



Pratt & Whitney has announced that the PW4000-94-inch engine has surpassed 150 million flight hours and 35 years of operational experience. Since their introduction to service in 1987, more than 2,500 engines have been delivered. The PW4000-94-inch engine currently powers more than 70 customers' aircraft across 30 nations, including

the Boeing 747/767 and MD-11, the Airbus A300/310, and the KC-46A for passenger, cargo, and military missions.

The 94-inch engine, with a thrust range of 52,000 to 62,0000 pounds, was the first model in Pratt & Whitney's high-thrust family for large aircraft. The cargo industry is served by more than 55% of the fleet.

"This milestone is a testament to the PW4000-94-inch engine's legacy of reliability and performance," said Bernie Zimmerman, vice president, Operational Commercial Engines, Pratt & Whitney. "The 94-inch offers excellent operational flexibility and fuel economy and lower noise versus the competing engine. It's an engine that's







been proven on a variety of applications — passenger, cargo, and military," he further added.

In 1989, United Airlines' Boeing 747-400 fleet received the PW4000-94-inch engine and starting in 1991, the Boeing 767-300 fleet, for a total of 81 aircraft.

"United has appreciated the reliability, great fuel economy and low maintenance costs of these engines," said John Wiitala, Vice President of Technical Services at United. "It's no surprise that these Pratt & Whitney engines have served United and our customers well for 33 years and counting."

An established global network of facilities for maintenance, repair, and overhaul supports the PW4000 family of engines (MRO). Pratt & Whitney provides a variety of options for engine maintenance and product support, including tailored plans to meet each

customer's particular needs. These options range from new and serviceable material programmes, Life Limited Parts (LLPs), part repairs, and engine overhauls. The business provides maintenance services to support customer operations both on and off the wing, with a range of work scopes and payment options, such as long-term contracts, fixed-price services, and transactional solutions.

Lufthansa Technik and BASF win EASA approval to fit the Boeing 777 jet with AeroSHARK

With STC approval, the roll-out of AeroSHARK developed jointly by Lufthansa Technik and BASF, to launch customers Lufthansa Cargo and Swiss International Air Lines (SWISS).



Lifthansa Technik and BASF have received a so-called Supplemental Type Certificate (STC) from the European Union Aviation Safety Agency (EASA) for the series modification of two Boeing 777 aircraft with the fuel-saving AeroSHARK riblet films. After being awarded the STC approval, the subfleet-wide roll-out of this sustainability technology which is developed jointly by Lufthansa Technik and BASF can now

commence at the service of the launch customers Lufthansa Cargo and Swiss International Air Lines (SWISS). The next modification layovers in Frankfurt and Zurich are already scheduled for early January 2023.

Due to its special surface structure of microscopic ribs – so-called riblets – AeroSHARK reduces the frictional resistance of the aircraft skin. As a result of this, fuel consumption and CO2 emissions are reduced by around one percent. For each Boeing 777-300ER jet operated by SWISS, this means annual savings of around 400 tons of kerosene and more than 1,200 tons of carbon dioxide. The slightly shorter Boeing 777F jet saves around 370 tons of fuel and 1,170 tons of CO2 each year.

"The approval of AeroSHARK for the Boeing 777 variants is an important step in the distribution of this new





technology for more sustainability in air transport," said Soeren Stark, Chief Executive Officer, Lufthansa Technik. "With our partner BASF, we can now support our customers in making entire subfleets more climate-friendly. Moreover, we intend to realize the use of the new technology for further aircraft types. We are the only MRO company in the world to offer such solutions to reduce fuel consumption and CO₂ emissions for commercial aircraft. We are naturally very proud of this," he further added.

The first AeroSHARK-equipped Boeing 777-300ER of the Swiss airline (HB-JNH), which also completed the flight test program for the now-received EASA certification, had already begun daily operations in October 2022 using a temporary "Permit-to-Fly" from the Swiss Federal Office of Civil Aviation (FOCA) that was valid for this single aircraft only. The STC issued by EASA will now allow Lufthansa Technik to serially apply the nature-inspired riblet films to any given Boeing 777-300ER and 777F aircraft.

The AeroSHARK modification of HB-JNH already began at the end of August 2022 and culminated in so-called STC flights with EASA on 8 and 9 September 2022. During these flights, detailed proof had to be provided that the Aero-SHARK modification had no negative impact on the operational safety and handling of the Boeing 777. The STC flight was followed by several weeks of evaluation of the collected data and other documents, such as measured values from flow simulations. After recently completing its review of all submitted documents, EASA finally granted the STC approval.Dr. Uta Holzenkamp, the head of the Coatings division, BASF, and in this position also responsible for functional films.

"Realizing such a project is only possible through cooperation in partnership and great trust in each other's expertise. Together, we have succeeded in developing a tailor-made solution that combines economic action and sustainability in equal measure," said Dr. Uta Holzenkamp, head of Coatings division, BASF. "With the Novaflex Sharkskin

functional film, we are helping our customers to achieve their individual sustainability goals and in this way make aviation measurably more environmentally friendly," she further added.

SWISS and Lufthansa Cargo will successively equip all twelve of their 777-300ER and eleven 777F aircraft with AeroSHARK. They will thus be the first passenger and cargo airlines worldwide to optimize a complete sub-fleet with the riblet films. Once all Boeing 777 jets at Lufthansa Cargo and SWISS have received the AeroSHARK modification, the carbon footprint of the Lufthansa Group will reduce by more than 25,000 tons annually.

Lufthansa Technik and BASF have intentions to consistently develop AeroSHARK further for additional aircraft types and larger surfaces. This will help them in the future to support airlines around the globe in achieving their emissions targets. In initial model calculations, the sharkskin technology in its maximum expansion stage could even avoid CO2 emissions on the scale of up to three percent.

Lufthansa signs nine years Total Component Support (TCS) for Avianca's Boeing 787 fleet

According to the agreement, Lufthansa Technik will provide repair and overhaul of components support for Avianca's 16 Boeing 787 aircraft.

Lifthansa Technik has announced the signing of a comprehensive Total Component Support (TCS) contract with Avianca, the flag carrier of Colombia. According to the agreement, Lufthansa Technik will provide repair and overhaul of components support for Avianca's Boeing 787 fleet. The new contract will provide pool support for up to 16 Boeing 787 aircraft for a period of the next nine years. This will further solidify the partnership between the companies that commenced more than a decade ago.

Álbert Pérez Subiros, Vice President of Maintenance, Avianca said: "The agreement we have reached with Lufthansa Technik is in line with our goal of becoming an increasingly competitive airline. Through this contract, we will be able to have on-time availability of 787 com-



ponents, making our cost scheme more efficient, while guaranteeing quality, reliability and availability of the doubleaisle fleet in our long-range network."

With the Lufthansa Technik Total Component Support (TCS) agreement, Avianca will be provided the benefits of an individual supply concept that enables short and rapid transport paths. Lufthansa Technik already provides Avianca with

comprehensive component support with Single Component Maintenance SCM.

"We are delighted to further strengthen our partnership with Avianca and continue to build on our relationship for years to come. With enhanced material supply and logistics, our Total Component Support TCS ensures optimal availability for Avianca's fleet of Boeing 787 aircraft," said Georgios Ouzounidis, Vice President Corporate Sales for The Americas, Lufthansa Technik.

Lufthansa Technik AG is a provider worldwide of maintenance, repair, and overhaul services for aircraft, engines, and components around the globe. It is a subsidiary of the Lufthansa Group. Head-quartered at Hamburg Airport, its other important German sites are Frankfurt Airport and Munich Airport.



MRO opportunities in 2023

onsider the size of the aviation MRO market - valued at USD 79.2 Billion in 2022, and projected to reach USD 133.69 Billion by 2030, according to Verified Market Research Data. With a growth rate of CAGR of 5.45% for the period 2023 to 2030, further buoyed by expansion and growth of emerging economies, and increase in both leisure and business travel – will lead to greater aircraft utilisation and aircraft manufacturing - all of this auger well for those seeking business opportunities in the MRO industry.

While we 'crystal ball' gaze into the new year, assess and ascertain business prospects, remain hopeful of business opportunities, what comes to the fore with positivity are concepts like digitalisation, sustainability, partnerships and alliances. Those who see the glass 'half full', will quickly look at all of the above as business areas to explore or grow something that is already existing. Military aircraft orders too are ex-



pected to see a steady demand as will the defence MRO sector in 2023. One example is the announcement made by the Government of India on augmenting air defence capabilities, amongst others.

For Airlines, MROs and OEMs geopolitical, economic and societal issues form the backdrop, as do challenges arising out of an ongoing post pandemic realities - supply chain disruptions and labour shortages, flight restrictions and related shut downs. However, recovery has begun as passengers once more take to the skies with a predicted 47% more passengers flying in 2022 than in 2021. This will continue to rise till the end of

this decade, with worldwide fleet numbers reaching nearly 36,500 by 2031.

