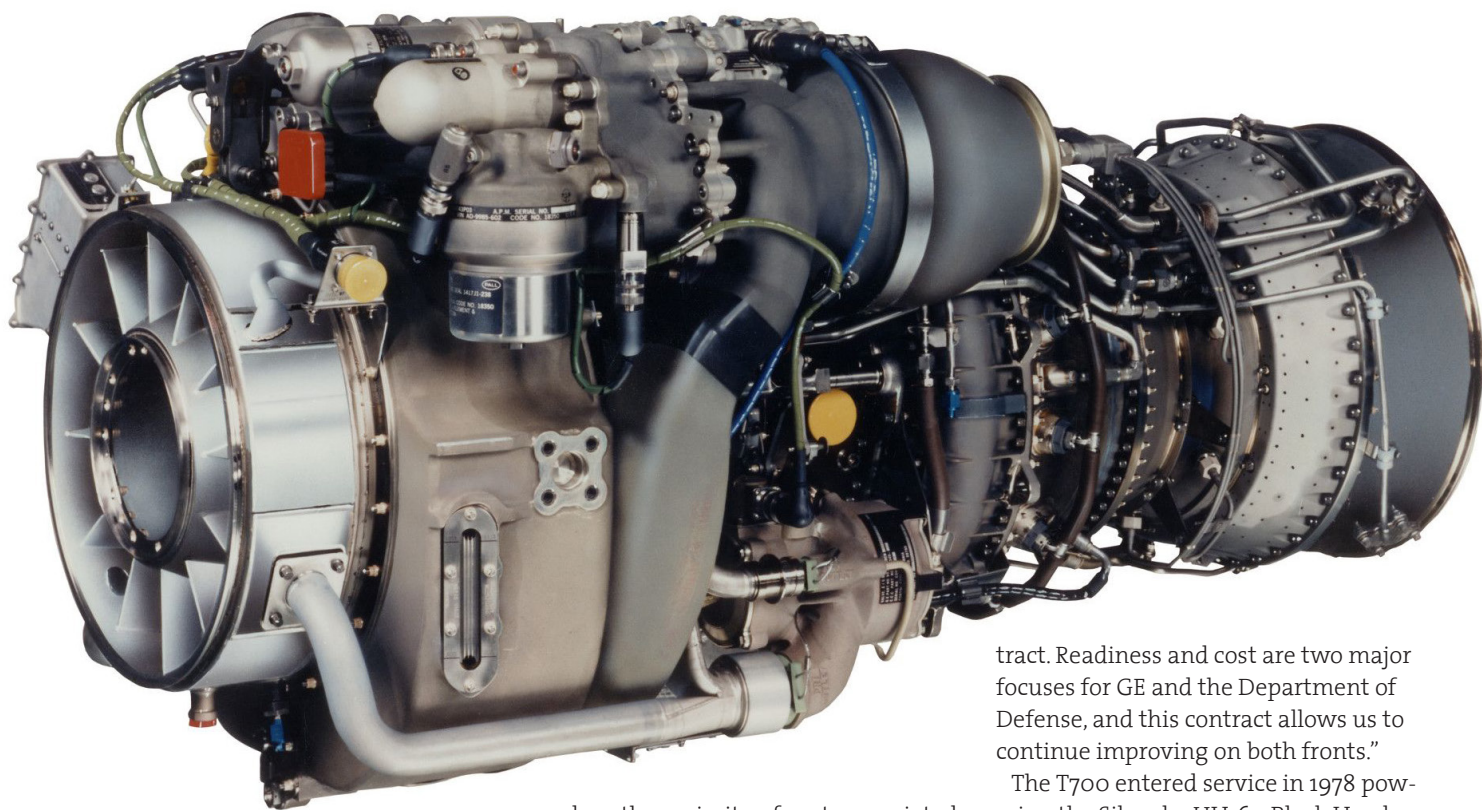


GE Awarded Two Contracts Supporting T700 Engine Fleets Across U.S. Military

These contracts will expand GE responsibility from depot only to fleet-level support.



The Defense Logistics Agency (DLA) awarded GE two contracts in September totaling more than \$1 billion to support T700 turboshaft engine fleets across the U.S. military.

GE will provide field-level consumables and services through a five-year, \$284 million contract with DLA Aviation in Richmond, Virginia, and depot-level repairables and module section components through a five-year, \$722 million contract with DLA Aviation in Huntsville, Alabama. GE facilities in Lynn, Massachusetts, and Evendale, Ohio, will

produce the majority of parts associated with these contracts.

These T700 contracts are replacing the current Technical, Engineering, Logistics Supplies and Services (TELSS) contract which supports the Corpus Christi Army Depot (CCAD) located in Corpus Christi, Texas.

Harry Nahatis, Vice President and General Manager of GE Turboshaft Engine programs said "The T700 engine is the heart of medium lift helicopter fleets across the U.S. military, and we're proud to continue supporting multiple U.S. service branches through this con-

tract. Readiness and cost are two major focuses for GE and the Department of Defense, and this contract allows us to continue improving on both fronts."

