-wing and keeping airlines flying has been key to airlines throughout the pandemic. We expect this trend to continue in years to come and are ensuring we are available to customers around the clock – providing the technical expertise and high quality they have come to expect from MTU."

This on-site service center location was strategically chosen to benefit from the extensive experience and synergies within the MTU Maintenance network.

André Sinanian, Managing Director and Senior Vice President, MTU Maintenance Berlin-Brandenburg said, "At MTU Maintenance Berlin-Brandenburg, we carry out hundreds of on-site and field service events for CF34 and Pratt & Whitney Canada engines as well as for LM series aeroderivative industrial gas turbines each year. Our technical expertise is second to none and we look forward to expanding our capabilities with this new site."

With on-site and AOG teams based in the Americas, Europe and Asia, and over 120 authority approvals, MTU's engine experts provide a wide range of on-site, near-wing and quick turn engine services for the largest engine portfolio worldwide. Workscopes range from borescope inspections all the way up to module swaps, and, should an upgrade become necessary, MTU can take care of all and any additional engine needs within its MRO network of shops. Through its leasing arm, MTU Maintenance Lease Services B.V. in Amsterdam, MTU can provide spare engines and extensive material solutions as required.

Spirit Airlines pairs young, fuel efficient A320neos with Pratt's latest technology GTF engines

Spirit previously selected GTF engines to power 55 owned and 13 leased A320neo family aircraft, of which 43 have been delivered.

Spirit Airlines has selected Pratt & Whitney GTF engine to power its latest order of 100 firm and 50 optional Airbus A320neo aircraft. The deliveries of these aircraft are expected to begin in 2023. The airline's fleet will also be covered by a new EngineWise Comprehensive long-term maintenance agreement. With this selection, Pratt & Whitney has announced more than 1,200 GTF engine orders and commitments since the beginning of 2021.

Spirit Airlines' Chief Financial Officer Scott Haralson said, "Spirit operates one of the youngest and most fuel-efficient fleets in the industry, and this order for the latest GTF engines, combined with our existing pipeline of brand-new aircraft, will ensure we continue leading the way. Pairing new planes with the latest engine technology from our long-term business partner Pratt & Whitney

allows us to accomplish our mission of delivering the best value in the sky."

Rick Deurloo, chief commercial officer at Pratt & Whitney said, "We are honoured to extend our long-standing relationship with Spirit. We appreciate Spirit's continued confidence in us – and in the unmatched economic and environmental performance that our GTF engines are delivering."

As the first A320neo operator in the United States and Canada, Spirit previously selected GTF engines to power 55 owned and 13 leased A320neo family aircraft, of which 43 have been delivered. The airline also operates a fleet of 125 A320ceo family aircraft with V2500 engines. Spirit has relied on engines from Pratt & Whitney to power its entire fleet since the airline started operations in the 1980s, when it operated DC-9 and MD-80 family aircraft with JT8D engines.

Since entering service in early 2016, the GTF engine has demonstrated its promised ability to reduce fuel burn and carbon emissions by 16 percent on A320neo family aircraft, to reduce nitrogen oxide emissions by 50 percent compared to the regulatory standard, and to reduce the noise footprint by 75 percent. With the GTF engine's long runway for future growth, Pratt & Whitney is just getting started.

ITP Aero applies additive technology to Rolls Royce UltraFan engine to achieve sustainable aviation

TheTBH is one of the main structures of the engine, and is one of the two elements that attach the aircraft and the engine.

Over the coming weeks, the TBH will be assembled to the UltraFan intermediate pressure turbine, also designed and manufactured by ITP Aero, for final assembly on the complete engine at Rolls-Royce's Derby facilities.

ITP Aero has designed and manufactured the Tail Bearing Housing for the first Rolls Royce UltraFan demonstrator engine using additive technology. TheTBH is one of the main structures of the engine, and is one of the two elements that attach the aircraft and the engine. ITP Aero's own design and manufacturing criteria have enabled a better use of energy and raw materials with a 25per percent saving in its manufacture compared to current generation production processes.

The TBH is a key structural component designed to withstand loads for all operational conditions. It houses part of the bearings that support the shaft for the fan, the main propulsion element of the engine.

The UltraFan TBH comprises the use of removable sound attenuation panels also manufactured by 3D printing, achieving a reduction of 50 per cent of the sound power emitted by the turbine. Noise reduction will be a key driver for future technologies to achieve the ACARE target of perceived noise reduction of circa 65 per cent by 2050.

Additive technology, also known as 3D printing, used to manufacture the TBH is the selective laser melting method. First, the 3D model of the component is digitally divided into individual layers, and then a laser melts the super-alloy powder into the component layer by layer. This method makes it possible to produce components of complex geometry with a minimum use of raw material and better use of energy.

Erlantz Cristobal, Executive Director of Technology and Engineering at ITP Aero said, "Our commitment to additive manufacturing technology, or 3D printing, is part of our focus on digitalisation in order to make ITP Aero a more agile, resilient and sustainable leader. We are proud to apply this technology to a programme such as UltraFan, that we strongly believe will be a key pillar to make aviation an increasingly sustainable industry in the next decades".

ITP Aero has an additive manufacturing cell and a team of professionals dedicated exclusively to this production method at its facilities in Zamudio, Spain. In addition, ITP also collaborates with Renishaw Solution Centre in Barcelona. It is also worth noting that the company, thanks to its investment in collaborative technology development projects, is able to apply its own standards and specifications for the application of this technology in aircraft engine components.

Over the coming weeks, the TBH will be assembled to the UltraFan intermediate pressure turbine, also designed and manufactured by ITP Aero, for final assembly on the complete engine at Rolls-Royce's Derby facilities. Once complete, the engine will go on test at the new engine test facility, Testbed80, in Derby in 2022. The first run will be on 100 percent Sustainable Aviation Fuel. UltraFan is due to be available to the market around the turn of the decade, but this is dependent on airframer requirements for a new airframe.

AFI KLM E&M to carry out engine overhaul for Bamboo airways Boeing 787 fleet for GEnx engines

A Bamboo Airways Boeing 787 has already undergone a C-Check at AFI KLM E&M's Amsterdam base.

Bamboo Airways has entrusted AFI KLM E&M with a support program for its GEnx engine along with the first C-Check on its Dreamliner fleet starting this month. A Bamboo Airways Boeing 787 has already undergone a C-Check at AFI KLM E&M's Amsterdam base, followed by the removal of a first GEnx engine. Their main objective is to capitalize on these scheduled maintenance visits to optimize logistics and TATs during engine shop visits.

Ton Dortmans, EVP KLM Engineering & Maintenance said, "We are pleased to continue to build on our trust-based relationship with Bamboo Airways. Over the past months we have worked closely together to address the crisis and implement all necessary adapted solutions. Today, we are more than ever committed to helping Bamboo Airways prepare for the restart of international traffic in the best possible conditions, and to support its strong growth ambitions in terms of fleet expansion and the opening of new routes, especially to Europe".

This contract is a new mark of confidence in AFI KLM E&M from Bamboo Airways. They first signed their contract in 2018 since the founding of Bamboo Airways. At the end of 2020, Bamboo Airways joined the 787 Operators Community led by AFI KLM E&M and has since benefited from full components support for its fleet, including repairs, logistics, the provision of an advanced stock at its Hanoi base and access to spare parts pools located around the world.

Nguyen Minh Khoa, Director of Leasing and Procurement at Bamboo Airways said, "As airline-MRO, the AFI KLM E&M teams in Amsterdam have been very responsive and attentive to our needs, both technically and in terms of preparing to welcome our teams and aircraft. The expertise of an MRO with a thorough knowledge of the 787 fleets is of great significance for Bamboo Airways to enhance the operational efficiency and superb services of outstanding quality, contributing to the commercial success of our expansive flight network from Vietnam to the most demanding aviation markets in the world."

These new contracts also confirm AFI KLM E&M's position as a benchmark MRO in the Southeast Asian market, notably as a partner of the region's main 787 operators. The reliable and fruitful ties between AFI KLM E&M and Bamboo Airways will be an important milestone for the airline to expand its presence in the transcontinental flight network, connecting Vietnam with the medium and long-range markets.

GA Telesis continues to be Honeywell's channel customer till 2028

GA Telesis can deliver components using genuine OEM material at PMA equivalent cost.

GA Telesis MRO Service Group has extended its current agreement with Honeywell till 2028. This extension has also added a new portfolio of part numbers to its existing contract.

The initial agreement was entered into December 2017 and was set to expire at the end of 2022. This new contract recognizes GA Telesis as one of Honeywell's channel customers. Through this agreement, GA Telesis can deliver components using genuine OEM material at PMA equivalent cost. Further, the new part numbers added to the agreement will benefit the Company's customers who operate newer fleets. In addition, the part numbers cover a greater range of new aircraft types.

Pastor Lopez, President, MRO Services Group said, "This extension and expansion of the MRO portfolio is a testament of the value GA Telesis has delivered to Honeywell and our customers. We are constantly striving to find ways to increase the value content we deliver with each unit via our OEM alignment strategy."

The MRO Services Group focuses on performance by deploying lean operations and eliminating waste from daily activities that lead to direct cost savings for our customers. The "OEM Parts Only Philosophy" and the Company's multiple OEM material service agreements provide a great benefit to GA Telesis' customers and its OEM partners. The Company plans to continue its OEM alignment strategy with other OEMs that will allow it to provide OEM-approved repairs while using genuine OEM-approved materials at competitive rates.

GA Telesis can deliver OEM quality material at the most competitive prices to its customers while enhancing the OEM market channels. In 2019, GA Telesis was recognized as Honeywell's Americas Region Channel Partner of the Year.