Business prospects from digitalisation across mro activities

MROs and airlines are investing in specific areas in their digitalisation journey and are benefitting from adopting newer and cutting-edge technology to inject efficiency into their businesses. Predictive Maintenance is one important subject in focus. This is made possible by applications such as AI (Artificial Intelligence), IOT (Internet of Things) and ML (Machine Learning). Because of the resultant increase in performance and cost reduction, and proactive maintenance possibilities, defect management, MRO entities and software companies are betting big on going digital.

Excellent opportunity for digital MRO software providers. For example, as of 2020, Rolls-Royce is using AI forecasting, supported by IFS, in the engine manufacturers Blue Data Thread

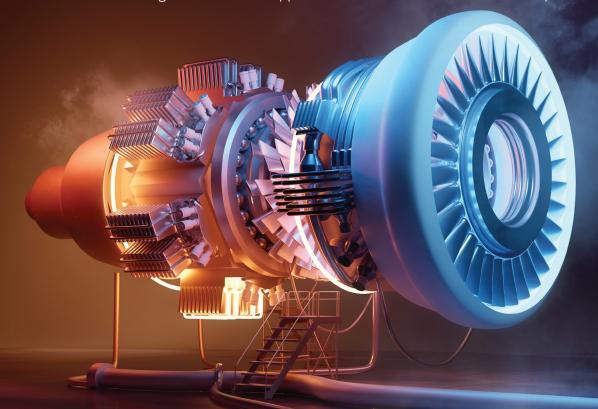


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strategy, that digitally connects each and every Rolls-Royce powered aircraft, airline operation, maintenance shop and every factory.

Touchless check in experiences at airports for travellers meant proliferation of smart devices (good for hardware suppliers) and maintenance software (business for software providers) - all of this is leading to an ecosystem of merged reality.

Developments in MRO Software consumption

★ In May 2022, Jet Support Services, Inc. (JSSI), provider of maintenance support and organizational services, has launched the JSSI Maintenance Software, their new business unit for technology driven maintenance products.

★ May 2022 debut of AFIRS Edge A320 Platform on Coral Jet, a start-up airline serving the Caribbean, the United States, and Canada – enhanced the carrier's satcom offerings

Industry experts have marked 2023 as the year of regaining normalcy for the global digital MRO sector. A recent IFS poll indicated that over half (56%) of the participants had invested in digital transformation.

Key Digital MRO players and more...



tives of reducing net emissions by 50% in 2050 when compared to 2005 goals. All of these stakeholders are business entities and thus the path towards sustainability opens up vast avenues of business opportunities.

SAF production on a commercial basis would come from production of sufficient amounts of feedstock at affordable prices. All of these require significant investment. Fuel efficiency would also come from improvements in aircraft technology and proper maintenance of assets. Therefore, aircraft manufacturers and MRO services have their work cut out for them, (read more research and business).

In July, 2022, World Fuel Services (World Fuel) announced the opening of their first distribution centre, for sustainable aviation fuel (SAF) 'Neste's erations between 2021 and 2022, and expected to make do with small to medium scale maintenance facilities. These fresh launch carriers then are potential customers for third-party MRO providers -a business opportunity yet again. MROs catering to this market segment will see work coming from servicing mainly narrowbody aircraft and those belonging to the Airbus A320 family. Widebody MRO service providers are expected to gain comfort from servicing mainly Airbus A330 and A350 variants. Additionally, regional jets, E-Jets CRJs and ERJs turboprops such as ATRs are expected to be part of fleet plans of these new entrants. MRO services business will see freighters and business jets, as also 'preighters' converted passenger aircraft to freighters, coming their way. Regionally, Europe and the CIS will lead the world in start-ups with nearly 40% of the total count.

This aviation market will be supremely cost-conscious and will opt for outsourcing their MRO needs.

- ★ For example, AFI KLM E&M subsidiary Barfield will provide flight-hour repair and pool support for Global Crossing's A320s and A321s. In turn, Global will offer crewed A320-family aircraft to augment other airlines' fleets.
- ★ Again, ST Engineering's Aviation Asset Management unit has signed a letter of intent with Global Crossing to lease up to five A321 passenger-to-freighter aircraft. ST Engineering will provide asset management and MRO services, as per the terms of the deal.

Growth in used servicable material (usm) business

During, and post the pandemic, airline resizing activity saw early retirement of aircraft. What ensued amongst certain commercial aircraft fleet is disassembly, dismantling, and

Digital MRO Market Ecosystem

SOFTWARE DEVELOPERS	MROs	Airlin es
IFS Ramco Systems Rusada IBM SAP	GE Aviation Boeing Aircraft Services Honeywell Aerospace Rockwell Collins Lufthansa Technik	Air China United Airlines American Airlines Delta Airlines Southwest Airlines

Sustainability

With IATA and its member airlines having committed to sustainable alternative fuel (SAF), efforts are on to produce and use SAF on a large commercial scale in order to make a difference in emission reduction. IATA engages with all relevant stakeholders including, feedstock suppliers, technology providers, SAF producers, fuel logistics suppliers, airlines, airport authorities, private and public investors, relevant international organizations, certification authorities, policy makers. All this, to be able to achieve its objec-

Neste MY Sustainable Aviation FuelTM′, at the Paris-Le Bourget Airport, France.

Rise of start up airlines – opportunity for third-party mros

On the horizon, are a clutch of newbies waiting in the wings to take off... Start -Up airlines are lining up to launch operations or scale up, or even announce their company formation. This is potentially an exciting area of new business for aviation MROs.

According to IBA nearly 130 airlines or more would have launched their op-





recycling activity - an industry of its own, which is growing since 2020. This is the Used Serviceable Materials (USM) segment and a lucrative business opportunity. With increased air travel, the demand in the USM parts business growth is expected at 68 percent per annum through 2022, with market forecast to hover around

Airlines will derive maximum value out of using USM parts vis-à-vis fleets that are no longer economically feasible to operate but still do have viable life in them like the Boeing 777s and the Airbus A330s.

a whopping USD 7.9 billion.

Business prospects for specialized mro service providers

There is the presence of small familyowned repair shops providing specialised services like aircraft interiors or landing gear maintenance. Business for these entities come from larger MROs (who may even own them) and are present at large, non-commercial airports. Regional carriers often assign MRO jobs to subcontractors apart from in-house personnel as an effective cost -cutting method.

On the other hand, Military MRO aviation facilities have large set ups and have significant amounts of MRO capabilities for servicing diverse assets from transport planes to cargo carriers as also helicopters. Here nothing is left to chance.

Another source of business for MROs come from large companies who own their in-house fleet of business jets, and are equipped with their very own

in-house MRO facility, technicians and all operational support.

Business expansions through partnerships

Keeping alive their businesses through alliances and partnerships, right-sourcing and outsourcing have stood MROs in good stead, as steep rise in material cost remains a pain point, hampering market growth. To overcome this challenge, MRO service providers are forging strategic alliances with OEMs for assistance in procuring aircraft parts and components. Whereas aircraft OEMs have focussed on acquiring specific businesses like aftermarket parts sale, to extend their reach and capabilities. Consolidations, alliances and partnerships are businesses that will grow the market. One must seize the opportunity.

Some examples are: 1) United Technologies, Rockwell Collins and Raytheon all merging to form a formidable entity - Raytheon Technologies. 2) Investment firms too have contributed to the MRO growth story: The Carlyle Group's strategy of 'Buy and Build' brings smaller and similar companies under their flagship umbrella brand 'StandardAero'.

OEMs OUTSOURCING ANCILLARY ACTIVITIES TO MROs

OEMs are outsourcing ancillary jobs to MRO service providers and that in itself is fuelling the growth. Therefore, ancillary service units can take advantage of this development

to supplement the overall growth of the aviation MRO industry. Amongst the various segments covering MRO services, Engine MRO overhaul leads by a sizeable margin, and is predicted to grow significantly. Now with OEMs in the fray, a healthy expansion/ growth lies ahead for those involved in repair, maintenance, and complete rebuilding of parts, engines, and subassemblies – and allied services that offer substantial business prospects.

Some major players are TAP Maintenance & Engineering, Singapore
Technologies Engineering Ltd, Raytheon
Technologies Corporation, MTU Aero
Engines AG, Lufthansa Technik, KLM UK
Engineering Limited, Hong Kong Aircraft
Engineering Company Limited, Delta
Airlines Inc, Airbus SE, and AAR Corp.

Business opening for manpower providers for mro industry

OEMs have been hit by worker and supply shortages, and the EU Parliament found European demand for manufacturing decreased by 43% in 2020 primarily due to Airbus order deferrals. Other airlines accelerated the retirement of costly aircraft with Oliver Wyman's data showing 5,000 aircraft that were in service at the start of 2020 were no longer flying at the beginning of 2021.

- ★ The MRO industry is not only experiencing a labour shortage, but also has to struggle with increased cost of labour. Opportunities abound in skilling up technicians and roping in young graduate engineers to take a keen interest in technical maintenance positions. Talent search firms and head hunters will look at recruiting personnel after right-skilling, in order to overcome MRO industry problems of costly labour and its shortage, lack of experienced workers, and getting fresh graduate engineers to remain keen on technical maintenance positions.
- ★ Rolls-Royce launched a virtual reality-based training to its airline clients to provide an overview of repair of aircraft engines.