The T700 entered service in 1978 powering the Sikorsky UH-60 Black Hawk. Currently, the T700/CT7 family of turboshaft and turboprop engines power 15 types of helicopters and fixed-wing aircraft. The T700/CT7 family has surpassed 24,000 units delivered and more than 100 million total engine flight hours.

Continuing technical improvements have enabled the T700/CT7 engine line to become increasingly more powerful and reliable throughout its history. Current models retain all the proven features and operating characteristics of earlier versions while delivering enhanced performance for the warfighter.

Pratt & Whitney Canada Sets a New Benchmark for Regional Turboprop Engines

The New PW127XT Engine Series designed with the latest materials and technologies will deliver the next level of efficiency, time-on-wing and service.

Pratt & Whitney Canada, a business unit of Pratt & Whitney, announced its new regional turboprop PW127XT engine series. The company celebrated the launch with ATR, with the PW127XT-M engine that is purpose-built to offer world-class reliability and increased value for ATR 42/72 aircraft.

Maria Della Posta, President, Pratt & Whitney Canada said “Since its inception, ATR has exclusively turned to Pratt & Whitney to power its fleet of regional aircraft. We are pleased to launch this exciting new PW127XT-M engine with ATR. Optimized for the ATR 42/72 aircraft family, it will deliver a significant improvement in operating costs, extending the already impressive operating economics and sustainability of this regional turboprop.”

“Launched as ATR is celebrating its 40th anniversary, the PW127XT engine series builds upon the success of the PW127M engine. We have injected into this new PW127XT-M engine the knowledge gained from Pratt & Whitney’s

history of transformation and continuous innovation and more than 2.5 billion hours of operational expertise to provide a step change in performance and customer service that helps regional airline customers achieve their business goals,” said Della Posta.

Stefano Bortoli, Chief Executive Officer, ATR said “Reducing cash operating costs and improving sustainability are the two leading priorities of our regional airline customers. We have enjoyed an exceptional level of collaboration with Pratt & Whitney Canada in the development of the PW127XT-M engine and we’re delighted to offer a dynamic airframe and powerplant solution to customers around the world.”

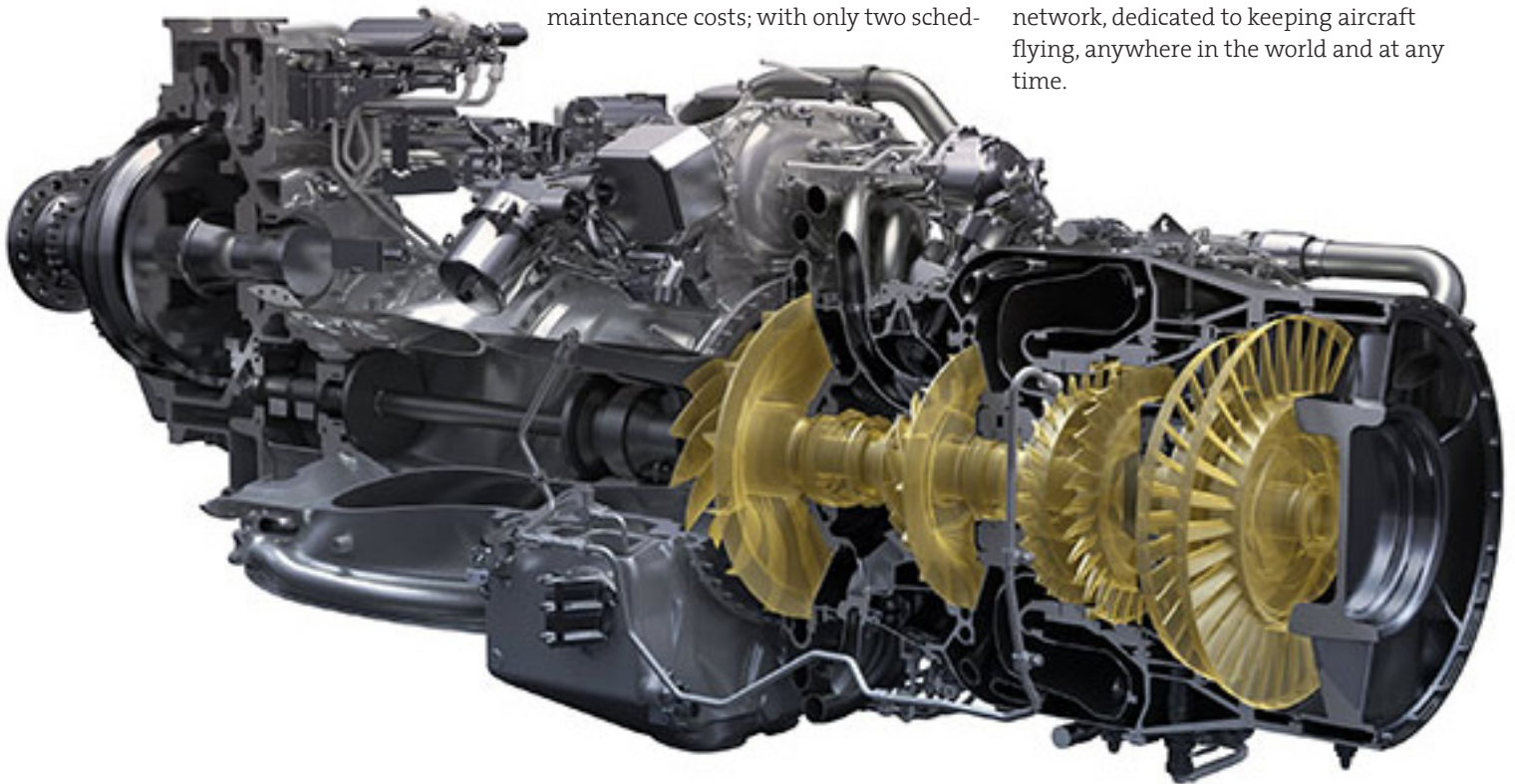
Pratt & Whitney Canada’s proven ability to deliver world-class, dependable engines and new technology means that the PW127XT-M engine offers increased savings to customers. 40% extended time on wing by moving to the right the schedule for both engine overhaul intervals and hot section inspections compared to the PW127M. 20% less maintenance costs; with only two sched-