Embraer Executive Jet certified as Collins Aerospace Upholstery Completion Centre

The updates are available for the Legacy 450, Legacy 500, Praetor 500, and Praetor 600 executive jets.

Embraer Executive Jet Service Centre in Fort Lauderdale, Florida, has been certified as a Collins Aerospace Completion Centre for in-service aircraft upholstery and cushion. The updates are available for the Legacy 450, Legacy 500, Praetor 500, and Praetor 600 executive jets. Using soft good materials and coverings, the certification enables Embraer to offer new upholstery designs, which will be provided by Embraer's Executive Jet Interior Design Team. It will also allow foam reshaping and the creation of new bolster designs with options that Embraer customers haven't previously had in the aftermarket.

Frank Stevens, Vice President, Global MRO Centres, Embraer Services & Support said, "We are very excited to announce the certification as a Collins Aerospace Upholstery Completion Centre. Collins' trust in Embraer enhances our capabilities for seat design, modification and repair. This is a milestone achievement that allows us to better serve our customers, providing seat modification capabilities and repair for executive aircraft seating. The Embraer team is proud and honoured to be recognized for this hard work."

This approval is specific to cabin seats, including in-service seats and new seats installed on in-service aircraft, which gives Embraer the ability to design entirely new upholstery looks within the original type certificate limits.

Ian Webb, Vice President of Sales, Executive Seating for Collins Aerospace said, "We are pleased to have certified Embraer Fort Lauderdale as an upholstery completion centre for the Legacy and Praetor aircraft product lines. The upholstery certification will allow Embraer the flexibility and agility to support their growing customer base."

Embraer is always improving its products with the main goal of providing innovative solutions to increase passenger safety and provide a premium flight experience. Its current portfolio consists of the Phenom 100EV, which offers the business aviation experience in its purest form; the Phenom 300E, the best-selling light jet for nine years in a row; and the Praetor 500 and Praetor 600, which with best-in-class flight range, are the most disruptive and technologically advanced midsize and super-midsize business jets, capable of continent-crossing and ocean-spanning missions, respectively.

Dassault Aviation's robust expansion plans carries Falcon to all corners of the world

Dassault acquired TAG Maintenance Services, ExecuJet MRO Services and RUAG's MRO operations in Switzerland to build up their factory service capacity.

Dassault Aviation is leveraging its recently acquired MRO capabilities in Kuala Lumpur and Dubai along with several new line service bases in Europe. They can now offer major inspections at a range of new locations, dispatch GoTeams to more remote places, and share expertise across its global network. This ensures a single uniformly high level of factory service wherever Falcons fly.

Commenting on the recent acquisitions, Dassault Aviation Chairman and CEO Eric Trappier said, "In 2019, we acquired TAG Maintenance Services (TMS), ExecuJet MRO Services and RUAG's MRO operations in Switzerland to build up our factory service capacity, and are now investing heavily in these premier service networks to foster sustained organic growth. Two examples of this strategy are our new ExecuJet MRO facilities in Kuala Lumpur and Dubai, which replace smaller preexisting operations and are poised to become regional service hubs for our growing fleets in Asia and the Middle East. These strategic moves will elevate the quality and consistency of Falcon service around the globe."

ExecuJet MRO locations in the Middle East, Asia and Australia have brought Falcon factory service to parts of the globe where Dassault previously had a relatively small footprint. And thanks to the addition of experienced Dassault MRO expertise, ExecuJet MRO is now able to offer major inspections at these facilities as well. In recent months, ExecuJet MRO Services has completed six-year C checks for Falcon 2000 and Falcon 900 aircraft in Kuala Lumpur, Dubai, Perth and Sydney, allowing operators in these areas to turn to maintenance resources nearby, instead of having to fly to Europe or North America for heavy maintenance and modifications.

The new maintenance facility in Kuala Lumpur measures 130,000 square feet and was designed to accommodate Dassault's latest models–the long-range Falcon 6X and the ultra-long-range Falcon 10X with its 109-foot length and 28-foot height. ExecuJet MRO expects to transition operations there in the second half of 2023. The 163,000 square-foot Dubai facility opens in 2022.

In the US Dassault has its Reno facility with an additional aircraft work bay, as well as extra customer and employee workspace.

TAG Maintenance Services has opened new line stations in Basel, Switzerland and Moscow, expanded line service at Luton in the UK and moved into new facilities at Paris Le Bourget. TMS is also expanding its interior shop in Geneva. In total, the company now offers factory service at 40 locations and, including Authorized Service Centers, totals more than 60 Falcon service locations worldwide.

Dassault is also reinforcing its STC upgrade capability, available exclusively through the factory owned serviced network.

Boeing awards Triumph interiors long term contract for 777X interiors

Triumph Interiors will provide the thermal-acoustic primary insulation systems for the 737 MAX, 767 Freighter, and 777, as well as the KC-46 multi-role tanker and P-8 Poseidon defense platforms.

Triumph Interiors has been awarded a long-term contract with Boeing for manufacturing of the air distribution system composite ducting and composite cockpit assemblies on 777X. Apart from this, Triumph Interiors will provide the thermal-acoustic primary insulation systems for the 737 MAX, 767 Freighter, and 777, as well as the KC-46 multi-role tanker and P-8 Poseidon defense platforms.

Triumph Interiors has over a 30-year history of providing Boeing with exceptional products and services that has earned them consistent high supplier ratings. This award follows Triumph's multi-year restructuring of its Interiors business and reflects its commitment to secure long-term contracts in partnership with leading OEMs.

Dan Crowley, Chairman, President and CEO of Triumph Group said, "This contract award across both Boeing commercial and defense aircraft demonstrates our ability to consistently deliver superior products with the quality, reliability and value our customers demand. Our company's dedication to innovation and lean transformation enables us to provide superior value to Boeing on new and ramping platforms."

Ian Reason, President of Triumph Interiors said, "Securing this significant order will enable Triumph Interiors to advance strategic affordability and efficiency initiatives and provides a solid foundation against which we can pursue other new business opportunities."

Triumph Interiors is a market leader in integrated design and manufacturing of thermo-acoustic insulation, environmental control system ducting, reinforced thermoplastic, and other aircraft interior and composite components for major aerospace OEMs, with facilities located around the globe.

Emerging MRO markets

The COVID-19 pandemic aftermarket recovery was predicted to be sluggish for most MRO markets of the world. The reasons being obvious, uncertainty over resuming international travel, lacking passenger confidence in air travel due to pandemic spread, the struggle of maintenance of parked aircraft and the effort of bringing back the parked fleet to airworthy standards. These are just few of the reasons why forecasters predicted slow MRO recovery till last year. The global market is recovering largely as Boeing projected in 2020. Demand for domestic air travel is leading the recovery, with intra- regional markets expected to follow as health and travel restrictions ease, followed by long-haul travel's return to pre-pandemic levels by 2023 to 2024.

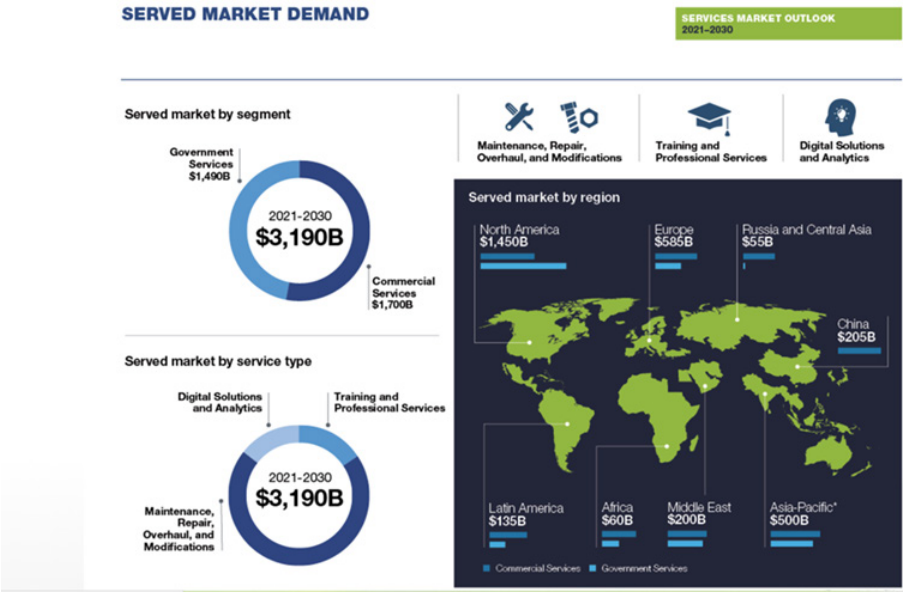
As per Boeing predictions, as health and regulatory dynamics will continue to shape the market dynamics, commercial airplanes and services are showing signs of recovery and resilience. Availability and distribution of COVID-19 vaccines will continue to be critical factors in recovery of passenger air travel. Countries with more widespread vaccination distribution have shown rapid air travel recovery, as governments ease domestic restrictions and open borders to international travel. The global commercial fleet will surpass 49,000 airplanes by 2040. China, Europe, North America and other Asia-Pacific countries each account for about 20 per cent of new airplane deliveries, with the remaining 20 per cent going to other emerging markets.

India – Upcoming MRO hub?

However now with the pandemic behind us the MRO recovery across the world has resumed a much faster pace than anticipated. As per statistica forecasts, aircraft MRO market in India is expected to show a growth rate of 9.5 percent in the decade from 2019 to 2028 followed by Middle East, with China sitting at the third spot. The reason being Indian government initiatives to make India an MRO hub to boost the country's current aviation sector so that the maintenance cost of the aircraft will come down, with a ripple effect on the prices of the airfare. France-based Safran Group is considering building an engine facility in Hyderabad, India. The facility would bolster India's aviation infrastructure, providing a platform for further growth in a key long-term market for big aircraft manufacturers like Airbus and Boeing. In 2019, Safran announced a USD 43 million plant to manufacture LEAP engine parts in Hyderabad. Cur-

rently they are finalizing an investment plan of 100 million euros for the airport at Jewar near Indian's capital, New Delhi.