Reference Credit:

Aviationpros.com Verified Market Research fortunebusinessinsights.com Oliver Wyman Cirium Infosys Knowledge Centre





ATR hands over first 42-600 aircraft to ORC secured by an ATR's GMA

ORC plans to start operating the ATR 42-600 in July 2023 to strengthen support for its domestic activities in providing essential connectivity from Nagasaki to the island of Kyushu in Japan.

TR, a Franco-Italian aircraft manufacturer has announced the delivery of the first ATR 42-600 jet to ORC (Oriental Air Bridge), a Japanese regional airline. The newly delivered aircraft is covered by an ATR Global Maintenance Agreement contract (GMA). The aircraft which was delivered in Toulouse was ordered in July 2022 and carries the brand-new ORC livery. ORC will plan to start operating the ATR aircraft in July 2023 to further strengthen support for the airline's domestic activities in providing reliable essential connectivity from Nagasaki to the island of Kyushu in Japan.

Mr. Tanaka, Senior Managing Director, ORC said, "We are pleased to start operating our ATR 42-600 aircraft soon. With the unrivalled versatility and sustainable performance of ATR aircraft, this delivery represents a step forward for us to better serve our higher purpose of providing air link to revitalise the remote islands around Nagasaki Prefec-

ture, in the most responsible way. We will also be able to offer our passengers the highest standards of comfort and modernity, while ensuring cost effectiveness through our ATR Global Maintenance Agreement. We look forward to welcoming passengers on our flights to visit the remote island of Nagasaki where some beautiful world heritages are located."

The ATR 42-600 is configured with a 48-seat cabin and is equipped with the latest avionics. With the signing of an ATR GMA contract, ORC will also be able to take full advantage of manufacturer expertise to support its ATR42-600 aircraft in service, which will further help the company to reduce maintenance costs while boosting operations.

Nathalie Tarnaud Laude, Chief Executive Officer, ATR said, "Air transport is crucial for Japan, where air routes are essential for domestic travel and transportation. As such, ORC is boosting local economy every day by offering vital

links for local communities from Nagasaki and surrounded islands. At ATR, we are pleased to count ORC as one of our new customers and to contribute to support their mission in providing them with the most affordable and responsible aircraft in the market. The support we will be able to provide through the ATR Global Maintenance Agreement will also ensure the most reliable and efficient services for their fleet."

In countries committed to reducing carbon dioxide emissions and preserving biodiversity such as Japan, ATR aircraft represent the perfect solution by connecting communities and businesses across the archipelago in the most responsible way. There are currently 15 ATR aircraft flying across Japan. Over the next ten years, ATR foresees a demand for 100 regional aircraft in Japan. Most of these will replace older, less efficient models, and will connect islands and remote regions with the country's major cities.



EirTrade Aviation secures EASA certification for Airbus and Boeing jets line maintenance

EASA Part 145 Line Maintenance approval has been granted to EirTrade Aviation Maintenance for the Airbus A320 and Boeing 737.

EirTrade Aviation Maintenance Ltd. has received EASA Part 145 Line Maintenance approval for its facility at Ireland West Airport, Knock, for the Airbus A320 and Boeing 737 families of aircraft. The rigorous process took over a year, with the assistance of the Irish Aviation Authority, to establish the procedures, personnel, facilities, tools, and equipment needed to meet the requirements.

"EirTrade Aviation Maintenance's approval will be hugely beneficial for the airport. It provides significant support for future airline and passenger growth at Knock. Our existing airline partners, Ryanair and Aer Lingus, will be able to access approved line maintenance services as well as on-site support that can deliver immediate action in the event of aircraft issues arising during operations. Having approved EASA Part 145 Line Maintenance located at Ireland West Airport will also be an added incentive in support of our ambitions to attract new airlines to develop their services at Knock," said Joe Gilmore, Managing Director of Ireland West Airport.

EirTrade Aviation Ireland Limited is an aviation asset trading and management company. Founded in 2010, EirTrade provides specialist services to the airline and aircraft leasing community worldwide. EirTrade's services include Technical Storage - engines, aircraft and engine parts. AEO, IAA & ASA approvals, Consignment Programs - Engine, Airframe and Component Packages, Technical Services - Back to Birth, Current Market Asset Valuations, Aircraft Lease Transition, New Engine and Aircraft Parts Trading, Aircraft Disassembly, Aircraft End of Life Program Management.

Andy Cahill, Line Maintenance Manager, EirTrade said, "Aviation Maintenance, the initial catalyst behind gaining the EASA Part 145 approval was to enhance the services offered at the airport. No other company offers line maintenance services at the airport, so our services now allow potential airline and lessor



■ The European Union Aviation Safety Agency is an agency of the European Union responsible for civil aviation safety.

customers to benefit from cost-savings and faster TATs."

The European Union Aviation Safety Agency is an agency of the European Union responsible for civil aviation safety. It carries out certification, regulation and standardization and also performs investigation and monitoring. EASA is responsible for new type certificates and other design-related airworthiness approvals for aircraft, engines, propellers and parts. EASA works with the EU member states' civil aviation authorities (CAAs) but has taken over many of their functions in the interest of aviation standardization across the EU and in the non-EU member Turkey.

"EirTrade Aviation Maintenance has the capacity to expand line maintenance capabilities at Knock with the development of additional hangar facilities and add further aircraft types, including regionals. But this is for future consideration", said Steven Trowell, Accountable Manager, EirTrade.

The A320neo Family is firmly established as the most modern and best-selling single-aisle fleet in the world,

reaching new heights in efficiency, and achieving great distances of up to 4700nm with the A321XLR. With passenger seating ranging from 120 to 244, the versatility of the A320neo Family ensures that when market demands change, you will be ready to deliver the right capacity, at the right time, all for the right price.

"Our approval covers Airbus 318/319/320/321 (CFM56); Airbus 319/320/321 (CFM LEAP-1A); Airbus A319/320/321 (IAE V2500); Boeing 737-600/700/800/900 (CFM56); Boeing 737-7/8/9 MAX (CFM LEAP-1B) – we are very pleased to focus on these popular types and be ready to upscale to meet the ensuing demand when scheduled and charter operations step up at Ireland West Airport", said Jim Maguinness, Quality Manager, EirTrade.

The Boeing 737 is a narrow-body aircraft produced by Boeing at its Renton Factory in Washington. Developed to supplement the Boeing 727 on short and thin routes, the twinjet retains the 707 fuselage width and six abreast seating with two underwing turbofans.



Embraer awarded Type Certification for E195-E2 and E190-E2 jets by Canada aviation authority

Porter Airlines has placed an order with Embraer for up to 100 E195-E2 aircraft which includes 50 firm commitments and 50 purchase rights.

Embraer, a Brazilian multinational aerospace manufacturer has received the Type Certification from Transport Canada Civil Aviation (TCCA) for its E2 family of commercial jets, the E195-E2 and E190-E2. Embraer has already secured certification from ANAC (Brazil), the FAA (USA), and EASA (Europe) in 2019 and 2018 respectively. The delivery of the first of the fifty E195-E2 jets ordered by Torontobased Porter Airlines will take place at Embraer's headquarters in São José dos Campos, Brazil. Porter Airlines will also receive the first E195-E2 to be operated in North America.

Porter Airlines has placed an order with Embraer for up to 100 E195-E2 aircraft which includes 50 firm commit-



ments and 50 purchase rights. In 2021 Porter Airlines ordered 30 Embraer E195-E2 jets, with purchase rights for a further 50 aircraft, worth US\$5.82 billion at list price, with all options exercised. A firm order for a further 20 aircraft followed in 2022, valued at US\$1.56 billion.

The E195-E2 is an environmentally friendly aircraft in its class, with a 25%

lower fuel burn than the previous generation aircraft, with E190-E2 achieving 17% lower emissions. Both aircraft have the lowest levels of external noise, and the longest maintenance intervals in the single-aisle jet category – with 10,000 flight hours for basic checks and no calendar limit for typical E-Jet operations. This means an additional 15 days of aircraft utilization over a period of ten years compared to current generation E-Jets.

The E190-E2's take-off performance is particularly notable, the aircraft's range from airports with hot-and-high conditions, such as Denver and Mexico City, increases by 600nm compared to current-generation aircraft.

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SkySelect's artificial intelligence to assist Magnetic MRO to automate the parts procurement process

With the expanded partnership, Magnetic MRO is using SkySelect Procurement AI to automate the purchase of spare parts in an effort to ease the workload, enhance operational efficiency, and generate cost savings.

MagneticMRO

skyselect

Magnetic MRO, a provider of total technical care aviation solutions, expanded its long-standing partnership with SkySelect to fully automate its stock replenishment parts procurement. In accordance with this expanded partnership, Magnetic MRO is using SkySelect Procurement AI to automate the purchase of spare parts in an effort to ease the workload, enhance operational efficiency, and generate cost savings. For a seamless end-to-end purchasing experience from the part requirement to delivery, the SkySelect software platform combines technology and services.