uled engine events over 10 years.

“We have been serving the regional airline industry for more than 40 years,” said Della Posta. “With this knowledge, we have developed a customized engine maintenance program for the PW127XT engine series, tailored for every environment, mission and experience level for ultimate peace of mind.” Through Pratt & Whitney Canada’s personalized Fleet Management Program (FMP) for the PW127XT engine series, customers can maximize the engine’s value by unlocking its full time-on-wing capability. As the engine manufacturer, Pratt & Whitney Canada can provide the optimum level of value and support.

“The PW127XT engine series will benefit from new solutions within our industry-leading FMP for fleets of every size as well as innovative solutions for lessors, offering optimized solutions for absolutely every type of customer,” said Della Posta.

PW127XT engine series customers will also benefit from Pratt & Whitney Canada’s world-class customer support network, dedicated to keeping aircraft flying, anywhere in the world and at any time.



Gulf Air entrusts AFI KLM E&M with CFM56-5B Engine Support contract

Gulf Air and Air France Industries KLM Engineering & Maintenance signed an engine maintenance contract for CFM56-5B engines which includes total engine support for its Airbus A320ceo family fleet.

AFI KLM E&M and Gulf Air, the Kingdom of Bahrain's national carrier, signed a full engine support contract during the Dubai Air Show for the CFM56-5B engines for all Airbus A320ceo fleet. With the signing of the contract for the component support for Gulf Air's entire A320 fleet, the signing of this engine maintenance contract further affirms the operator's confidence in AFI KLM E&M's adaptive solutions.

This full engine support contract includes shop visits, fleet engineering, condition monitoring, spare support and other additional services. Based on a true valuable relationship, Gulf Air can rely on the long and extensive CFM56-5B experience of AFI KLM E&M, and the 'keep flying' approach which is supported by a strong On Wing/On Site service. Gulf Air will also benefit the best class services through the predictive maintenance tool, PROGNOS for engines.

Captain Waleed Abdulhameed Al Alawi, Gulf Air, Chief Executive Officer said: "It is very valuable to be able to work on a long-term basis with a player who has a deep knowledge of its products, from



both a maintenance point of view and as an operator of the fleets concerned. It is this understanding of Airline-MRO, combined with true flexibility in the offerings and support that continues to convince us in furthering our relationship with AFI KLM E&M."

"Gulf Air is a historical customer since 2008 and we are very proud to maintain this long term partnership. Therefore we are pleased to have been selected by Gulf Air as a partner of choice for the maintenance and support for the engines on

their A320ceo fleet. It is a powerful signal of our ambition to expand in the Middle East and Africa across the full array of our MRO services and in particular our engine support services, enabling us to respond quickly to demand in an appropriate manner" said Pierre Teboul, SVP Commercial, AFI KLM E&M.

Started more than 10 years ago with the A320/A340 engines support Gulf Air is strengthening its partnership with AFI KLM E&M through the support of this engine maintenance contract.

Safran and Saab Renewed their Support-By-the-Hour Contract

The contract is to support Swedish AW109 Helicopter Engines.

Safran Helicopter Engines and Saab have renewed their agreement to support Arrius 2K2 engines powering the Leonardo AW109 operated by the Swedish Armed Forces. This Support-By-the-Hour (SBH) contract formalizes a 9-years MRO (Maintenance, Repair and Overhaul) and services agreement supporting a total of 45 engines.

This contract will be managed by Safran Helicopter Engines Germany GmbH, which supports more than 300 operators flying in Germany, Scandinavia, Central and Eastern Europe, Russia and Central Asia, with more than 2,000 engines.

Ellen Molin, Vice President and Deputy Head of Saab's business area Aeronautics, said "To ensure the operational availability of these helicopters, Saab had an exclusive agreement with the Swedish Armed Forces since 2012 and this agreement is an important part of Saab's continued commitment as a long-term support partner to the Helikopter 15 program."

"We are proud that Saab renewed its confidence in Safran Helicopter Engines and its SBH support contract to support Swedish Armed Forces. We look forward to delivering them world-class

services and supporting them in their most demanding missions" said Francis Larribau, CEO, Safran Helicopter Engines Germany.

SBH is Safran Helicopter Engines' support-by-the-hour program. It makes engine operating costs predictable, eliminates cash peaks, allows flexibility for scheduled and unscheduled MRO coverage. It now covers 50% of Safran Helicopter Engines' customer turbines' flying hours.