India's rising middle class and healthy competition, has made it a robust target for airlines as millions take to the skies for the first time. Aviation grew at a rate of more than 10 per cent annually for a decade before Covid hit, according to the Indian government. The International Air Transport Association expects the country to become the third largest air-transport market in the world by 2026, catapulting from seventh in 2018.



China is not far behind...

Another major upcoming MRO hub is China due to automation, digitalization, smart manufacturing, and industrialization. The manufacturing sector in the country is at the forefront across the world due to significant investment by the government in the sector. By investing in Industry 4.0 China is all set to take the next leap in manufacturing. According to GSMA, China will account for one third, about 4.1 billion od the world's IoT connections by 2021. Such investments will automatically fuel the MRO market growth in the country.

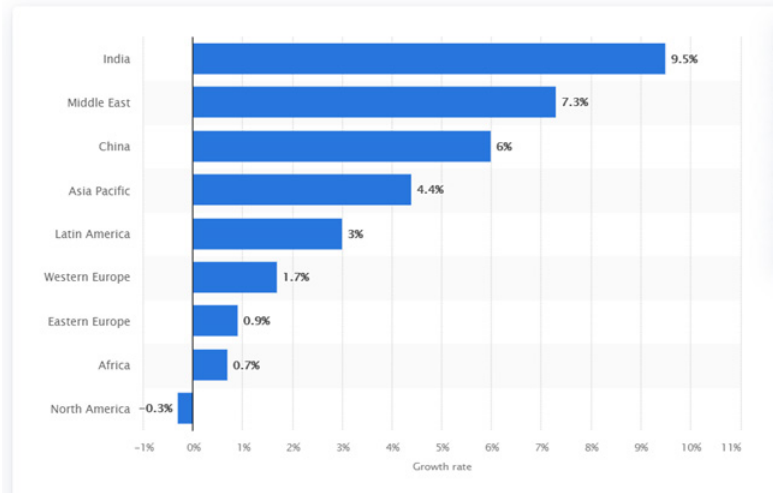
China is home to one of the largest GTF fleets, where 11 airlines will be operating more than 200 A320neo family aircraft by the end of 2021. Pratt & Whitney and MTU Maintenance recently inducted its first GTF engine for maintenance, repair and overhaul in China. The shop inducted a PW1100G-JM model engine, which powers the Airbus A320neo aircraft family. Joe Sylvestro, vice president, Aftermarket Global Operations at Pratt & Whitney said, "To have an active shop in China brings immediate benefit to our customers in the region. We are eager for the induction pace to build and for our other GTF MRO network members in China to begin maintenance operations as well. All of this helps to enhance our customers' operations." This is a clear indication of engine masters like Pratt & Whitney and MTU Maintenance see tremendous potential in Chinese MRO market.

Could Middle East over-rule everyone as the next MRO hub?

As per Boeing forecast airlines in Middle East are expected to require 3,000 new airplanes valued at USD 7000 billion and MRO services worth USD740 billion, as the middle east positions to capitalize on recovery of regional and international travel and cargo demand. Over the next couple of decades Boeing forecasts that Middle Eastern passenger traffic and commercial fleet to double.

Randy Heisey, Boeing managing director of Commercial Marketing for the Middle East said, "The Middle East region's role as a global connecting hub continues to be important for developing markets to and from Southeast Asia, China and Africa. The region has been a leader in restoring confident passenger travel through multi-faceted initiatives that aid international travel recovery."

MRO growth rates between 2019 and 2028, by country or region



Middle East fleet and MRO growth

- To accommodate increased passenger and cargo traffic, airlines are predicted to grow their fleets to 3,530 jets.
- The region will continue to see robust widebody demand, with 1,570 deliveries supporting a growing network of international routes.
- The current single-aisle fleet of 660 airplanes is forecast to nearly triple to 1,750 jets.
- Commercial services opportunities include fleet renewal, maintenance, repair and parts supply, and operations optimization.

As per Boeing's report the market for support and services is expected to be worth USD 3.2 trillion in the twenty years ranging from 2021 to 2030. Services markets include maintenance, re-

pair, overhaul, and modifications; training and professional services; and digital solutions and analytics. A majority of the MRO activities are driven by fleet utilization and cycles. In total, the MRO market is 70per cent of USD 3.2 trillion served market.

The global fleet has seen continual renewal over many decades. Today, operators are actively flying their most efficient and right-sized aircraft to fit adjustments made to their schedules and routes. Amid managing customer needs coming through the pandemic, service providers are investing in training, digital capabilities and infrastructure upgrades to support the changes brought about from the pandemic. Service providers are considering business models that match the current environment. As operators become more resourceful, parts pooling programs have increased in popularity. These types of arrangements can be less costly because operators don't have to maintain their own inventory of spares. Contract terms between service providers are becoming more flexible in order to minimize risk, and outsourcing and partnership activities as a result of right-sizing to a new operational size is giving their customers the flexibility to ride out the downturn without additional measures.

ANTAVIA expands in Paris CDG with 2500 square meter facility

ANTAVIA have designed the new shop to replicate their modern unit near Toulouse.

ANTAVIA recently opened a 2500 sq.m new facility at Paris CDG. This premises has been seamlessly brought on-stream as the ANTAVIA team of engineers transitioned from the smaller repair shop nearby, and all workspaces have been redesigned following LEAN/5S principles.

Ismaël Fadili, Sales & Marketing Director, ANTAVIA said, "Proximity to CDG is a huge benefit for aircraft operators/owners. The move has enabled ANTAVIA to integrate new equipment and further enhance our very short overhaul and tyre change TATs. Being part of the AMETEK MRO group means we can invest with confidence, and this not only benefits our European customers, but underpins the expanding support programmes that we deliver for the European operations of US/Canadian airframers."

ANTAVIA have designed the new shop to replicate their modern unit near Toulouse and the launch is a fitting accolade for the dedicated workforce as the organisation celebrates its 40,000th wheel and brake repair milestone.

Alan Harding, Divisional Vice President MRO Europe & Asia for AMETEK MRO said, "It is our policy to duplicate skills and expertise in our areas of niche expertise. We have developed a huge depth of experience in the wheels & brakes arena that ANTAVIA will replicate in Asia as we expand our footprint and increase our services in 2022. The atmosphere of positivity and collaboration that was felt by everyone participating in the event highlighted how important it is to work together to find new solutions from an efficiency, sustainability, and environmental perspective. Clearly there is a determination from airlines, operators, OEMs and MROs to build upon each other's strengths as we begin to responsibly manage the impact of COVID-19 on the global aviation sector." CAAC certified, and ideally located between the main commercial and bizjet hubs of Paris CDG and Paris LBG, ANTAVIA'S larger facility also holds its significant inventory of spare parts, including tyres valued at over USD1m.

Safran inaugurates brand new Electronic centre of excellence in France

This purpose build facility will be able to develop innovative solutions and meet rising demand for microchips and smarter embedded solutions and systems.

Safran is all set to open a 4,589 square meter brand new facility at their new Research & Development (R&D) center at the Rovaltain business park in Châteauneuf-sur-Isère, in the Auvergne-Rhône-Alpes region, southwest France. This facility will house Safran Electronics and Defence's R&D activities focussed on developing high-integration electronics technologies. More than 120 people are employed at the site, almost three-quarters of whom are engineers, along with 11 Experts. The teams have at their disposal more than 580 square meters of state-of-the-art clean rooms, while laboratories account for one-third of the facility's total surface area. These engineers and research teams are developing next-generation electrical actuation systems and electronics integration and assembly technologies for severe environments, all of which are considered strategic.

Martin Sion, CEO of Safran Electronics & Defense, said, "The inauguration of this new electronics centre of excellence marks a major step forward for Safran. Thanks to this purpose-built R&D facility, we will be able to develop innovative solutions and meet demand for microchips and increasingly smarter embedded solutions and systems, thus guaranteeing a high level of satisfaction for our aircraft manufacturer and defense customers."

With this new facility, Safran Electronics & Defense now has the resources required to prepare for the future in microelectronics, focusing on the main families of high-integration electronics: smart sensors, advanced chips and SiP (System-in-Package) solutions for more electric aircraft and space and defense markets.

Meet the 'Catalyst'

GE's first advanced turboprop engine to complete its maiden test flight in half a century

September 30, 2021 turned out to be a historic day for GE Aviation. There was tension, excitement, and anxiety in the air around Beechcraft Berlin Aviation hangar as the experimental Beechcraft King Air 350 got ready for its maiden test flight with GE Aviation's all new Catalyst engine adorned on its left wing. The Catalyst engine is all set to become the first engine designed from scratch and built in Europe within the GE product portfolio. Not just that, the engine became the first clean-sheet turboprop design to complete the first flight in half a century

Federico Dellavalle from Avio Aero and Pavel Rensa from CVUT Czech Technical University (a partner of GE Aviation Turboprop) finished with their final checks before take-off. The flight lasted for one hour and 40 minutes and took off and landed at Berlin Airport. Officially launched in 2015, the first run of the engine on the Flying Test Bed began in December 2020.

Siting his inspiration behind building the Catalyst engine, David Kimball, GE's Catalyst Program Leader proudly says, "Customers and industry demands propelled them towards this creation. While customers experienced amazing technology evolutions in large commercial aviation, as well as in private and corporate jets, there has been no major propulsion innovation in small turboprops until now. Thus, we saw an opportunity and decided to seize it. That's why we designed an engine to deliver a step-change in performance with industry leading technology."