As of right now, Magnetic MRO has achieved outstanding results in terms of cost reductions and productivity increases. The Procurement AI contributed

to a 19% cost reduction on stock replenishment parts in just October. Since 79% of the purchases made on the SkySelect platform were fully automated by artificial intelligence, the vast majority of these savings were realized without the involvement of any humans.

"Having partners such as SkySelect, which we can innovate and grow with, is vital to our fast-growing business," said Raivo Roolaid, Head of Supply Chain, Magnetic MRO. "SkySelect is always developing new ways to support us in providing world-class service to our airline customers. Their platform gives us much-needed visibility and control of the supply chain, allowing us to run leaner operations and avoid delays," he further added.

Additionally, orders are quickly filled in addition to being fulfilled at the lowest cost possible when purchasing those parts. It takes an average of 3.2 hours to recommend a PO after receiving a part request, and less than a week on average to deliver a PO. Due to complete two-way integration between their ERP and SkySelect, which includes the use of Spec2000 to exchange orders with suppliers, Magnetic MRO is able to achieve these results.

"Magnetic MRO is one of our best partners because of the mutual respect and trust we have for each other as well as having a shared innovative mindset," said Erkki Brakmann, CEO, SkySelect. "This type of collaboration is the cornerstone to digitalizing the supply chain of materials for MROs and airlines, using the power of artificial intelligence," he further added.

The strategic alliance between Magnetic MRO and SkySelect began in 2019 and has grown over the course of their work together to create cutting-edge solutions for the aviation sector.

Safran to set up new compressor blades and vanes plant for aero engines in Belgium

The 10,000-square-meter centre of excellence will be built on a former ArcelorMittal site in Marchin and will incorporate Safran's best industrial technologies.

Safran Aero Boosters has recently announced to build a new compressor blades and vanes production plant for aircraft engines in the Walloon region of Belgium, in the province of Liège. François Lepot, CEO of Safran Aero Boosters, made the announcement in front of Willy Borsus, Vice-President of Wallonia, Adrien Dolimont, Walloon Minister of Finance, and Thomas Dermine, Secretary of State for Recovery and Strategic Investments.

François Lepot, CEO of Safran Aero Boosters said "There are hundreds of blades in the compressor. They are a key component in our supply chain. Managing their production in both technical and logistical terms will guarantee our performance".

The new plant, which will cost €50 million, will produce titanium compressor blades, including those for the LEAP engine, and will strengthen Safran Aero Boosters' industrial expertise in its flagship product, the low-pressure compressor

sor. It will be known as Safran Blades and will be established in collaboration with the Belgian and Walloon federal governments, the Société Régionale d'Investissement de Wallonie (S.R.I.W) and the Société Fédérale de Participations et d'Investissement (S.F.P.I.M). Safran Aero Boosters owns 56% of the company, with the other two partners each owning 22%.

"We are very proud to announce the construction of this plant today. I'd like to thank the Belgian and Walloon







governments for their ongoing support for Safran's industrial and research projects, and for consolidating the autonomy of our supply chain through this investment," said Olivier Andriès, CEO of Safran. The 10,000-square-meter centre of excellence will be built on a former ArcelorMittal site in Marchin and will incorporate Safran's best industrial technologies to meet the highest global standards. Plant 4.0 will feature automation, highly qualified personnel, and cutting-edge digital technologies to produce more than 2,000 blades and vanes per day, with innovative, autonomous real-time quality control at every critical stage of production. It will open in 2025 and employ approximately 100 people.

Furthermore, the site is intended to meet the highest standards of sustainable development, with significant reductions in energy and water consumption, as well as the use of renewable energy (solar panels, hydraulic turbines, etc.).

De Havilland Canada signs a DCS Program agreement with WestJet

The DCS program supports the operation of Dash 8-400 aircraft by ensuring cost-effective repair solutions and global accessibility to over a thousand different aircraft components positioned at strategically located distribution centers and at some customers' operating hubs.



De Havilland Aircraft of Canada Limited ("De Havilland Canada") announced that it has signed an agreement with WestJet Encore Ltd. under the De Havilland Component Solutions Program ("DCS Program"). De Havilland Canada will manage component maintenance, repair, and overhaul (MRO) services for the airline's fleet of Dash 8-400 aircraft and provide access to De Havilland Canada's strategically located exchange pool under the terms of the agreement.

Lisa Davis, Vice-President and General Manager, WestJet Encore said "The DCS Program offers the cost predictability that is so important in airline management, and we also look forward to benefitting from access to De Havilland Canada's expertise in warranty administration, planning and supplier management to enhance the operations of our Dash 8-400 aircraft".

The DCS programme supports the operation of Dash 8-400 aircraft by providing over a thousand different aircraft components that are positioned at strategically placed distribution centres and at some customers' operating hubs, as well as cost-effective repair solutions that are accessible worldwide.

"With the addition of WestJet to the

DCS Program, our support to the fleet of Dash 8-400 aircraft in North America is significantly increased and includes the two largest operators on the continent," said Leighton Storsley, Vice President, Aftermarket and Business Development, De Havilland Canada. "We thank West-Jet for affording us this opportunity to manage this aspect of the airline's component MRO services," he further added.

The programme adapts to the needs and environment of each customer in order to satisfy the growing demand for personalised repair solutions. The environmentally friendly option for operators looking for the best performance on regional routes is the Dash 8-400 aircraft, which seats up to 90 passengers and boasts an industry-leading passenger experience, low operating costs, and jet-like performance. The DCS programme has enrolled or contracted more than 200 Dash 8-400 aircraft.



AAR and Leach International Corp. expand distribution partnership

AAR, on behalf of Leach, will continue to stock, advertise, and market electromechanical and solid-state switch gear, including relays, switches, relay panels, and power distribution units, to OEMs.

each International Corp. has extended its distribution partnership with AAR CORP., a top provider of aviation services to commercial and government operators, MROs, and OEMs. On behalf of Leach, AAR will continue to stock, advertise, and market electromechanical and solid-state switch gear, including relays, switches, relay panels, and power distribution units, to OEMs for new production, commercial airlines, MRO suppliers, and the military aftermarket.

"AAR will continue to help Leach provide the highest level of service for our customers. Leach products are used in a wide range of applications, from commercial aviation to cutting

edge defense applications, and AAR's world-class support ensures Leach parts continue to set the standard for power distribution," said Elijah Dobrusin, Vice President of Sales & Marketing at Leach. "Our extended agreement makes certain that customers can continue to operate and obtain their critical parts, even in this unprecedented supply chain environment," he further added.

AAR is a multinational provider of aerospace and defence aftermarket solutions with operations in more than 20 nations. AAR, which has its corporate headquarters in the Chicago area, provides support for both commercial and government customers through its two

operating segments: aviation services and expeditionary services.

"This contract renews our commitment to Leach by buffering the supply chain and supporting Mil-Aero OEMs with their power distribution needs," said Darren Spiegel, Vice President and General Manager, AAR. "Leach is the historic leader in aircraft electrification. and AAR is proud to enhance that mission," he further added.

Leach International, a pioneer in electrical power distribution since 1919, sets the bar for the design and production of electrical switches, relays, contactors, power distribution assemblies, and control devices.



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ATR secures a 20-Year Global Maintenance Agreement with Alliance Air

Through this new package from ATR, Alliance Air will continue to benefit from the repair, overhaul and pooling services of Line Replaceable Units.

ATR, a Franco-Italian regional aircraft manufacturer, has announced the signing of the five years extension of their Global Maintenance Agreement (GMA) with Alliance Air. This newly signed year marks 20 years of partnership since the airline signed its first ATR pay-by-hour maintenance contract in December 2002. Alliance Air is a wholly-owned subsidiary of AIAHL which is a Special Purpose Vehicle formed by the Government of India after the disinvestment of Air India Limited.

M. Vineet Sood, Chief Executive Officer, Alliance Air said, "Our ATRs have been playing a strategic role in enabling us to offer our communities quick, comfortable and reliable access to essential services. 20 years ago, we decided to optimise our operations and maintenance activities with the ATR GMA. 20 years later, we reaffirm our trust in the manufacturer's expertise, looking forward to reaching the next significant milestone of 25 years of a win-win partnership."

Through this new package from ATR, Alliance Air will continue to benefit from the repair, overhaul and pooling services of Line Replaceable Units. The airline will also enjoy the availability and mainte-

nance of propellers and landing gears for its fleet of two ATR 42-600 and 18 ATR 72-600. Alliance Air is the front runner in promoting the "Regional Connectivity Scheme" (RCS) of the Government of India, the very objective of which is to make air travel affordable and widespread, to boost the national economy.

David Brigante, SVP Customer Support and Services, ATR said, "When two companies work together for twenty years, it is not a transactional relationship, but a true partnership. As India's national airline, Alliance Air provides crucial air links that create new opportunities for millions of people. Our job is to ensure that they can fulfill their mission every day. That's why we have been continuously improving the quality of our services ever since our first agreement in 2002 to match Alliance Air's needs and, more generally, the challenges of regional airlines today."