SBH and Health Monitoring are part of EngineLife Services, Safran's range of solutions for helicopter engines.

Bel Air Aviation AW189 reaches 5,000 engine flight hour with GE CT7 power

As with all of GE engines, the CT7-2E1 can run on approved Sustainable Aviation Fuel (SAF) blends to reduce lifecycle CO2 emissions.

Bel Air Aviation AW189 helicopter has surpassed 5,000 engine flight hours operating with GE's CT7-2E1 engine. Since entering service in November 2014, this AW189 has had zero engine shop visits and stands as the AW189/CT7 fleet leader in total engine flight hours.

Elissa Lee, GE Aviation's CT7 Programs Director said "Reaching 5,000 engine flight hours with zero shop visits is an amazing illustration of the world-class reliability the CT7 offers our customers for a wide range of missions." She further added "Congratulations to Bel Air. We're very proud to continue supporting your CT7 engines."

Bel Air Aviation, based in Denmark, specializes in flights to offshore oil and gas and offshore wind turbine sites. With two CT7-powered AW189 helicopters in its fleet, Bel Air is the world leader in AW189 flight hours. Bel Air uses GE Aviation's TrueChoice Flight Hour services, an engine maintenance plan that helps operators optimize their cost of ownership of the entire lifecycle of their engine assets.

Susanne Hessellund, CEO at Bel Air Aviation said "We were among the first operators in the world to take delivery of the AW189 and are very proud to maintain our position as the AW189 fleet leader worldwide, offering a diverse range of offshore flights in the North Sea. The fact that we have now flown more than 5,000 hours on the first of our AW189 helicopters without any issues shows the high reliability of both the CT7 engines and the AW189 helicopter itself. We highly appreciate our close cooperation with GE and look forward to continuing our partnership."

The -2E1 version of the highly successful CT7 family is designed with an emphasis on low fuel consumption, low cost-of-operation and with other technical features to ensure the aircraft requirements of long-range, high-speed and Category A performance. The engine leverages more than 100 million flight hours of experience from the T700/CT7 engine family while incorporating a state-of-the-art Full Authority Digital Control (FADEC) and advanced materials, primarily in the turbine section.

The CT7-2E1 engine's reliability is augmented by GE's continuous improvement approach to engine performance. GE released is Version 6.0 Software update for the -2E1 earlier in 2021, which enables better time-on-wing, digital predictive maintenance, and time limited dispatch. GE is heavily involved in the qualifying and testing of approved SAF blends.



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Pratt & Whitney Adds the PW1900G Engine to OGMA's GTF MRO Capability

The Pratt & Whitney PW1900G engine currently powers the Embraer E190-E2 and E195-E2 aircraft.



Pratt & Whitney recently announced that a member of its network of global maintenance providers, OGMA – Indústria Aeronáutica de Portugal S.A., an Embraer Group company, will be adding the PW1900G engine model to its GTF MRO capability. The expansion was recognized at an in-person signing ceremony with Portuguese Prime Minister António Costa, Embraer CEO Francisco Neto, and Pratt & Whitney GTF MRO leaders Marc Meredith and Shornda Cadore.

OGMA joined Pratt & Whitney's global network of providers that maintain the Pratt & Whitney GTF™ engine in November 2020, to provide maintenance, repair and overhaul services for the PW1100G-JM engine for the Airbus A320neo aircraft family at its facility in

Alverca, Portugal.

Marc Meredith, Executive Director of GTF Engine Aftermarket at Pratt & Whitney said "We are pleased to see OGMA's role as a member of our GTF MRO network expand to encompass the PW1900G. The relationship between Pratt & Whitney, Embraer, and OGMA has been invaluable, and we are confident that OGMA's skill and experience will be a tremendous asset to the network as we continue to support our growing global fleet of GTF engines with world class service."

OGMA is the fifth engine center to be announced in Europe within the GTF MRO network, along with MTU Aero Engines Hannover, EME AERO in Poland, Lufthansa Technik Hamburg and Lufthansa Technik AERO Alzey.

"This strengthening of the collaboration with Pratt & Whitney is the recognition of a collaboration that began a year ago between two companies that strive for excellence and quality in their products. It is also an appreciation of the commitment and experience of our teams," said Alexandre Solis, CEO of OGMA.

The growing GTF MRO network is made up of the industry's leading MRO companies, including Pratt & Whitney, MTU Aero Engines and Japanese Aero Engines Corporation (JAEC). There are currently 10 active GTF MRO engine centers worldwide. The GTF MRO network is part of Pratt & Whitney's EngineWise service solutions, which provide engine operators with a variety of aftermarket services resulting in long-term, sustainable value.



Changing dynamics of MRO Mergers and Acquisitions



The COVID 19 pandemic completely changed the dynamics of aerospace industry. As the world is slowly getting adjusted to new normal norms, we decided to take a plunge into the major aerospace mergers and acquisitions that took place in the pandemic year. Earlier the mergers and acquisitions were most for the purpose of cost savings and synergies. However today this market focuses on new product deliveries and robust market expansions into emergent MRO markets like Asia and Middle East. The acquisitions are used to gain new capabilities, access emerging tech-

nologies, and geographic expansion.