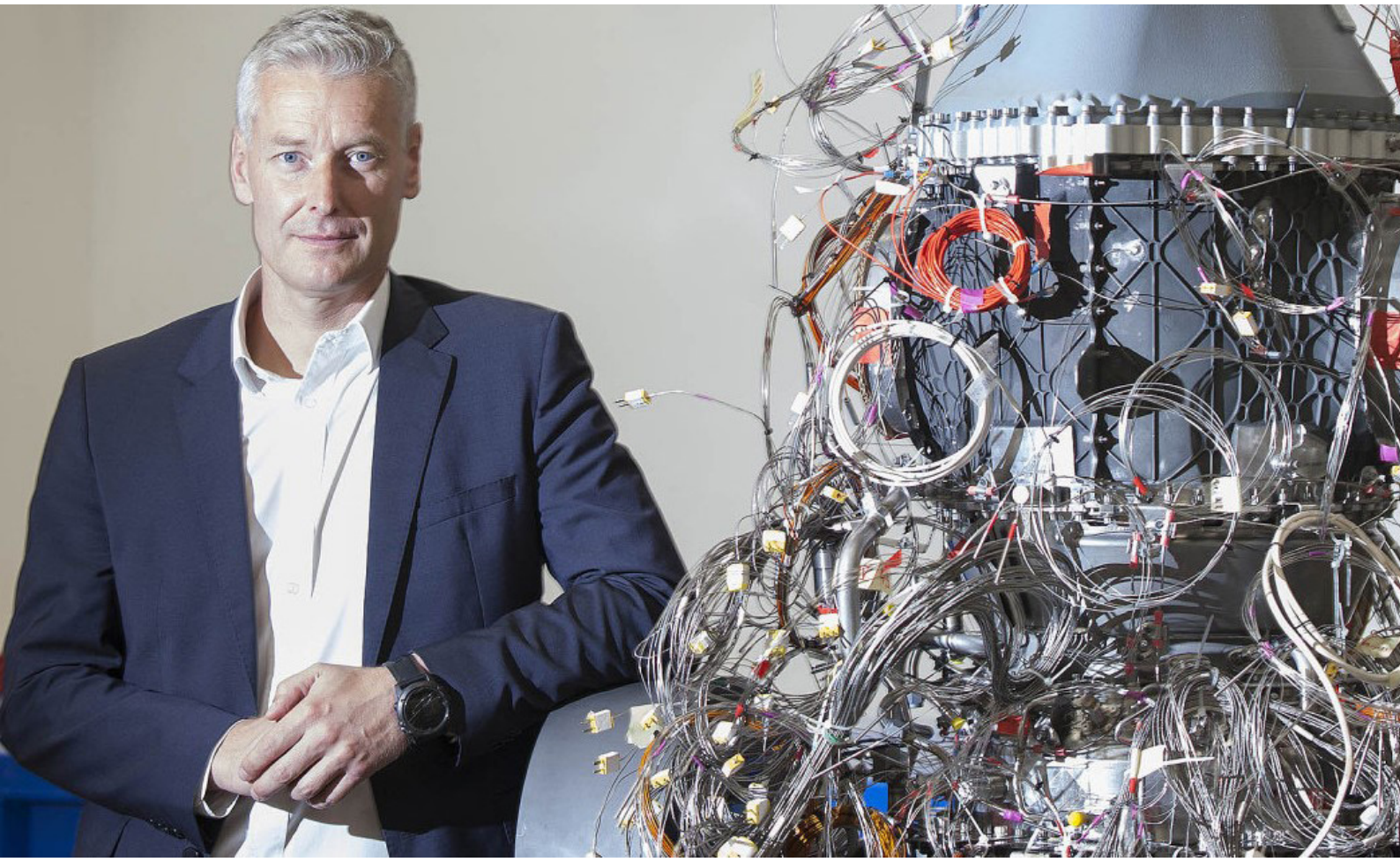
"We've been the first to offer a fully autonomous digital engine control (FADEC). Our inspiration stems from defining, inventing, and delivering to our customer needs." he further adds.

Out of curiosity when our team at MRO Business Today asked GE team about the choice of aircraft for the

experimental catalyst engine, the CEO and General Manager at GE Aviation, Mr Milan Slapak went on to explain about the significant public-private R&D partnership with the CVUT Czech Technical University of Prague, particularly in the area of predictive maintenance modelling. He further added that the university acquired an aircraft to run some experiments related to the predictive maintenance modeling. There were multiple twin-engine aircrafts that met our requirements a King Air 350 best fit those requirements. It's a proven aircraft, truly an icon for its performance and reliability. Therefore, it was an ideal option to use it as the flying test bed that will generate data for the predictive modeling experiments, he concludes.

GE Aviation's primary focus was, and always will be, safety. So, GE Aviation and the University took an approach to work with a few other external R&D partners and modify the aircraft with safety top of mind while assuring the aircraft could complete all planned missions. Telling us about one of the biggest challenges faced by the engineering team while pairing an aircraft conceived in the 1960s with the first new engine to be introduced to the turboprop market in 50 years, Mr Kimball instant reply was 'cockpit integration'. On one wing, you have a legacy engine with multiple control levers to operate the engine and propeller system, and on the other wing, you have the Catalyst that requires a single lever to operate the engine and entire prop control system. GE Aviation, Avio Aero, Czech Tech University and Berlin Beechcraft Aviation each brought their expertise to assure the integration was successful.

Mr Kimball further explains that the entire test campaign will take several months. During the first phase of the campaign, we are working together to extend the envelope of the aircraft and engine. We'll slowly introduce other test points unique to the flying test bed verses our ground testing, such as maneuvers, in addition to the envelope expansion. The engine has performed in a stable, predictable manner to date with no surprises and the performance of the engine continues to exceed expectations. Once we validate the entire Catalyst-powered King Air 350 envelope, University and GE Aviation will focus on executing the experiments connected with the predictive maintenance modeling. In parallel, we're also working side by side with our launch commercial customer Textron Aviation to support their upcoming flight tests with the other flightworthy engine received last December and yet installed



on the Beechcraft Denali prototype.

The Catalyst engine went through the most extensive certification testing ever for a turboprop engine in the business and general aviation segment. Telling us about the challenges faced during the certification process Mr. Kimball said that most challenging part was with regards to Catalyst certification relate to instrumentation and unique setups for the specific certification tests. To date, we're proud to say all certification tests completed where successful on the first attempt. This is a strong testament to our broader company experience in designing and certifying engines with all-new technology and also reflects the tremendous effort by all those who have contributed to the program.

The engine is GE's first modern Full Authority Digital Engine Control (FADEC) controlled turboprop, aimed to service the 850 -1600 SHP range. The FADEC is able to deliver a jet-like, single-lever power and propeller control and reduces pilot workload while providing a greater level of control and responsiveness.

The Catalyst engine is an original turboprop design to deliver a step change in performance and is the first turboprop in aviation history made with 3D printed components. Describing the entire process of crucial role played by Predictive maintenance, Mr Slapak said, " We see fantastic potential in Catalyst because it is fully digital and, therefore, should bring predictive maintenance to the next level within the turboprop BGA market segment. Nobody likes negative surprises and predictive maintenance addresses exactly that. Future systems will notify an operator of a potential issue well in advance so a maintenance action could be scheduled on-time and at the time that suits the operator the most. Besides increasing the safety, it will lower the engine's total cost of ownership, not mentioning benefits of smooth migration from hard TBO limits into on-condition potentially. Additive technology sets designers free to use geometries that they were not able to shape in the past. Such shapes positively affect engine performance while reducing the bill of material significantly, which simplifies the supply chain. Every time you simplify supply chain, you also reduce cycle time of new engine component's production as well as enhance performances in engine overhauls."

The Catalyst engine features an industry-best 16:1 overall pressure ratio, enabling the engine to achieve as much as 20 percent lower fuel burn and 10 percent higher cruise power compared to competitors in the same size class.

The Catalyst engine successful first flight opened a world of opportunities in the business and general aviation market with Textron Aviation as the launch customer. It is just the start; the engine has wide application in the defence space for drones and trainers. It can be, in addition, a super-efficient core that can paves the way towards hybridization of flight.

Triumph Group and AFI KLM E&M form a JV called xCelle Americas to overhaul Next-Gen aircraft

xCelle Americas will perform maintenance, repair and overhaul (MRO) services for "new gen" nacelles on Boeing 787, Boeing 737 MAX, Airbus A320neo, and Airbus A350 aircraft for operators in North and South America.

Triumph Group and Air France Industries KLM E&M have entered into a joint venture called xCelle Americas to overhaul nacelles for new generation aircraft at Triumph's Hot Springs, Arkansas repair facility.

xCelle Americas will perform maintenance, repair and overhaul (MRO) services for "new gen" nacelles on Boeing 787, Boeing 737 MAX, Airbus A320neo, and Airbus A350 aircraft for operators in North and South America. Acting through its affiliation with AFI KLM E&M, xCelle Americas will perform Boeing 787 nacelle repairs under Air France's license from Rohr, thus expanding Air France's licensed repair capabilities for those nacelles to the Americas.

Philippe Martin De Beaucé, CEO of xCelle Americas said, "The announcement of this joint venture is a huge achievement and a sign of confidence in the future. It's an honour to be selected to lead xCelle Americas as its CEO. Together with William Buxton, xCelle Americas COO, we will give our best to make this new JV a success. We are very excited to set up this new product in the Americas and to offer reliable and local solutions on the new gen-nacelles for the operators."