Alliance Air has an existing fleet of 18 ATR 72-600 and is in process of expanding its fleet by inducting two more ATR 42-600 to cater to airports with landing restrictions. Alliance Air operates 125 plus flights/day to 50 plus destinations within India with a focus on connecting Tier II & III cities.



Embraer signs contract with Envoy Air Inc. and JSX for heavy maintenance services

Envoy Air Inc. and JSX under the agreements will receive the airframe maintenance and repair services provided by Embraer's portfolio of solutions.

Embraer announced the signing of two heavy maintenance services contracts worth a combined \$72 million by Embraer Aircraft Maintenance Services (EAMS) in Macon, Georgia. Both companies will receive the airframe maintenance and repair services provided by Embraer's portfolio of solutions under the agreements, which have been signed with Envoy Air Inc. and JSX.

"We welcome Envoy back to EAMS as a recurring customer of heavy maintenance and look forward to the start of new partnerships with JSX for our support," said Frank Stevens, Vice President, Global MRO Centers, Embraer Services & Support. "Macon continues to expand, and these new lines will promote growth within the area and

open job positions for qualified talent. Overall, these contracts are mutually beneficial for our partners as we can provide exceptional service while expanding our operations," he further added.

Although the new contract only includes one nose-to-tail heavy maintenance line, Envoy has used EAMS since 2002 and has periodically outsourced maintenance lines to the company since 2011. Embraer and JSX have agreed to a lengthy contract for two nose-to-tail heavy maintenance lines.

Envoy Air Inc., an entirely owned subsidiary of American Airlines Group, flies 800 times daily to more than 160 destinations across the United States, Canada, Mexico, the Bahamas, and the Caribbean using more than 160 aircraft. The company's 18,000 employees provide ground handling services for numerous American Airlines Group flights as well as regional flight service to American Airlines under the American Eagle brand.

JSX is an independent airline operating point-to-point flights between and within Arizona, California, Colorado, Florida, Nevada, New Mexico, New York, and Texas in the United States and Baja California Sur in Mexico. It bills itself as a "hop-on jet service" and describes itself as such. The airline sells its flights as public air charters in accordance with DOT 14 CFR Part 380, and its subsidiary Deluxe Public Charter operates flights in accordance with FAA Part 135 as JSX Air.





AAR signs customer support distribution contract with Ontic

AAR will continue to offer supply chain solutions, such as warehousing, logistics, and supply chain management, for Ontic's Cheltenham MRO under the terms of the military customer support distribution contract extension.

AR CORP., a top supplier of aviation services to MROs, OEMs, and commercial and government operators, has strengthened its alliance with Ontic by agreeing to an extension of a military customer support distribution contract and a new, long-term global commercial distribution agreement.

"Every day, our military customers across the world depend on Ontic parts to execute their missions effectively. By extending our agreement with AAR, we are ensuring that our valued customers continue to have access to the parts they need when they need them," said Eric Lopes, Ontic's General Manager. "Ontic continues investing in solving some of the industry's biggest challenges, and our partnership with AAR serves that priority," he further added.

AAR will continue to offer supply chain solutions, such as warehousing, logistics, and supply chain management, for Ontic's Cheltenham MRO under the terms of the military customer support distribution contract extension. Additionally, AAR will keep providing military operators with worldwide distribution services, such as sales and international government



customer support for electronic assemblies, flight control units, gyroscopes, and altimeters. The F-15, F-16, Hawk, and Sea King aircraft, which are seeing an increase in operational tempo, are served by this comprehensive supply chain agreement, which primarily focuses on Western and European platforms.

"At Ontic, we recognize the importance of quality, part availability, and reduced lead times," said Matthew Pritchard, Director of Customer Engagement, Ontic. "We are confident that our partnership with AAR will help us improve the customer experience, while we continue to focus on investing in ongoing sustainment," he further added.

For the Twin Commander and Metro Merlin airframes, AAR will also take over as Ontic's sole global distributor of OEM products. With the help of this new agreement, AAR will be able to offer a wider range of products to commercial clients while also enhancing the lead quality and

service levels for Ontic's clientele.

"AAR is looking forward to working with Ontic's commercial customers to provide excellent service, and we will uphold that commitment through the life of the Twin Commander and Metro Merlin airframes," said Eric Young, Vice President of OEM Solutions, AAR. "We are also honored to be selected to continue providing long-term operational and cost-effective solutions to Ontic's global MRO and aftermarket customers. We remain committed to helping Ontic execute its mission for years to come," he further added.

AAR is a global aerospace and defense aftermarket solutions company with operations in over 20 countries and Ontic is a top-tier international aerospace OEM that offers intricately engineered parts and maintenance services for well-known aircraft in the commercial and military markets.

Ontic has operations in North America, the UK & Europe, Asia, and has over 45 years of experience in product manufacturing and aftermarket support. Ontic offers strategic global support to civil and defence customers as needed.

Magnetic Engines to provide On-Wing Repairs for GE Aerospace CFM engines

According to the contract, Magnetic Engines will provide support for GE Aerospace customers with onwing repairs for the CFM International CFM56-5B and CFM56-7B engines.

Magnetic Engines, a member of Magnetic Group, has announced the signing of an agreement with GE Aerospace, a global provider of jet and turboprop engines. According to the contract, Magnetic Engines will provide support for GE Aerospace customers with on-wing repairs for the CFM International CFM56-5B and CFM56-7B engines. Magnetic Engines is a provider

of support services for aircraft engines.

"We are pleased to work with Magnetic Engines and continue our mission to provide world class customer support around the globe," said Alex Henderson, On Wing Support General Manager, GE Aerospace. "This agreement is another step intended to provide value to our customers and keep them flying longer," he further added.

Magnetic Engines providing on-wing support at this level will provide flexibility and value for OEM customers to reduce Turn Around Time (TAT), save costs and return the engine into operation.

"Magnetic Engines is elated to have GE Aerospace as a customer and we will do our best to justify their trust in our abilities and quality, we are looking



AGREEMENTS



forward to our cooperation," said Filip Stanisic, Head, Magnetic Engines. This is the first step between Magnetic Engines and GE Aerospace, as they will continue to develop their partnership to provide a world-class experience for their customers. GE
Aerospace is a provider of components
and integrated systems for commercial
and military aircraft. GE Aerospace has
a global service network to support
these offerings. CFM is a 50/50 joint
business between Safran Aircraft Engines and GE.

"This collaboration has been a long time coming. I'm ecstatic to support GE customers and looking forward to watching our partnership continue to grow," said Laura Roké, Sales Executive, Magnetic Engines.

At present, Magnetic Engines offers this service on more than 500 piece part/component/module part numbers applicable to CFM56-3, CFM56-5B and CFM56-7B engines. The company also keeps a stock of certified parts from its tear-down projects and can provide customers with a spare part quickly for sale or exchange.



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SUSTAINABLE AVIATION



Rolls-Royce prepares for UltraFan technology demonstrator test as construction completed on schedule

The first test of the demonstrator is expected to take place in early 2023 and will be operated using 100% Sustainable Aviation Fuel.

Rolls-Royce announced that it has finished construction on its UltraFan technology demonstrator and is getting ready to test it. A significant programme milestone was reached when the demonstrator engine was moved from the build workshop to Derby, UK's Testbed 80, where it was mounted in anticipation of testing.

Early in the following year, the demonstrator's first test is anticipated, and sustainable aviation fuel will be used throughout.

"Seeing the UltraFan demonstrator come together and get ready for test in Testbed 80 is a great way to end the year. We have all been waiting for this moment, which is such an important milestone for the programme and for the team who have worked on it. The

next stage will be to see UltraFan run for the first time on 100% Sustainable Aviation Fuel in 2023, proving the technology is ready to support more sustainable flight in the future," said Chris Cholerton, President, Rolls-Royce Civil Aerospace.

The UltraFan demonstrator has a 140-inch fan diameter and offers a 25% increase in fuel efficiency over the Trent engine's first generation while integrating a brand-new engine design with a variety of technologies to support sustainable air travel for decades to come.

For the transition to net zero aviation, UltraFan offers a range of sustainability solutions. There are options for transferring technologies from the UltraFan development programme to the current Trent engines in the near future to provide improved fuel efficiency and emissions reductions. Long-term fuel efficiency gains of up to 10% are possible with UltraFan's scalable technology from 25,000 to 110,000 lb thrust for both narrowbody and widebody

The UltraFan demonstrator's size and technical complexity were specifically accommodated by Testbed 80, the largest and smartest testbed in the world. Several hours of experimental engine testing have already been completed since it was first used in 2020.

The UK's Aerospace Technology Institute and Innovate UK, the EU's Clean Sky programmes, along with LuFo and the German State of Brandenburg, have all supported the UltraFan technology demonstrator programme.



Gulfstream partners with Rolls-Royce to fly industry-first 100% SAF-powered flight

The flight took place on a SAF-filled G650 jet powered by the Rolls-Royce BR725 engine from Gulfstream's worldwide headquarters in Savannah, U.S.