As majority of the aerospace market is focussed in US, several tier suppliers are penetrating the US markets through M&A. The M&A activities are also increasing in the Asia-Pacific region as several OEMs are opening manufacturing facilities in Asia. Let us look at some major M&A deals in the year since the pandemic started.

In what seems to be like one of the largest mergers in the aviation industry, Aer-Cap completed the acquisition of GE Capital Aviation Services business (GECAS) from General Electric. This merger not

Image Courtesy - StandardAero



only positions AerCap as the worldwide industry leader across all areas of aviation leasing: aircraft, engines and helicopters but will have large scale implication in commercial aftermarket. Commenting on this milestone CEO of AerCap, Aengus Kelly said, "Completion of this transaction represents an important milestone for AerCap that will generate benefits for our customers, partners, employees and investors for many years to come. In GECAS, AerCap has acquired the right business, for the right price, at the right time, as air travel continues to recover from the pandemic and demand for aircraft leasing continues to accelerate."

Focussing on overall growth and expansion, this acquisition will serve approximately 300 customers around the world and will be the largest customer of Airbus and Boeing.

Many M&A take place to serve the growing aviation business and meet customer demands on time, like the acquisition and integration of Signature Aviation by StandardAero. Before the actual merger many companies cover the basic ground rules for a successful deal like the establishment of an Integration Management Office (IMO) and appointing a dedicated team to drive the work and execute the action plan. Commenting on this merger 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 Aero-

space 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."

As a part of their robust expansion plans into Asia and to serve the OEMs in Asia-Pacific StandardAero acquired Singapore-based component repair facility, Asian Surface Technologies Pvt Ltd by signing an agreement with Pratt & Whitney and SIA Engineering Company Limited. In 2017, StandardAero acquired PAS Technologies including a 40.8 per cent stake and management control of AST. The transaction marks the final acquisition of 100 per cent ownership of AST.

XOJET Aviation has acquired a minority stake in Talon Air as a part of Vista Global Holding's acquisition of Apollo Jets. Talon Air will complement XOJET's capabilities and infrastructure to help them keep improving services in the market. Excited with this new acquisition, Kevin Thomas, XOJET Aviation President & COO, said, "Through this acquisition we will expand our global flight solutions offering and leading safety standards. We will be drawing on Talon Air's leading aircraft management expertise and will integrate their knowledge into XOJET's flight solutions. Their state-of-the-art facility and headquarters outside of New York provides us

with additional infrastructure and a full staffed in-house aircraft maintenance team in one of the busiest aviation hubs in the world."

Certain companies like the GA Telesis have further broadened their definition on M&A and customised it as per their requirements. In 2020, they came up with a plan called Turbine Vision 2020 in which they will integrate M&A, Greenfield projects, and new OEM alliances with the vast array of know-how in the area surrounding jet engine technologies. TV 2020 will consolidate all aspects of component, hospital, and complete engine MRO services into integrated offerings, supported with maintenance financing programs.

Aerospace logistics companies are also entering into the M&A field to expand into the ever-increasing e-commerce Asian market. Kuehne+Nagel struck a deal with Apex International Corporation, one of Asia's leading freight forwarders, especially in transpacific and intra-Asia. Commenting on this deal, Dr. Detlef Trefzger, CEO of Kuehne + Nagel International AG, said, "The combination of Apex and Kuehne+Nagel provides us with an opportunity to offer our customers a compelling proposition in the competitive Asian logistics industry, especially in e-commerce fulfilment, hi-tech and e-mobility. We are looking forward to welcoming the Apex colleagues to the Kuehne+Nagel family."

Essex Industries expanded their business portfolio by the acquisition of Ste-

vens Manufacturing in Milford, CT as the strategic location will provide improved services for their North Eastern customers. While certain acquisitions like that of Jet Parts acquiring AeroSpares worked as symbiotic relationships. Jet Parts provided customer service, technical capabilities, and sales reach while AeroSpares focused their efforts on providing improved reliability with the products.

Some companies offered to sell a part of their shares due to COVID-19 pandemic, like SR Technics has announced the sale of its design engineering solutions department to groWING.aero effective October 1st 2020. With this SR Technics primary focus will be engine services and maintenance in Switzerland.

Another major acquisition was the sale of Bombardier aero structures business to Spirit AeroSystems. Spirit became the owner of Bombardier's aerostructures activities and aftermarket services operations in Belfast, U.K.; Casablanca, Morocco; and its aerostructures maintenance, repair and overhaul (MRO) facility in Dallas, US in exchange for cash consideration of USD 275 million.