William Buxton, COO of xCelle Americas said, "I am very proud of the hard work the teams have done to make this joint venture a reality and we look forward to making it a success. Triumph and Air France have a great working relationship, and Philippe and I are excited for the opportunity to combine the strengths of our respective companies in order to bring new and unique offerings to our customers."

Benjamin Moreau, AFI KLM E&M SVP Components Product said, "This new joint venture with our partner Triumph expands the AFI KLM E&M's extensive network. With xCelle Americas, we continue to meet our main ambition of providing local services to our customers and of continuing to be the benchmark for service level on the MRO market."

Bill Kircher, Executive Vice President, Triumph Systems and Support said, "Triumph is excited to partner with Air France Industries KLM Engineering & Maintenance to form this joint venture, xCelle Americas. We look forward to the opportunities this venture creates by expanding our network and capabilities for existing as well as new customers."

The formation of xCelle Americas advances important strategic objectives for both Triumph and AFI KLM E&M, expanding the reach of AFI KLM E&M's nacelle MRO capabilities and Boeing 787 license into the Americas and enabling Triumph to be positioned on new gen nacelles business, thus supporting key North and South American customers on the core of their future fleets. With this JV, Triumph and AFI KLM E&M achieve a first step in their strategic partnership and their ambition to provide local support to airlines.

Lufthansa Group extends maintenance agreement with Joramco

Joramco continues to demonstrate that our world-class technical capabilities are up to the standards of the most important factors in the industry.

Joramco recently announced the continuation of their maintenance agreement with Lufthansa Group. The initial agreement was signed in 2017. As a part of the agreement the check will be conducted on aircraft from three major flag carriers in the group: Lufthansa, Swiss and Brussels Airlines.

Fraser Currie, CEO of Joramco, said, "There is no doubt that our partnership with Lufthansa Group has been a great success. Joramco continues to demonstrate that our world-class technical capabilities are up to the standards of the most important factors in the industry. We are grateful for Lufthansa's continued trust, and that of our growing portfolio of international clients, which confirms our position as a leading MRO service provider."

While Lufthansa and Brussels Airlines checks will be performed during the winter season, Swiss MRO activities will be ongoing throughout the year. Three wide-body lines (Airbus A330 and Airbus A340) and two narrow-body lines (Airbus A320) will undergo extensive maintenance checks in accordance with the agreement.

Joramco signs particle count testing agreement with Testia

Testia will support Joramco with qualified staff to perform the tests and analyze the chemical testing reports.

Joramco recently signed a particle count testing agreement with Testia. Under this agreement the two companies will cooperate to establisha fluid testing laboratory at Joramco,which will be specialized in the "particle count" testing of hydraulic fluids as a startup. In addition, Testia will support Joramco with qualified staff to perform the tests and analyze the chemical testing reports. Apart from this they will also explore the opportunities of further cooperation in areas of mutual interest in chemical testing such as fuel, engine oil and water.

Fraser Currie, CEO of Joramco, said, "Our agreement with Testia will expand Joramco's technical capability to provide testing on hydraulic fluids using the latest testing equipment, and it confirms our position as a leading MRO service provider up to world-class standards."

Testia CEO David Rottembourg added: "Through our extensive expertise in the field, we at Testia are delighted to support Joramco in setting up their own capacity in fluids testing. Beyond the traditional safety and performance assurance, the increased focus on sanitary measures and the rise in the usage of biofuel in aerospace are rendering this competence key to MROs worldwide. "

Testia is an Airbus company with 30 years of experience in Aerostructure Inspections and Non-Destructive Testing. They provide Quality Inspection Equipment, consultancy, testing and inspection services and NDT training.

MRO BUSINESS TODAY

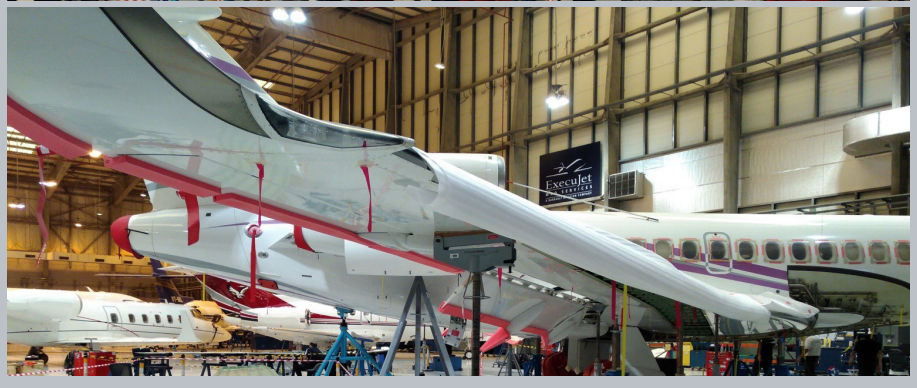
DGCA + 15 International certifications and counting! ExecuJet has it all

The India DGCA certification is significant milestone because it means we are approved by the Indian regulators to maintain specific types of Falcon aircraft on that country's aircraft registry

India's Directorate General of Civil Aviation (DGCA) recently certified ExecuJet MRO Services in Dubai to carry out line and heavy maintenance on various types of Indian-registered Dassault Falcon business jets. Prior to this certification ExecuJet is already certified by 15 international regulators including the EASA and the FAA, but there's no stopping there. **ExecuJet's Regional VP, Nick Weber** further plans to gain international approvals dependent on sufficient customer demand. In an exclusive Interview with **Swati.k** he explains the importance of Indian markets from Dubai aviation point of view, his expansion plans and much more...

Q– First of all, congratulations on achieving yet another milestone certification by DGCA for Indian-registered Dassault Falcon. After EASA and FAA certification, this achievement would have been rather easy. Your views

A– Thank you! In respect to Falcon aircraft, we are an OEM-owned organization, so we are able to carry out work covered under the manufacturer's warranty coverage and programs, including the popular FalconCare comprehensive maintenance service. Many Falcon customers prefer to send their aircraft to a Dassault-owned maintenance, repair and overhaul organisation due to the guaranteed levels of expertise. The India DGCA certification is significant milestone because it means we are approved by the Indian regulators to maintain specific types of Falcon aircraft on that country's aircraft registry. Yes, we have both EASA and FAA which obviously sets the benchmark, however regulators such as the DGCA have their own specific requirements which obviously need to be met in order to achieve their approvals.



Q– What is the next-in-line regulator you are aiming at to enhance your portfolio

A- We are already approved by 15 international regulators including the United States Federal Aviation Agency and European Aviation Safety Agency. Our vision is to continue developing heavy maintenance capability at our facility in Dubai. Having international approvals and certifications means operators of aircraft registered overseas can send their aircraft to us to be maintained. We will seek to gain further international approvals dependent on sufficient customer demand but for the time being we feel we have enough breadth to our coverage.

Q– What can you say about Dubai- India aviation business links? How will this certification directly profit ExecuJet MRO

A - India is a key market for us, there are many Indian-registered business jets visiting Dubai on a regular basis supporting in many cases the large resident Indian expat community. Dubai's close proximity to India, coupled with the strong business links between the two countries, means Dubai is ideally situated to provide maintenance to Falcon and other OEM operators from India.

Q - Any expansion plans on the cards?
A - Construction of our new facility at Dubai South - Al Maktoum (DWC) airport commenced in January 2021, with an estimated completion date set for Q2 2022. This new 15,100m purpose-build MRO facility, of which 8,300m2 is hangar floor space, will be ExecuJet MRO Services' Middle East HQ from where ExecuJet's MRO team will continue to support Bombardier, Dassault, Embraer and Hawker product types.
ExecuJet currently operates two facilities in Dubai; line and base maintenance at Dubai International Airport (DXB) and a very active line station at Dubai South - Al Maktoum (DWC).

Q – How will you rate the COVID-19 pandemic experience. What challenges did you face and how did you overcome them?
A - The pandemic has been very challenging, however, in the United Arab Emirates the government has been handling the situation extremely well, which has made the region an attractive and safe option for many corporate customers and high net worth individuals either visiting for work or pleasure purposes.

Q – How do you see the MRO market recovery about a year from now, as the pandemic is behind us?
A – Personally I think it is too early to say that the pandemic is behind us, and I feel caution still needs to be exercised. Yes, many countries through their vaccination campaigns have made tremendous inroads into re-establishing a sense of normality. Obviously, this encourages people to travel, and as such, we can expect to experience a return to the business aviation activity levels as seen pre-COVID.

HAECO to be the principal provider of global on-wing and in-filed service for Rolls Royce

This will enable Rolls-Royce to further enhance their customer experience by providing airlines with greater capacity and capability through HAECO's global network.

Rolls Royce recently signed an agreement with HAECO announcing HAECO to be their principal provider of global on-wing and in-field services for large civil aeroengines. This will enable Rolls-Royce to further enhance their customer experience by providing airlines with greater capacity and capability through HAECO's global network.

Lee McConnellogue, Rolls-Royce, Senior Vice President – Services Operations, Civil Aerospace, said, "We welcome this agreement with HAECO. It will allow us to provide our customers with greater on-wing services support across our global network at a time when many airlines are seeing their fleets return to more robust levels of activity. Partnerships such as these help us help our customers as they recover from the impact of Covid and continue to grow into the future."

Angus Barclay, HAECO Group Director Components & Engine Services, said, "This agreement builds upon the long-standing, close relationship between Rolls-Royce and HAECO for engine MRO services. We look forward to supporting Rolls-Royce and their customers with our global on-wing and in-field services."

As part of this agreement, HAECO will expand its network into London and the Middle East, including the operation of a London Heathrow based Service Centre, to provide round-the-clock specialist maintenance and support for aeroengines.

EPCOR to maintain Vietnam Airlines Boeing 787 and Airbus A320 fleet APUs

This contract will cover the APU maintenance of l 131-9A APUs for Airbus A320 fleet and Pratt & Whitney APS5000 APUs of the Boeing 787 fleet.