Gulfstream Aerospace Corp. announced that the company in collaboration with Rolls-Royce conducted the first flight test on a 100% sustainable aviation fuel (SAF) powered G650 jet fitted with the Rolls-Royce BR725 engine. Gulfstream is the businessjet industry's first original equipment manufacturer (OEM) to complete this milestone flight. The test flight took place from Gulfstream's worldwide headquarters in Savannah, U.S. and was flown in partnership with engine supplier Rolls-Royce.

Gulfstream has crafted a sustainability strategy that encompasses three pillars which are energy and emissions; operations; and culture and learning and supports industry goals. These pillars were established by the National Business Aviation Association, the General Aviation Manufacturers Association and the

International Business Aviation Council. The goals are a 2 percent improvement in fuel efficiency per year from 2010 to 2020; carbon-neutral growth from 2020 onward; and net-zero carbon dioxide emissions by 2050.

"At Gulfstream, leading our industry closer to decarbonization is a longstanding priority, and testing, evaluating and promoting new developments in SAF takes us another step closer to that goal," said Mark Burns, President, Gulfstream. "We are grateful for our partnership with Rolls-Royce to be able to demonstrate yet another milestone in these efforts. Gulfstream has long prioritized sustainable products and practices through innovations in aerodynamics, aircraft technologies, engineering, manufacturing and infrastructure, as well as in facilities operations and our investments in SAF research

and development," he further added.

The Sustainable Aviation Fuel (SAF) that was used in the flight test consists of two components: HEFA (Hydroprocessed Esters and Fatty Acids), produced from waste fat and plant oils by low-carbon fuel specialist World Energy in Paramount, California, and SAK (Synthesized Aromatic Kerosene) made from plant-based sugars by Wisconsin-based Virent Inc.

The in-development and fully sustainable fuel eliminates the need for the addition of further petroleum-based components and enables a 100% dropin SAF that can be used in existing jet engines and infrastructure without any modifications. This sustainable Aviation fuel has the potential to reduce net CO2 life cycle emissions by nearly 80% compared with conventional jet fuel, with the possibility of further reductions.

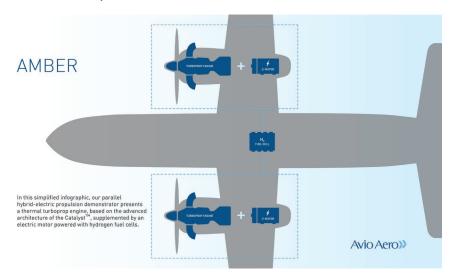






Avio Aero commences demonstration programme for hybrid electric technology in Europe

A Clean Aviation agreement was reached, awarding a consortium led by Avio Aero of approximately €34 million to develop the AMBER demonstrator, whose electric motor will be powered by hydrogen fuel cells.



vio Aero, a division of GE Aerospace, in order to support efforts to make air travel more fuel-efficient and lower CO2 emissions, has started a new technology demonstration programme. This programme will advance the development of hybrid electric propulsion technologies for commercial aviation.

In a recently concluded agreement, the Clean Aviation Joint Undertaking of the European Commission awarded roughly €34 million over four years to a group led by Avio Aero for the AMBER demonstrator.

It is intended to develop, integrate, and validate key technologies required for a megawatt (MW)-class hydrogen fuel cell-powered hybrid-electric propulsion system. For rig testing in the middle of the 2020s using Avio Aero's cutting-edge Catalyst turboprop engine, the AMBER demonstrator will research the integration of hybrid electric components—including a motor/generator, power converters, and power transmission systems—with fuel cells.

"We are proud to announce the launch of the AMBER hybrid-electric program, which aims to demonstrate the benefits of an innovative aircraft propulsion system coupling a turbine engine with a fuel cell-powered electric motor. As this shows, we're looking to design, develop, and test breakthrough technologies to



shape the future of more sustainable flight in Europe and we appreciate the collaboration with Clean Aviation to make this demonstrator possible," said Giorgio Abrate, vice president of engineering, Avio Aero. "The recognition and awarding of our AMBER proposal by Clean Aviation confirms its strategic and technological value to support European Union ambitions to reach net-zero CO2 emissions from flight by 2050," he further added.

Technologies for hybrid electric propulsion can enhance engine performance while lowering fuel consumption and emissions. The hybrid electric technologies Avio Aero and its parent company GE Aerospace are developing are also compatible with cutting-edge engine architectures like the open fan and alternative fuels like Sustainable Aviation Fuel (SAF).

To achieve these goals, the Clean Aviation partnership with industry helps hasten the innovation of critical technologies like electrification.

"For the transformation towards climate neutral we must do more with less energy, and aviation is no exception,"Axel Krein, executive director, Clean Aviation."Clean Aviation's primary ambition is to drive a step-change in aircraft performance by radically boosting efficiency in aircraft and fleet performance. For regional aircraft, our goal is an improvement of at least 50% compared to a typical flight today. The AMBER project, as one of our 20 daring new projects now underway, will play a key role in helping us to deliver this ambitious target," he further added.

A total of 21 members* from Europe make up the Avio Aero-led consortium, including the universities and R&D facilities that make up Avio Aero's European technology development network. The Czech Republic, Germany, Poland, Turkey, and other GE Aerospace locations in Europe will contribute to the study of the engine, propeller, and electric powertrain systems.

The MW-class fuel cell system is provided by H2FLY, a German business that specializes in creating hydrogenelectric power systems for aircraft, along with the necessary architecture, interfaces, and fuel cell controls. In conjunction with the project partners, H2FLY is also in charge of developing the MW fuel cell system as part of the powertrain validation and testing.

"The development of a megawattclass hybrid-electric propulsion system for aviation marks an important step towards the realization of emission-free passenger aviation. We look forward to contributing to this development and sharing our expertise as a global technology leader in the field of hydrogenelectric aviation," said Prof. Dr. Josef Kallo, co-founder and CEO, H2FLY.

Leonardo is another significant partner on the AMBER demonstrator and will offer advice on how to integrate aircraft into the configuration of the hybrid electric propulsion system.





FADEC Alliance to design more electric components for CFM's sustainable engine demonstration program

As part of the advanced technology program, FADEC Alliance supports the maturation of new technologies for future engines, to reduce fuel consumption and emissions.

FADEC Alliance, a joint venture effort that includes major aerospace companies like GE, BAE Systems, and Safran Electronics & Defense (Safran) will design and develop the electronic control system architecture for the CFM International (CFM) Revolutionary Innovation for Sustainable Engines (RISE) demonstrator engine program. As part of the advanced technology program, FADEC Alliance supports the maturation of new technologies for future engines, to reduce fuel consumption and emissions.

Technologies developed as part of the RISE demonstrator program will prove the concepts and capabilities needed for a potential next-generation CFM engine that is targeted to be available by the mid-2030s. The demonstrator program has its main focus on advanced technologies like open fan architec-

ture, hybrid electric capability, electrified engine accessories, and hydrogen propulsion.

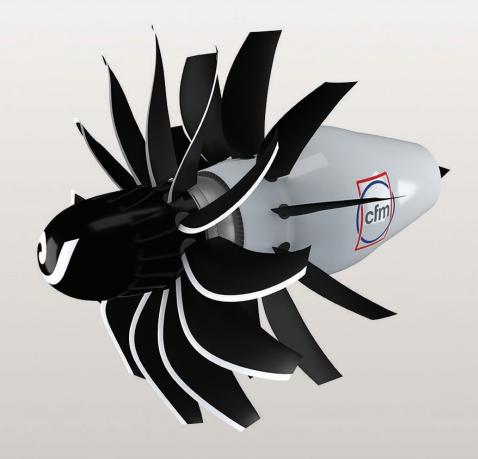
"We are excited to work with our industry partners on the CFM RISE program and help introduce innovative technologies to set a new bar for future aircraft engine performance and create a more sustainable form of aviation," said Steven McCullough, Chief Executive Officer of FADEC Alliance.

FADEC Alliance will develop the electronic control system architecture and requirements for the demonstrator, along with multiple subsystems through two program phases. Phase one will focus on an expanded control system to accommodate new interfaces associated with an open fan concept. Phase two will address key aspects of the engine's advanced systems. Development work will occur at BAE Systems'

site in Endicott, New York, and Safran's site in Massy, France.

FADEC Alliance is a joint venture of GE Aerospace and FADEC International. FADEC Alliance combines the expertise and experience of its member companies in architecting, developing, producing, and supporting FADEC systems for the future of the aviation industry.

FADEC International is a 50-50 joint venture between a subsidiary of BAE Systems Controls Inc. and Safran Electronics & Defense. FADAC International focuses on the two companies capabilities to design, produce, and support Full Authority Digital Engine Controls for commercial aircraft engines. For more than 25 years, FADEC International has served airlines and aircraft maintenance and repair providers with a full range of design and aftermarket capabilities.









Ruili Airlines joins Embraer's Energia Advisory Group to support sustainable aircraft development

Ruili Airlines will work with Embraer to help define performance and design requirements for its Energia concept aircraft which are two 19-30 seat designs featuring hybrid electric.