Defense M&A

The dynamics of defense M&A are completely different as the chances radically increase if it involves smaller

players or those focused on tangential industries, like the United Technologies-Raytheon merger. Recently CAE acquired L3 Harris Military Training business for USD 1.05 billion thereby expanding their position as a platform-agnostic training systems integrator by diversifying CAE's training and simulation leadership in the air domain, complementing land and naval training solutions, and enhancing CAE's training and simulation capabilities in space and cyber. Since the start of the year, CAE's main focus was on acquisitions as it completed four major M&A deals in the first quarter of 2021 thus demonstrating CAE's commitment to thoughtfully deploying capital to broaden the company's position across key markets. Commenting on the robust M&A plans Marc Parent, CAE's President and Chief Executive Officer said, "The proposed acquisition represents a significant value creation opportunity for all CAE stakeholders. It accelerates our growth strategy in Defense and Security and is highly complementary to our core military training business, broadening our position in the United States. We are adding new customers, experience on new platforms and building our depth of expertise to address all domains – air, land, sea, space and cyber – as well as expanding into adjacent markets such

as mission and operations support. This proposed transaction will provide greater balance to CAE across businesses and geographies, and like our recent acquisitions in the civil aviation market, it demonstrates our focus on bolstering and expanding our position in the markets we serve. We are making investments with a view to emerge from the pandemic stronger and prepared to meet the growing demands of our customers."

If we look at the broader picture, Mergers and Acquisitions has emerged as a commercially viable business strategy as it helps the participants enhance their technological know-how while dividing the risks associated with technological disruptions. While this is good news for the industry, aerospace and defense companies must understand the nuances of this change and prepare for the challenges and opportunities that result in executing a merger or an acquisition. For example, acquiring companies or investors must consider how to value a company that has a short financial track record, or has few competitors, or is in a country in which they have not previously operated. Integrating overseas has its own hurdles, potentially resulting in inefficient operations and failure to realize acquisition benefits.



Image Courtesy - AerCap



Rolls-Royce to deliver its 1000th Trent XWB-84 engine

The Trent XWB-84, the world's most efficient aero engine in service, is the latest in the Trent family to reach this milestone.

Rolls-Royce recently announced that it has delivered its 1000th Trent XWB-84, achieving another key milestone for the engine programme. The engine, which will power an Airbus A350-900, was built at the company's state-of-the-art Production Test Facility in Derby, England.

Following its entry into service in 2015, the Trent XWB-84, quickly became the fastest selling large engine of all time. It has now achieved more than eight million engine flying hours in service with more than 30 operators, demonstrating its versatility and capability by flying a range of different routes, from short-range segments to ultra-long-range flights of more than 18 hours.

Enabling the airline customers to build more efficient fleets, the Trent XWB-84 has a 15 per cent fuel consumption advantage over the first Trent engine, goes further on less fuel, and offers leading

performance and noise levels. It is also ready to operate on Sustainable Aviation Fuels as they become more available to airlines in the future. In addition, the Trent XWB-84 has contributed to avoiding more than 10 million tonnes of CO₂ since it launched in 2015 – that's the same amount of CO₂ it takes to provide electricity to nearly two million homes each year.

Chris Cholerton, President Rolls-Royce Civil Aerospace, said "Reaching this milestone is another great achievement for the Trent XWB-84, which is the most efficient aero engine in service. It is important to our customers to build ever more efficient fleets, and new-generation engines, like the Trent XWB-84 allow them to achieve this. We would like to thank everyone, including our customers, employees, partners and suppliers who have helped create the engine programme's success."

Sebastian Resch, Director of Operations Civil Aerospace, Rolls-Royce, said "We take great pride in our state-of-the-art assembly line in Derby – where our highly-skilled colleagues have accumulated more than 7,500 years of assembly experience. To assemble 1000 Trent XWB-84s has required more than 25 million parts brought together and more than 6,000 assembly steps per engine. This achievement is the result of the skills and dedication of our operations teams, with the strong support of our partners in the programme: GKN Aerospace, ITP Aero, Kawasaki Heavy Industries and Mitsubishi Heavy Industries, as well as our external supply chain."

As well as offering improved efficiency, the Trent XWB-84 delivers a step change in maturity and reliability for the industry, consistently achieving better than 99.9% dispatch reliability.

GA Telesis Continues its Leadership Position in the USM Market with Multiple Airframe Disassemblies

GAT's Component Solutions team will manage the distribution of the USM from these three aircraft types, building on their reputation as the world's leading independent aftermarket used serviceable material supplier.

GA Telesis, LLC announced a significant expansion to their inventory of Used Serviceable Material ("USM") with the disassembly of two Boeing 737NG, two Airbus A330-200, and four Airbus A340-600 aircraft.

GA Telesis has disassembled over 400 commercial aircraft with the inventory supporting the day-to-day operational requirements of airlines and MROs worldwide. The GA Telesis strategy to maintain the highest level of USM in support of the industry is also an integral part of GAT's SNAP, iGEAR, ACCESS, exchange, and lease programs, providing cost-effective solutions to operators globally.



Jason Reed, President of the Flight Solutions Group (FSG) said "Global airlines have begun their post-covid fleet ramp-up, which has initiated significant demand for aircraft component supply chain needs in 2022. Throughout the pan-

demic, we continued to invest in aircraft and engine component inventories in anticipation of this market demand. With this new tranche of materials, combined with our aggressive growth plans in 2022, we are best placed to continue our global leadership position in the aftermarket USM sector for years to come."

GA Telesis forecasts that in 2022, the Company will up-cycle another 35-40 aircraft and up to 100 engines to continue supporting the commercial aviation market. The material from these latest projects will be positioned at strategic distribution centers in North America and Europe by the end of 2021.