Vietnam Airlines recently extended its APU maintenance contract for Boeing 787 and Airbus A320 fleet with EPCOR. This contract will cover the APU maintenance of l 131-9A APUs for Airbus A320 fleet and Pratt & Whitney APS5000 APUs of the Boeing 787 fleet.

Bernard Kuiken Commercial Director of EPCOR said, "Joint efforts in difficult times are proven to strengthen relationships. Therefore, we are proud Vietnam again chose us to be their maintenance partner for the forthcoming years. Part of the AFI KLM E&M network and as an airline-MRO, we know what airlines value most, it is part of our DNA. Our Adaptiveness mindset, a competitive offer and a close cooperation between EPCOR and Vietnam's Engineering department contributed to the decision of Vietnam Airlines."

Thanks to the longstanding experience of EPCOR, its state-of-the-art facilities and the latest test cells, the APUs of Vietnam Airlines will benefit from the best class services including PROGNOS for APU, the famous predictive maintenance software. In the current period of uncertainty in the airline business, adaptability, a core value of AFI KLM E&M and its network, has been more important than ever in making the difference.

AFI KLM E&M to provide component support for Air Austral's fleet of three A220 aircraft

The terms of the contract include parts availability and repair, as well as engineering support and adaptive services management.

AFI KLM E&M and Air Austral recently signed an agreement to provide component support for Air Austral fleet of three A220 aircraft. The terms of the contract include parts availability and repair, as well as engineering support and adaptive services management. Air Austral is one of the first airlines to benefit from AFI KLM E&M component support for the new aircraft.

AFI KLM E&M has set up a specific industrial scheme for A220 component support. Based on its current in-house repair capabilities but also on the continuous development of new repairs, these internal resources will support the growing needs of operators on this new platform. Both competitive and guaranteeing an uncompromising quality of service, the support offered by AFI KLM E&M is not limited to component repairs. A genuine turnkey service has been put in place in addition to repairs per flight hour, access to the spare parts pool and the provision of a local stock of components (Main Base Kit, MBK).

Aymeric MECHIN, Vice President Sales Middle East & Africa said, "We designed this offer to free Air Austral from as many constraints as possible. Availability, including 7/24/365 AOG support, remains a key success factor in ensuring day-to-day operations, but we are going further with dedicated engineering management that is as close as possible to Air Austral's needs."

Benoît Schafer, Executive Vice President Operations and Maintenance of Air Austral said, "When it comes to maintenance, AFI KLM E&M is a long-standing partner of Air Austral that we know we can rely on. The introduction of a new aircraft is always a joy but also an operational challenge for an airline. With the A220 and the AFI KLM E&M support, we can focus on our operations and meet the challenges of today and tomorrow."

For over two decades, Air Austral has relied on AFI KLM E&M's expertise in component support and engine overhaul for the majority of its fleet. In addition to equipment solutions for Boeing 777s and 787s and maintenance for GE90s, the Airbus A220s will now benefit from AFI KLM E&M's services. This new long-term contract marks the renewal of Air Austral's confidence in AFI KLM E&M's components offer.

Flydubai renews its PBH agreement with AAR for component and repair of Boeing 737 fleet

As flydubai plans to expand their operations in years to come the PBH contract renewal with AAR will grow as a symbiotic relationship between the two companies.

AAR signed an agreement with flydubai to renew its power-by-the hour (PBH) component pool and repair support for their Next-Generation Boeing 737 fleet. This new five-year contract builds on a partnership that started in 2016 to provide comprehensive rotable component support for flydubai's 737NG fleet.

Mick Hills, flydubai Senior Vice President, Engineering and Maintenance said, "AAR has been a key partner and we would like to thank them for the support they have provided to our fleet over a number of years. We look forward to working with them on this key component of our Engineering and Maintenance Programme."

Nicholas Gross, AAR Senior Vice President Integrated Solutions said, "We are excited to continue supporting flydubai and we look forward to growing our partnership as it continues to expand its service in the years ahead. AAR is proud to partner with flydubai as it pursues its mission to open up opportunities for travel, tourism and trade."

This renewal demonstrates flydubai's trust in AAR and its recognition of the value AAR's supply chain services bring to the Middle East's fastest growing airline.

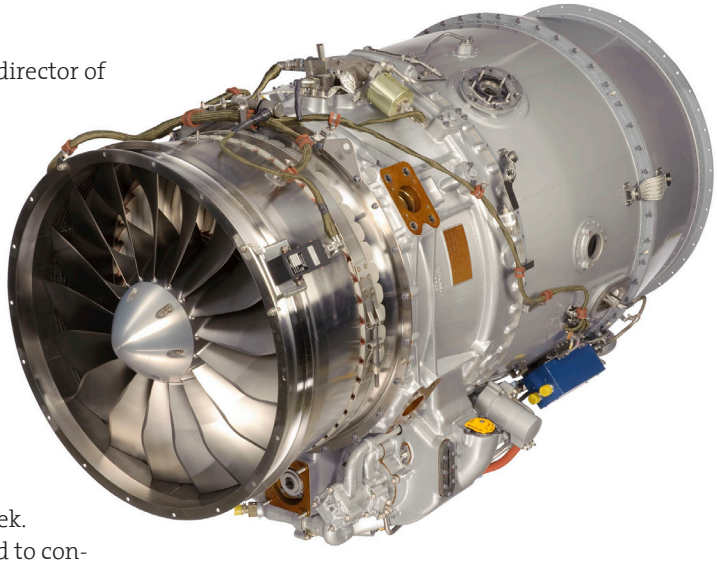
GrandView Aviation signs MRO agreement with Pratt & Whitney Canada to cover 26 PW35E engines

Pratt & Whitney's Fleet Management Program provides a flexible, high-value engine management solution that helps reduce operating costs.

GrandView Aviation recently signed an MRO agreement with Pratt & Whitney Canada as a part of its Fleet Management Program to cover the 26 PW535E engines on their 13 Embraer Phenom 300 fleet. This Pratt & Whitney's Fleet Management Program provides a flexible, high-value engine management solution that helps reduce operating costs while simplifying the management of fleet activities.

Scott McElvaine, vice president, customer programs, Pratt & Whitney Canada said, "The FMP is tailor-made to meet GrandView's mission-specific maintenance needs. In fact, it will allow the company to maximize the value of its driving assets and improve their return between two deposits. Our FMP program gives customers a competitive advantage while helping them save money."

As part of this program, a knowledgeable team appointed by Pratt & Whitney manages engine maintenance needs, ensuring maximum return on investment, customer satisfaction and peace of mind.



Michael Ruth, director of maintenance at GrandView Aviation said, "The uptime of a fleet is essential to support missions such as private charter flights or transporting organs to save lives, 24 hours a day, 7 days a week. We are delighted to continue our investment in highly reliable engines from Pratt & Whitney."

Scott McElvaine, P&WC, through its FMP program said, "For a company like GrandView Aviation, technical availability is a key factor in customer satisfaction. Through its FMP program they ensure that aircraft are ready to fly anytime, anywhere by instituting a planned maintenance environment."

The program is tailor-made to meet the specific needs of fleet operators and airlines, the various FMP modalities allow customers to focus on their core businesses and eliminate the logistical constraints and challenges of running a workshop maintenance.

AJW Group and Honeywell sign sole distribution agreement

The agreement is for the global sales of Air Data Inertial Reference Units for Airbus fleet.

AJW Group and Honeywell have recently announced a worldwide sole distribution agreement for the global sales of Air Data Inertial Reference Units (ADIRU) PN HG2030BE04 for Airbus A320, A330, A340 and A380. Under the terms of the agreement, AJW will distribute the new production build ADIRU, for all Airbus A320, A330, A340 and A380 aircraft for all Initial Provisioning and purchasing requirements for operators and integrated service providers.

Conrad Vandersluis, SVP Strategic Material & Asset Management, AJW Group said, "We are proud to announce the distribution agreement with Honeywell,

with whom we have a long-standing relationship. We look forward to bringing this latest ADIRU to market and offering our world-class service to the new operators of A320 family and A330 NEO aircraft."

The collaboration includes AJW holding distribution inventory at their global facilities to meet the needs of worldwide A320NEO family and A330NEO operators, complementing the extensive inventory of Airbus parts and maintenance, repair and overhaul services that allow AJW to deliver complete support solutions to customers. In addition, AJW Technique, AJW Group's maintenance hub, authorised repair facility for multiple Honeywell products, is lining up for capability extension to offer complete support on the ADIRU.

Customers will benefit from AJW's expertise in flexible, end-to-end supply chain logistics, with the ability to provide exchanges and additional solutions for AOG and IOR level support.

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StandardAero all set to integrate Signature Aviation Services to emerge as smart, strong and better MRO

IMO and functional teams are making substantial progress integrating the company's domestic sales team while making multiple investments and organizational changes.

StandardAero has been rapidly integrating its acquisition of Signature Aviation Engine Repair and Overhaul of global engine services to serve their growing business aviation customer demands. Before the acquisition of Signature Aerospace, StandardAero had already established an Integration Management Office (IMO) and appointed a dedicated leader and team to drive various work streams and action plans.

Tony Brancato, President of StandardAero Business Aviation said, "In addition to forming a dedicated IMO, we utilized processes and lessons learned from our prior acquisition of Vector Aerospace several years ago. We have learned that having a multi-disciplinary IMO is very important and using a disciplined, evidence-based approach ensures that there are adequate change management processes. Our overall goal is to blend the best practices from both of our companies and emerge as a smarter, stronger and better collective team."

Thus far, the IMO and functional teams are making substantial progress integrating the company's domestic sales team while making multiple investments and organizational changes in StandardAero's Mobile Services Teams.