Ruili Airlines, a Chinese Low-Cost Carrier has signed an agreement with Embraer to join its Energia Advisory Group. Energia is an Embraer project for the development of sustainable aircraft to safeguard the future of sustainable aviation. According to the agreement, Ruili Airlines and Embraer will work together on the design requirements for next-generation sustainable aircraft and the potential market in China.

"I welcome Ruili Airlines, the first Chinese airline to join our Energia Advisory Group. The partnership between Embraer and Ruili Airlines is a significant step for the Energia project," said Arjan Meijer, President and CEO Embraer Commercial Aviation. "We look for partners around the globe to share their innovative ideas and operational insights, adding their expertise to the sustainable aviation mission. Ruili Airlines' perspective will be invaluable in the development of the Energia family of aircraft," he further added.

Based at Kunming Changshui International Airport, Ruili Airlines is a full-service premium carrier with a focus on the innovation of sustainable jets for

the future of flying. The airline operates a domestic and international route network across China and Southeast Asia.

"We are excited to collaborate with Embraer on the Energia project. It is a great opportunity for us to work with an OEM to influence the design of sustainable next-generation aircraft, accelerating the development of sustainable aviation in China," said Ye Yajuan, Chairman of Ruili Airlines. "At Ruili we are committed to breaking new ground and cooperating on innovation to achieve the best results. As the first native airline company of Wuxi, we plan to fully exploit the regional advantages in rapidly growing East China, an increasingly important centre for technology development," he further added.

Ruili Airlines will work with Embraer to help define performance and design requirements for its Energia concept aircraft which are two 19-30 seat designs featuring hybrid electric and hydrogen-electric propulsion technologies.

"We're excited about the opportunity to work together with Ruili Airlines,

exploring innovative ways to contribute to the green transition of China Civil Aviation," said Guo Qing, Managing Director and VP Commercial Aviation, Embraer China. "Sustainability will be a key differentiator for airlines in the post pandemic market, as environmental awareness and concern increases among passengers. At Embraer we are not only making sure our current aircraft are the most sustainable available today, but also investing in the future alongside our customers. Ruili airlines' participation has special importance because China is the region most likely to see the largest growth in aviation traffic," he further added.

Ruili Airlines covers routes in East China, promoting the construction of bistatic bases in Wuxi and Kunming, and strengthening the development of overnight bases in Shenyang, Lanzhou and Mangshi. Embraer has businesses in Commercial and Executive aviation, Defense & Security and Agricultural Aviation. The company designs, develops, manufactures and markets aircraft and systems, providing Services & Support to customers' after-sales.





Saab wins Contract to support the Swedish Armed Forces Gripen fighter jet fleet

The order value of the contract between Saab and the Swedish Armed forces for the support of the Gripen amounts to approximately SEK 3.4 billion and relates to the period 2023 to 2025.

Saab, a Swedish aerospace and Defence Company, has entered into a contract with the Swedish Armed Forces to provide support and maintenance services for their Gripen fighter jets fleet. The order value of the contract received by Saab amounts to approximately SEK 3.4 billion and relates to the period 2023 to 2025. The newly signed contract also contains options for the Swedish Armed Forces to place additional orders in support and maintenance services until 2027.

The contract between Saab and the Swedish Armed Forces includes support and maintenance of the Gripen fighter jets and is a replacement of the previous contract from May 2017 with the Swedish Defence Materiel Administration, FMV, who has also represented the Armed Forces regarding the new contract.

"With this contract, Saab will continue to deliver efficient operations to provide a high level of availability for Gripen. It gives us the opportunity to support our customers in the new global situation, both now and in the future," says Jonas Hjelm, Head, Saab business area Aeronautics.

The defence contract encompasses support and maintenance services that are of importance for Gripen's flight operations. It includes design and support, component maintenance, logistics services, technical system support, publications, spare parts, repairs, ground support equipment, pilot equipment, and training. Saab will provide the maintenance services for Gripen jet at its facilities in Linköping, Arboga, Järfälla, Huskvarna, Gothenburg and Östersund, Sweden.





Saab's Gripen E fighter jet commences services for the Brazilian Air Force

The Brazilian Air Force (FAB) held an official ceremony on 19 December 2022 at the Anápolis Air Base (BAAN) marking the beginning of operational activities of the Gripen E fighters.

Saab has announced that its Gripen E fighter jet has officially been inducted into service by the Brazilian Air Force (FAB) to boost the defence prowess of the country. The Brazilian Air Force (FAB) held an official ceremony on 19 December 2022 at the Anápolis Air Base (BAAN) marking the beginning of operational activities of the Gripen E fighters (which is referred to as Gripen F-39 in Brazil) by the First Air Defense Group (1st GDA).

The important customer milestone follows the flight test phase in Brazil that started in September 2020 with the arrival of the test aircraft in the country. The flight tests were conducted at the Gripen Flight Test Center (GFTC) located at the Embraer plant in Gavião Peixoto.

"The start of operational activities with Gripen E by the Brazilian Air Force (FAB) is an extremely important day. It marks the beginning of a new operational era for FAB but also is the result of years of hard work done in partnership with the Air Force and with our Brazilian industry partners: Embraer, AEL Sistemas, Akaer, Atech, and our own subsidiaries in Brazil. Brazil now has one of the most advanced fighters in the world. This is currently the most extensive ongoing technology transfer programme in Brazil and it is definitely the largest one ever done by any Swedish company, bringing to the Brazilian defence industry the knowledge to develop, produce, test and maintain an advanced supersonic fighter. We are very proud to be a strategic partner to Brazil, said Micael Johansson, President and CEO, Saab.

At the official event held by the Brazilian Air Force two Gripen fighter jets made a presentation flight led by FAB pilots Lieutenant Colonel Gustavo Pascotto, Commander of the 1st GDA, and Lieutenant Colonel Ramon Lincoln Santos Fórneas. The Brazilian pilots carried out their training with Gripen E in Sweden. They also practiced for the flight on the mission trainers, which are installed at the Anápolis Air Base.

In November 2022, Saab achieved the certification necessary for the military use of Gripen E. The certification attests that the aircraft has met certain airworthiness and flight safety requirements which are an important step before operational activities with the FAB. This was granted by both the Swedish and Brazilian military authorities, represented by the Swedish Military Aviation Safety Inspectorate (FLYGI) and the Industrial Fostering and Coordination Institute (IFI) in Brazil. The joint certification reflects the synergy obtained through the technical cooperation between the two authorities in each country.



Leonardo hands over the final batch of four M-346 aircraft to Polish Air Force

With 16 M-346 jets at the nation's service, The Polish Air Force currently operates the second-largest fleet of Leonardo's advanced jet trainers in Europe.

Leonardo has announced the delivery of the third batch of four M-346 advanced jet trainer aircraft to the Polish Air Force on a pre-agreed schedule. The latest handover brings the size of Poland's M-346 fleet to 16. With 16 M-346 jets at the nation's service, The Polish Air Force currently operates the secondlargest fleet of Leonardo's advanced jet trainers in Europe. Having logged over 100,000 flight hours, the M-346 fighter jet has demonstrated excellent performance in terms of fleet availability and reliability.

The Polish Air Force chose the M-346 as the successor to the legendary TS-11 Iskra training aircraft in February 2014. Later in November 2018, in a ceremony at the Polish Air Force's 4th Air Training Wing in Dęblin, the M-346 received the official name "Bielik" in Polish service.

Dario Marfè, SVP Commercial & Customer Services, Leonardo's Aircraft Division said, "We are very proud to have equipped the Polish Air Force with an advanced training system based on our M-346. We are committed to providing our customers with the best and most advanced products, based on Leonardo-developed solutions to support them in accomplishing their missions."

Since its introduction into the Polish Air Force fleet, the M-346 jet has been assigned to the 41st Training Air Base in Dęblin, Poland. During its time in service, the aircraft has proven to be a game changer for Polish combat aircraft pilots. Poland's M-346 "Bielik" system has also been certified by the U.S. Air Force for the training of fourth and fifth-generation fighter pilots which can

be considered an important milestone. This feat has enabled Poland to train many of its students at home rather than abroad.

Having achieved over 100,000 flight hours, the M-346 Advanced Jet Trainer (AJT) has demonstrated excellent performance in terms of fleet availability and reliability as a technologically advanced and mature programme.

More than 100 M-346 aircraft have been ordered by major international air forces around the globe including those of Italy, Israel, Poland, Singapore, Qatar and Greece. The aircraft is also seen as the backbone of the International Flight Training School (IFTS), a collaboration between Leonardo and the Italian Air Force, which has already been selected by Japan, Germany, Qatar and Singapore.





STS Component Solutions announces latest appointments in top leadership

STS Component solution promoted Tom Covella to become an Advisor to the Board of Directors and Tim Russo as Division President.

STS Component Solutions, a division of STS Aviation Group and a supplier of aircraft parts to the international aviation industry, has announced that Tom Covella will step down from his position as Division President and join the Board of Directors as an advisor. With effect from January 1, 2023, Tim Russo, the Vice President of OEM Distribution at STS Component Solutions, will succeed Covella in the position of Division President.