Akasa Air Orders 72 Fuel-Efficient 737 MAX Airplanes

New Indian carrier's order valued at nearly \$9 billion, includes 737-8 and high-capacity 737-8-200.

Boeing and Akasa Air, a brand of SNV Aviation, announced the new Indian carrier has ordered (72) 737 MAX airplanes to build its fleet. Valued at nearly \$9 billion at list prices, the order is a key endorsement of the 737 family's capability to serve the rapidly growing Indian market.

Akasa Air, CEO, Vinay Dube said, "We are delighted to partner with Boeing for our first airplane order and thank them for their trust and confidence in Akasa Air's business plan and leadership team. We believe that the new 737 MAX airplane will support our aim of running not just a cost-efficient, reliable and affordable airline, but also an environmentally friendly company with the youngest and greenest fleet in the Indian skies."

Dube added, "India is one of the fastest-growing aviation markets in the world with an unparalleled potential.



We are already witnessing a strong recovery in air travel, and we see decades of growth ahead of us. Akasa Air's core purpose is to help power India's growth engine and democratize air travel by creating an inclusive environment for all Indians regardless of their socio-economic or cultural backgrounds."

Providing the lowest seat-mile costs for a single-aisle airplane as well as

high dispatch reliability and an enhanced passenger experience, the 737 MAX will ensure Akasa Air has a competitive edge in its dynamic home market.

"We are honored that Akasa Air, an innovative airline focused on customer experience and environmental sustainability, has placed its trust in the 737 family to drive affordable passenger service in one of the world's fastest-growing aviation regions. The 737 MAX, with its optimized performance, flexibility

and capability, is the perfect airplane to establish Akasa Air in the Indian market and ensure it effectively grows its network," said Stan Deal, Boeing Commercial Airplanes president and CEO.

The 737 MAX family delivers superior efficiency, flexibility and reliability while reducing fuel use and carbon emissions by at least 14% compared to airplanes it replaces.



Rolls Royce – Pushing the Engineering Boundaries

In an Exclusive Interview with **Dr Holger Klinger**, Sub-System Executive Power Gearbox, Rolls-Royce, he speaks about the milestone achieved and the challenges faced, **Swati K.** finds more...



Q - First of all, I would like to congratulate you on achieving a remarkable feat of Rolls Royce's UltraFan power gearbox which has set a new world record. Can you tell us more about this important milestone?

A - Many thanks, indeed, it is a fantastic achievement of the team working very hard over the last 5 years. This successful demonstration resulted from a list of improvements incorporated into the Power Gearbox based on previous testing but also on improved modelling capability.

We started testing a prototype gearbox in 2016 on an Attitude Rig with the ability to change pitch and role conditions between $\pm 45^\circ$ whilst the gearbox is in operation at low load. Since 2017 tests have also taken place on a Power Rig up to nominal MTO conditions and since 2019 we are testing gearboxes with engine representative hardware even at overload conditions. These vehicles are heavily instrumented, sometimes with two telemetries, and up to 700 measurement parameters.

For special test purposes we performed experiments on dedicated component rig facilities at sub and full scale. Strip evidence of the tested units have then been fed into the process of design optimisation.

The outcome of all the effort is the successful overload test of a compact gearbox perfectly designed for the aviation industry.

Q - What were the challenges faced by the team while achieving this magnificent feat?

A - Just to give you an impression on the power density we are working with: two gear teeth transmit the same power as the entire starting grid of a Formula 1 race.

The UltraFan® Power Gearbox is based on a planetary concept with five planets driven by a sun gear in the middle and a static ring gear on the outside. At high power the planets operate within a field of very high g-loads so that every part of the component needs to be carefully designed and supported.

In order to operate in this environment, the intention is to isolate the gearbox from engine vibration, shaft misalignment and bending moments as much as possible.

Another challenge is to keep load dependent as well as load independent power losses in the system extremely low to avoid the need for additional cooling devices.

Essential element is also the development of world-leading manufacturing methods to ensure adequate quality of the highly loaded components.

Q - What was the inspiration behind you and your team to achieve this milestone?

A - We wanted to explore the boundaries for the power transmission capability of our gearbox to identify any potential for further optimisation. We are convinced we could have gone to even higher running conditions as all the critical measurement parameters were still below limits. With the vehicle now in disassembly and first inspection results being available we found the hardware in almost brand-new condition.

Q - The entire aviation industry is geared towards achieving sustainable aviation and net-zero emissions by 2050 as per the UN's mandate. Are the steps taken collectively by the aerospace fraternity enough to achieve this objective?

A - For decades the aviation industry has continuously invested in R&D and improved its environmental performance. For example, flying today uses 80% less fuel per Revenue Passenger Kilometre (RPK) than it did fifty years ago and aviation accounts for 2.5% of all man-made CO₂ emissions, while generating 4% of global GDP and supporting 88 million jobs.

At Rolls-Royce, we have a long, proud history as pioneers of the power that enables the modern world to function. We have joined the UN Race to Zero campaign with a bold ambition to play a leading role in pioneering a resilient, inclusive, net zero carbon future. This will see Rolls-Royce become net zero carbon in its operations by 2030 and, more fundamentally, set an ambition to play a leading role in enabling the sectors in which we operate to reach net zero carbon by 2050 through the development of new products and technologies. Rolls-Royce has affirmed that position in joining the Business Ambition for 1.5°C campaign.