Brancato further added, "Our merger immediately expands StandardAero's ability to provide the best support for customers and places our company in a position to be one of the most cost-effective and client-focused MRO companies in the world. We are working closely with our customers and reviewing our progress with the StandardAero Customer Advisory Board, an independent voluntary board made up of a cross section of twelve business aviation flight department leaders and operators. And finally, our combined workforce of highly skilled and long-tenured technicians and experienced aerospace professionals is continuing to fuel our collective passion for outstanding customer service."

StandardAero's theme at the 2021 NBAA-BACE event is "Growing to Serve You Better." The company's combined sales team will be attending the show and staffing a unified exhibit and business centre for hosting and meeting with customers.

S7 Technics to leverage on SkySelect's technology for accelerated transformation of parts purchasing process

S7 Technics have a fleet of over 100 aircraft and one of largest integrated MRO networks.

SkySelect and S7 Technics have signed a collaborative relationship to promote the accelerated transformation of the parts purchasing process for its air transportation and maintenance operations.

As Russia's largest MRO S7 Technics will utilize SkySelect's cutting-edge algorithmic technology, top-line customer service and expertise to usher in a new level of efficiency, performance and cost savings to its parts purchasing process.

Danila Larin, Supply Chain Director at S7 Technics said, "Operating a fleet of over 100 aircraft and one of the region's largest integrated MRO networks, requires a rigorous focus on the quality and efficiency of our material and overall technical operations. We're looking forward to leveraging SkySelect's technology and talent to bring exponential savings of both time and money to our large-scale parts purchasing."

Erkki Brakmann, Founder and CEO, SkySelect said, "Given the size of the S7 Airlines fleet and overall operations, we're seeing how our technology can help the S7 Technics achieve exponential material cost savings and efficiency gains. The size and scale of our partnership with S7 Technics excites us as it provides an exceptional opportunity to demonstrate the power of our technology and services."

SkySelect empowers its partners with technology and algorithms to do the work of matching real-time demand from buyers with supply from around the globe and improving the overall logistics performance.

GAIC sign strategic business partnership with HAECO Composite services in China

Through this partnership GAIC will accelerate support and services not to operators in China but also the global customers.

The agreement covers reconditioning services including inspection, test, repair, overhaul and upgrade/modification, as well as marketing, sales and exchange/loan services.

HAECO Composite Services has entered into a consignment agreement with GA Innovation China. It is the first comprehensive aircraft asset management company in the Chinese mainland. The agreement covers reconditioning services including inspection, test, repair, overhaul and upgrade/modification, as well as marketing, sales and exchange/loan services.

Chong Tatnyin, VP of MRO Aftermarket Services at HAECO Composite Services said, "This is a significant milestone for HAECO Composite Services to have GAIC as a strategic business partner in the Chinese mainland. Through this alliance we are poised to accelerate support and service not only to operators in the Chinese mainland but also to our global customers."

HAECO Composite Services has been providing industry renowned MRO services for more than a decade. GAIC has achieved the highest accreditations and approvals in the industry and is committed to providing top-ranking serviceable parts. HAECO Composite Services welcomes this opportunity to cultivate an alliance of mutual growth with GAIC. It is a member of the HAECO group specialising in aerostructure repair for nacelles, radomes and flight control surfaces, with a full complement of rotable spares.

Frontier Airlines becomes latest North American operator to adopt Airbus' Skywise Health Monitoring

SHM gathers live diagnostic feeds from the aircraft through its Aircraft Communication Addressing and Reporting System to the airlines information system.

Frontier Airlines recently signed a five-year contract with Airbus and became the latest North American operatorto adopt Skywise Health Monitoring as its key future performance tool. The contract covers 111 single aisle aircraft of Frontier Airlines.Skywise Health Monitoring (SHM) was launched in 2019 and gathers live diagnostic feeds from the aircraft through its ACARS (Aircraft Communication Addressing and Reporting System) link to the airlines information system.

Frontier will use the solution for its A320 Family fleet. Airbus' SHM will support the airline's maintenance and engineering teams by enabling real-time management of aircraft events and troubleshooting. This will help the airline in identifying, prioritising, analysing and handling in-service events, enabling quicker decision-making and minimising AOG risks.

Using the power of the Skywise aviation data platform, SHM collates and centralises the alerts, flight-deck effects, maintenance messages etc., prioritises them, correlates any faults with the relevant troubleshooting procedures, highlights operational impacts, provides the maintenance history of the system (from the logbook and MIS or Maintenance Information System information collected through Skywise Core and stored in the data lake), allowing effective tracking of the alerts.

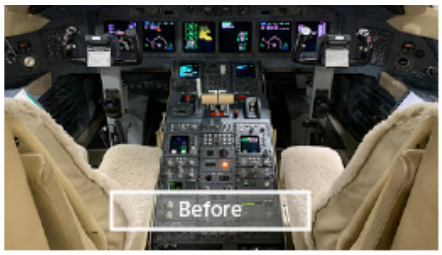
Overall, SHM saves airlines time and decreases the cost of unscheduled maintenance. Natively interfaced with Skywise Predictive Maintenance (SPM) and Skywise Reliability (SR) to provide an integrated user experience, and also ready to harness the new on-board Flight Operations and Maintenance Exchanger ("FOMAX") data router which can capture over 20,000 real-time aircraft parameters, SHM enables end-to-end unscheduled event management/fixes, for example by anticipating tools and parts' availability closest to the aircraft.

StandardAero delivered Pro Line Fusion upgrade on Bombardier Challenger with advanced capabilities

The Pro Line Fusion upgrade removes the existing cathode ray tube displays and replaces them with touchscreen capable liquid crystal displays.

StandardAero recently delivered its first Collins Aerospace Pro Line Fusion modification/upgrade on a Bombardier Challenger 604. The installation was supported by a Collins Aerospace Supplemental Type Certificate (STC) and the Pro Line Fusion upgrade removes the existing cathode ray tube displays and replaces them with touchscreen capable liquid crystal displays. The modification allows for features such as LPV, synthetic vision, multi-scan radar, graphical weather and FANS-1/A, giving operators more functionality and situational awareness in the cockpit. The modification also addresses obsolescence issues inherent to the existing CRT displays.

The total work scope on this Challenger 604 aircraft also included the installation of a Collins Aerospace Venue Cabin Management System and a complete cabin interior refresh.



Mike Creek, Avionics Sales Manager for StandardAero Business Aviation said, "The Fusion upgrade helps to keep this aircraft on the leading edge — well into the future — with enhanced capabilities and staying pace with the functionality of current production aircraft coming off the assembly line. Operators are showing a lot of interest in these upgrades and we expect continued demand throughout this year and next."

StandardAero is one of the industry's most experienced modification and upgrades providers and has also accomplished more Collins Aerospace Pro Line 4 to 21 upgrades on Falcon 50EX and 2000 aircraft than any other MRO in the industry.

Embraer and Fokker team up for strategic partnership to serve customers better

They will explore a broader range of opportunities in the Defense, Commercial and Support markets.

Embraer, Fokker Techniek and Fokker Services have signed a Memorandum of Understanding to explore a broader range of opportunities in the Defense, Commercial and Support markets. This network of Fokker Technik and Fokker Services with their experience and worldwide recognized aviation tradition is considered to be a perfect match with Embraer Services and Support.

Roland van Dijk, CEO of Fokker Techniek said, "Our heritage and deep understanding of aircraft products and solutions will allow us to bring a unique perspective to the many development areas that Embraer is investigating. Fokker Techniek and Fokker Services are well-known and reputable aerospace companies with roots in building aircraft and supporting aircraft fleets worldwide."

Johann Bordais, President & CEO, Embraer Services & Support said, "We

believe together we can service our customers better with tailor-made solutions. In the coming months, Embraer, Fokker Services and Fokker Techniek will discuss a variety of opportunities and look to leverage their respective expertise and capabilities in new projects."

Menzo van der Beek, CEO of Fokker Services said, "Whether it's the Defense market with our support for the C-390 Millennium transport aircraft or any type of Support or Development in Commercial market, we are confident that many exciting projects will arise over the coming years."

Jackson Schneider, President & CEO, Embraer Defense & Security said, "There is huge potential for both companies in the development of opportunities together. This is a very important step on Embraer's strategy to establish meaningful and strategic partnerships around the globe."

Other opportunities for Defense are under discussion such as Conversion and Completion of Special Mission and Special Transportation aircraft. In the Commercial aviation market, engineering and logistic support will be key elements to be explored, in addition to Hydrogen Powered Aircraft development.

Apart from the above aftermarket support topics, such as program support, logistics, repair services and all other support opportunities, will also be reviewed.

Saab opens new 100,000 square foot production facility in US for T-7A Red hawk production

Currently the aft section of the T-7A Red Hawk is built at Saab's factory in Linköping, Sweden, then shipped to the United States.

Saab is all set to open a new leading-edge, 100,000 square foot production facility in West Lafayette Indiana, less than 300 miles from the Boeing facility. The Boeing-Saab team is producing the new advanced trainer for the US Air Force with Saab providing the aft section to Boeing's forward fuselage. Currently the aft section is built at Saab's factory in Linköping, Sweden, then shipped to the United States.

Leanne Caret, president and CEO of Boeing Défense, Space & Security said, "I'm inspired by the Boeing-Saab team's accomplishments with the T-7A Red Hawk – bringing together the best of digital design and production innovation to build this incredible trainer. Our modern T-7A Red Hawk production lines are enabling us to deliver the most digi-

tally advanced, simply and efficiently produced, and intelligently supported solutions to our customers, and we're honoured to team with Saab to make this possible."