"Tim is a fantastic choice to move into this position, and I have been working closely with both he and Tom to ensure that we have a seamless and effective transition," said Philip Anson Jr., CEO, STS Aviation Group. "We are very grateful to Tom for his 14-plus years of hard work and dedication, and we are excited about his desire to remain invested and engaged moving forward. Tom founded his component solutions business back in 2001, and he has been instrumental in helping the organization achieve unprecedented growth following STS' acquisition in 2008. In Tom's new role, we will continue to benefit from his unparalleled expertise in the aircraft



components industry to help guide key growth initiatives well into the future," he further added.

Russo worked in technical operations for JetBlue Airways for ten years before joining STS Component Solutions in 2015. Tim will answer directly to STS Aviation Group CEO Philip Anson Jr.

"This is a bittersweet time for me. On one hand, I am moving on from the day-to-day management of a company that I founded, but on the other, I will now be afforded more time to strategize on the ambitious plans we have in place for future growth." said Philip Anson Jr., CEO of STS Aviation Group. "I am fully confident that Tim will effectively lead our team going forward, and I have no doubt that the business will continue to thrive with him at the helm," he further added.

STS Aviation Group, a one-stop shop for services to the world's aviation

industry, was established in 1986. STS provides nose-to-tail aircraft maintenance solutions and has offices all over the world in addition to its headquarters in Jensen Beach, Florida.

"I am honored to take on this new leadership role, and I am energized and excited to guide the next chapter of STS Component Solutions' growth," said Tim Russo, Vice President of OEM Distribution, STS Component Solutions. "Tom has built a great team that has proven they can meet any challenge, and I know that, together, we will continue our growth trajectory and succeed in the years to come," he further added.

Globally, STS Aviation Services operates four state-of-the-art aircraft hangars, two interior modification facilities and more than 40 line maintenance stations both stateside and abroad. These facilities, and the expert personnel fuel the company's drive to seamlessly blend a growing portfolio of MRO services to deliver all-encompassing aircraft maintenance, engineering and modification solutions to the global aviation industry.

Boeing promotes Zaid Alami to Managing Director for Indonesia

Alami was an experimental flight test engineer and led the support for multiple customers with the introduction of the 787 and 737 MAX into their fleets globally.

Boeing has announced the appointment of Zaid Alami to the position of country managing director for PT Boeing in Indonesia. Alami's appointment in his new role has come into effect immediately. Zaid Alami is based in Jakarta, Indonesia and serves as a senior executive for Boeing in the country. In his current role leads Boeing's operations and growth

strategy in Indonesia. Zaid Alami reports to Alexander Feldman, President of Boeing Southeast Asia.

A graduate of Aeronautical and Astronautical Engineering from Purdue University, Zaid Alami is also certified in Technical Leadership from the Massachusetts Institute of Technology (MIT). He is bilingual in English and Arabic and is learning Bahasa Indonesia.



EXECUTIVE IN FOCUS

"Indonesia, the largest economy in Southeast Asia, and soon to be the world's fourth-largest aviation market is critical to Boeing. We are excited to have Zaid lead Boeing's operations in Indonesia and advance our 73 years of relationship in the country," said Alexander Feldman, President for Southeast Asia, Boeing. "I cannot think of a better individual than Zaid who brings a wealth of aerospace engineering expertise and significant experience working with our Indonesian customers to drive Boeing's growth in the country," he further added.

Zaid Alami most recently served as the leader of Boeing's Global Support Center in Jakarta. The center provides enhanced product and strategic engineering support to Southeast Asia's growing commercial aviation industry. Previously, Alami was an experimental flight test engineer and led the support for multiple customers with the introduction of the 787 and 737 MAX into their fleets globally.

"Indonesia is a country of strategic importance for Boeing across our commercial airplanes, defense and services businesses," said Zaid Alami, Country Managing Director, PT Boeing Indonesia. "Building on our partnership with Indonesia, Boeing is, and continues to be committed to working with Indonesia's civil aviation and defense custom-

ers and partners, and helping achieve the country's aerospace ambitions," he further added.

As a leading global aerospace company, Boeing develops, manufactures and services commercial airplanes for customers in more than 150 countries. As a top U.S. exporter, the company leverages the talents of a global supplier base to advance economic opportunity, sustainability and community impact. Boeing's diverse team is committed to innovating for the future, leading with sustainability, and cultivating a culture based on the company's core values of safety, quality, and integrity.

AFI KLM E&M appoints Paul-Antoine Vivet as the Vice President for Sales, Americas

Paul-Antoine Vivet holds an MSc in Aeronautical Engineering from the ESTACA and a double Executive MBA degree from Paris Dauphine University and the University of Quebec.

FI KLM E&M, a provider of com-Aprehensive technical support and services to airlines, has announced the appointment of Paul-Antoine Vivet as the head of the company's American sales team. Vivet formerly held the role of the Business Development Director of AFI KLM E&M. Paul-Antoine Vivet will be taking over his new responsibility from Franck Becker. Paul-Antoine Vivet will capitalize on the vast experience he has built up over 20 years in the aviation sector while working between Europe and North America and will be taking on this new challenge with ambition and resolute determination.

Pierre Teboul, SVP Commercial, AFI KLM E&M said: "I would like to express my sincere thanks to Franck Becker who has built up the trust of our American customers and successfully supported them over the years – including during the very difficult months our industry went through during the health crisis. I am convinced that Paul-Antoine is the ideal choice to take over and lead our ambitions: he knows the American operators and their needs, and will be a valuable partner for our customers to help them take full advantage of the recovery of regional and international traffic".

Paul-Antoine Vivet holds a Master of Science (MSc) in Aeronautical Engineering from the ESTACA and a double Executive MBA degree from Paris Dauphine University and the University of Quebec. Vivet began his career in the aviation industry in 2002, working as an engineer at Thales in Los Angeles. Between 2003 and 2006 he pursued his professional development at the Airbus Group as an engineer and project manager. He joined Air France in 2006, where for 3 years he held the post of Purchasing Manager (Industrial and Logistical Resources).

"AFI KLM E&M has the advantage of a robust local presence in the Americas, through its subsidiaries Barfield, xCelle Americas and Bonus Tech. Although we are a global group, we are recognized both in the market and by our customers as a full-fledged American player, offering a listening ear and proximity to all airlines in the region. Thanks to our expertise as an Airline-MRO, our Adaptiveness, our capacity for innovation and our state-of-the-art industrial footprint, we are able to guarantee American operators a very high level of performance - particularly on the latest generation of aircraft and engines

such as the 787 and A350, 737 MAX, A220 and A320neo and the GEnx and LEAP engines".

Paul-Antoine Vivet in 2009 began

a series of varied commercial and industrial roles at AFI KLM E&M, including General Sales Manager for Eastern Europe, then North America, followed by Product Line Manager (Hydraulic and Pneumatic Products). then Business Development Director from 2019. In addition, since 2022 Paul-Antoine Vivet has been Chairman of the Board of Directors at AFI KLM E&M Beijing Line Maintenance International.



EDITORIAL CALENDAR 2023



MRO Opportunities in 2023

15 Optimizing Landing Gear Maintenance

January

-ebruary

1 Hangars and Hangar Doors

15 MRO Inching Towards a Sustainable Future



01 Technical Training Developments in MRO

15 Women in MRO Sector

March

\pril

Aircraft Interiors

15 Importance of MRO Inventory Planning





01 Aircraft Spares and Inventory Market Insights

15 Digitisation in MRO

Mav

une

MRO at Airports and upcoming facilities

15 Predictive Engine Maintenance Management





EDITORIAL CALENDAR 2023

<u>^</u>|1

Aircraft Freighter Conversion

15 MRO in Helicopters





O1 Drones and More....

15 New Trends in Aerospace industry

August

eptembe

1 Inflight Connectivity and more...

15 Changing Aircraft Engine technologies





1 Aircraft Leasing and Finance

15 Tearing Down an Aircraft

October |

Jovembe

1 Aerospace Logistics

15 Defence MRO





O1 Engine Aftermarket Analysis and Trends

15 MRO Market Forecast 2024

<u>D</u>ecember

Date Event

Date	Event	Venue
07-09 Feb 2023	AERO-ENGINES & ELTF AMERICAS	Dallas, TX, USA
22-23 Feb 2023	MRO LATIN AMERICA	Buenos Aires, Argentina
28 Feb to 01 March 2023	MRO SouthAsia 2023	New Delhi, India
01-02 March 2023	MRO MIDDLE EAST	Dubai, UAE
01-03 March 2023	IASEA 2023	Marina Bay Sands, Singapore
18-20 April 2023	MRO AMERICAS	Atlanta, GA, USA
17-18 May 2023	MRO AUSTRALASIA	Brisbane, Australia
07-08 June 2023	ELTF EUROPE	London, UK
Sept 2023	AERO-ENGINES EUROPE	Madrid, Spain
26-28 Sept 2023	MRO ASIA-PACIFIC	Singapore

Internation CALENDAR 20

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