Since the inception of T-7A, Boeing and Saab have continued to seek and evolve new program efficiencies.

Steve Parker, Boeing Bombers & Fighters, vice president and general manager said, "Our teams will no longer have to tackle lengthy trans-Atlantic shipping schedules. The digital characteristics of this trainer not only enables adaptive growth in future builds, but it also significantly improves quality as compared to traditional design and manufacturing methods."

The T-7A Red Hawk went from concept to first flight in just 36 months using advanced model-based engineering and digital design techniques. The digital thread, the connection of digital information through product design, manufacturing and inspection, used throughout the program has accounted for a 75per percent improvement in engineering quality.

In September 2018, the US Air Force awarded Boeing a USD 9.2 billion contract to supply 351 advanced trainer aircraft and 46 associated ground-based training simulators.

Pentagon veteran Heidi Grants joins Boeing as VP, Business Development

Prior to joining Boeing, she was the director of US Defense Security Cooperation Agency (DSCA).

Pentagon veteran Heidi Grant is selected to lead the sales team at Boeing's defense, space and government services. Prior to joining Boeing, she was the director of US Defense Security Cooperation Agency (DSCA). She will join Boeing on 8th November as Vice President of Business Development, previously known as Global Sales and Marketing (GSM).

In her current role she will be responsible for the administration and execution of US Department of Defense security cooperation programs and activities involving defense articles, military training and other defense-related services. She began her US Department of Defense career in 1989 and held key roles with the departments of the Navy and Air Force, Office of the Secretary of Defense, the Joint Staff and two combatant commands with assignments from base to headquarters levels, including an overseas assignment.

Leanne Caret, president and CEO, Boeing Defense, Space & Security said, "Heidi brings extensive experience in global strategy and competitive positioning across the life cycle. We look forward to working closely with her as we compete, win and grow our business around the world."

Grant will report to Caret and Boeing Global Services President and CEO Ted Colbert and serve on both leadership teams. She will be based in Arlington, Virginia.

Grant succeeds Jeff Shockey, who departed the company in July. Mike Manazir, who has served as interim GSM vice president, returns to his role as vice president, Boeing Global Services business development.

Christian Dery joins GA Telesis Flight Solutions Group as VP, Tooling and GSE

Christian brings the expertise and strategy to create a unique aggregator of tooling/GSE distribution to the market.

GA Telesis Flight Solutions Group recently announced the appointment of Christian Dery as Vice President, Tooling & GSE. Dery will be responsible for developing and managing the Tarmac Solutions team driving Ground Support Equipment and the tooling distribution business strategy globally and leading regional sales teams functionally.

Commenting on his appointment Christian Dery said, "I'm delighted to be joining GA Telesis as the head of Tarmac Solutions' Tool and GSE business. GA Telesis is an organization that has been growing both in terms of commodities under management and the breadth of investment capabilities offered. Our potential of developing strategic solutions for Maintenance Tooling and Ground Support Equipment is endlessly working together with the accomplished Flight Solutions Group and other support business units of GA Telesis' Ecosystem."

Jason Reed, President of the Flight Solutions Group globally said, "The Tooling and GSE business has already opened many doors to additional sales and support opportunities for our customers. Christian brings the expertise and strategy we need to not only create a unique aggregator of tooling/GSE distribution to the market but to drive growth into the maintenance sector, which works hand in hand with supply chain needs within our customer base."

Dery brings 30 years of experience in aircraft parts manufacturing, aftermarket sales and marketing, and contract administration in the GSE and Tooling sector. Before joining GA Telesis, he was VP of Business Development and Marketing with Groupe DCM and a member of their Board of Directors.

Sebastian Losy promoted as a member of Barfield management team

Sebastien is an important member of the Barfield management team and will bring a different perspective to this Department as Barfield continues to transform and adapt to the competitive environment.

Barfield recently promoted Sebastian Losy as the Vice President of Ground Support Test Equipment, Trading and Distribution. In the new role he will look after the leading, expanding, and solidifying Barfield stance as a leader in the design, manufacturing and repair of highly reliable, user-friendly, and innovative test equipment. He will also oversee Trading and Distribution to optimize the sale of LRU and piece parts (surplus), as well as to solidify Barfield's current relationships with European OEMs and to expand their network throughout the Americas.

Herve Page, Barfield's Chief Executive Officer said, "Sebastien joined Barfield almost 20 years ago and has held different positions including Marketing, Communication, Business Development, Intra-group Sales & Marketing (Airbus, ATR, EADS, Sogerma, Sabena technics, Boeing and Air France-KLM Group), Pricing & Proposal Management, and most recently, Transformation and Innovation. Sebastien received a master's degree in Marketing in Paris University, France and an MBA in International Business at Florida International University (FIU)."

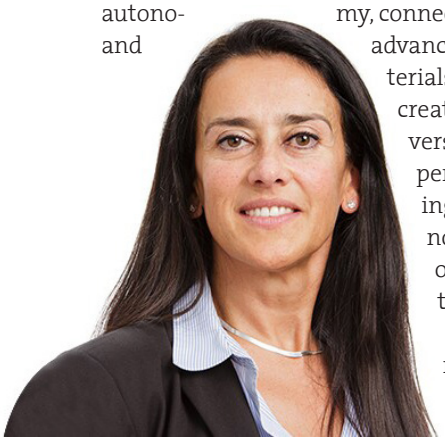
Sebastien, as an important member of Barfield management team, will bring a different perspective to this Department as we continue to transform and adapt to today's competitive environment. Sebastien is the best choice to take the business unit to the next level and to optimize our global footprint in the manufacturing, sale and repair of Ground Support Test Equipment.

Barfield is the American Subsidiary of AFI KLM E&M.

Grazia Vittadini leaves Airbus after two decades to join Rolls Royce

Grazia, who will join on 2 November 2021, spent almost 20 years at Airbus.

Former Airbus CTO Grazia Vittadini will be joining Rolls Royce as the Chief Technology Officer. She will take over from Paul Shein, who is stepping down after almost 12 years of leading Rolls Royce through research and technology. Grazia, who will join on 2 November 2021, spent almost 20 years at Airbus and over the last decade held a number of senior positions, most recently Chief Technology Officer. As CTO, she piloted Airbus into bold, new and sustainable technologies, ranging from electrification and hydrogen-based propulsion to digitalisation and Artificial Intelligence, autonomy, connectivity and advanced materials, while creating a diverse, high performing technology organisation.



Warren East, CEO, Rolls-Royce said, "I am delighted to announce the appointment of Grazia Vittadini. She brings with her extensive expertise in the emerging and disruptive technologies that will help us on our journey to net zero and further expand our digital innovation. She also has many years of experience working with our fundamental technologies and has a deep understanding of the safety critical systems which are at the core of our product portfolio."

Grazia Vittadini, said: "I relish the opportunity to join the Rolls-Royce family and continue its drive to pioneer the power that matters to connect, power and protect society. The commitment to ensuring all new products are compatible with net zero operation by 2030 is a bold one and one I'm very much looking forward to delivering on, together with the outstanding teams that Rolls-Royce has across the world."

Warren East added: "I would like to extend my heartfelt thanks to two wonderful colleagues, and indeed the thanks of my wider leadership team and all of us at Rolls-Royce to both Paul and Harry for their hard work and dedication over many years. During his time, Paul has navigated us through one of the most intense R&D periods in our history, as we have put more new civil aircraft engine types into the sky than ever before, while laying the foundations for our next generation technologies and creating new businesses in electrification and small modular nuclear reactors. Harry has steered us through a time of great transformation and cultural change across our business and has been instrumental in the successful delivery of our restructuring in response to the impact of the pandemic. We wish them both the best of luck for the future."

Paul Stein, who joined Rolls-Royce in 2010 as Chief Scientific Officer, will step down from his current role at the end of the first quarter of 2022. He will remain as Chairman of Rolls-Royce SMR, our venture that is creating small modular reactors for the provision of low cost, reliable, low carbon energy, and will continue to help the Group in other ways. Harry Holt will leave at the end of this year after a decade with Rolls-Royce, in which he has led several organisations, including our Nuclear business, and has been responsible for our HR, HS&E and global business services teams since 2018. The search for his successor is underway.

International CALENDAR

2021

Date	Event	Venue
01-04 Nov	Aerospace Incubator	Miami, FL
14-16 Nov	ISTAT Americas 2021	Austin, TX
14-18 Nov	Dubai Air Show	DBC, Dubai
16-18 Nov	IATA Ground Handling Conference	Prague, Czech Republic
1-2 Dec	Aero engines Europe	Stavanger, Norway
7-8 Dec	IATA Cabin Ops Safety Conference	Online

2022

Date	Event	Venue
27-28 Jan	Aero-Engines Americas	Miami, FL
09-10 Feb	MRO Latin America	Cancun, Mexico
15-20 Feb	Singapore Airshow	Singapore
22-23 Feb	AIME 2022	Dubai, UAE
22-23 Feb	MRO Middle East	Dubai, UAE
03-04 Mar	PBExpo	Miami, FL
06-09 Mar	World Defense show	Riyadh, Saudi Arabia
07-10 Mar	HAI Heli Expo	Dallas, TX
28-31 Mar	AEA International Convention & Trade Show	New Orleans, USA
26-28 Apr	MRO America	Dallas, TX, USA
03-05 May	NBAA Maintenance Conference	San Antonia, TX
23-25 May	EBACE	Geneva, Switzerland
07-08 Jun	Engine Leasing, Trading & Finance	London, UK
09-11 June	France Air Expo	France
22 Jul	AERO South Africa	South Africa
06-08 Oct	Istanbul Airshow	Istanbul Atatürk Airport, Istanbul
25-27 Oct	Abu Dhabi Air Expo	Abu Dhabi

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