But we all have to work together as an industry and that's why just recently the Chief Technology Officers (CTOs) of seven of the world's leading aerospace manufacturers have reaffirmed their commitment to achieving more sustainable aviation and to reaching industry-wide Air Transport Action Group targets in a joint statement. This statement is supporting the aviation sector's ambition to achieve net-zero carbon emissions by 2050.



The CTOs, whose firms have spent over \$75B in R&D combined over the past five years, have committed to working together to focus on three core areas of aviation technology:

- Advancing the state-of-the-art in aircraft and engine design and technology
- Supporting increased availability and adoption of Sustainable Aviation Fuel (SAF) and investigating hydrogen as a fuel of the future
- Continuing to develop novel technologies that will eventually enable net-zero carbon aviation while maintaining the safety and quality standards of the industry.

Q - If not, what according to you is lacking in aviation sector and where is the scope for further improvement to achieve green aviation?

A - I don't think there is anything lacking in the aviation sector. Achieving net zero will require the transformation of core systems that support our global economy. Power generation, transport and the built environment will be key. These are the very sectors in which reducing emissions is hardest. Together they represent 73% of annual global CO₂ emissions in 2020.

The CTOs of Airbus, Boeing, Dassault Aviation, GE Aviation, Pratt & Whitney, Rolls-Royce, and Safran will also issue a call to action to policymakers, research institutions, suppliers, fuel producers and airport operators to build on

the progress made in recent years and deliver on the aviation sector's sustainability agenda.

No individual company, sector or technology has all the answers. That's why we are forging partnerships across borders, industries and technologies to seek out - and scale - solutions that can get us to net zero.

We are also stepping up our advocacy for policies that can accelerate action to drive down emissions. Pioneering sustainable, net zero power now sits at the very heart of our strategy, innovation plans and growth agenda.

Q - How efficient is SAF for achieving sustainable aviation?

A - If SAF production can be scaled up - and aviation needs 500 million tonnes a year by 2050 - we can make a huge contribution for our planet.

The net CO₂ lifecycle emissions of unblended SAF are at least 75 per cent less than conventional jet fuel, and as methods of production advance there is the possibility of further reductions in years to come

We know that is a huge undertaking and will require teamwork right across a number of stakeholders, including aviation, the fuel industry and government bodies.

Our contribution to that is demonstrating that our current engines can operate with 100% SAF as a full "drop-in" option,

laying the groundwork for moving such fuels towards certification.

That is why we have recently carried out a series of ground and flight tests on Rolls-Royce engines using 100% SAF for the first time.

The aim of the tests is to confirm that unblended SAF makes a significant contribution to improving the environmental performance of gas turbine engines. At present SAF is only certified for blends of up to 50% - so a change to allow 100% SAF would be ground-breaking in terms of sustainability.

We have just announced that within two years we will have proven that net zero carbon operation is possible with over 40% of the world's long-haul aircraft engines. That's all our Trent engines assembled in Derby, UK.

And by the way, our whole Pearl engine family, which powers the latest generation of business jets from Bombardier, Dassault and Gulfstream, will be compatible with 100% SAF as well by 2023.

Q - When are you planning the first test run of the engine?

A - The first UltraFan® demonstrator engine is currently in build and testing is due to take place next year. The Power Gearbox for this engine has already been assembled and is now going through a pass off test procedure to make sure everything is fine for the engine test. And to come back to your previous questions, the very first test run of the engine will be on 100% SAF and the engine will be 100% SAF compatible from entry into service.

Q - After the power gear box technology, what is the next milestone in making?

A - Our sustainability strategy consists of three pillars. While we are further improving gas turbine technology with our new Pearl engine family and the first UltraFan demonstrator engine and making sure all our in-production engines are compatible with 100% SAF we are also working on the electrification of flight. With Tecnam/Wideroe and Vertical Aerospace we are working on customer projects for an all-electric commuter airplane and an eVTOL. Both are planned to enter service by mid of this decade already.

Collins Aerospace to deliver lighter, cost-efficient & sustainable aircraft structures

With the acquisition of Dutch Thermoplastic Components (DTC), Collins Aerospace to expand the use of advanced thermoplastics.

Collins Aerospace recently announced the acquisition of Dutch Thermoplastic Components (DTC), a leader in the development and fabrication of structural thermoplastic composite parts. With this acquisition, Collins will expand the use of advanced thermoplastics to make aircraft lighter and more fuel-efficient.

Marc Duvall, president of Aerostructures for Collins Aerospace said "This acquisition underscores our commitment to use advanced materials and processes to address key areas of importance for our customers: weight reduction for fuel savings, reliability improvements, and sustainable practices across the entire product lifecycle."

"DTC began in 1998 with the production of the landing flap ribs of the Dornier 328 jet and today we are producing more than 2,000 unique part numbers for more than a dozen commercial and business aviation platforms. With this acquisition we are adding a new chapter to our story. Our team of driven and skilled experts are all excited to become part of the Collins family, and for the opportunity to leverage our technology, knowledge and experience for new and even more challenging projects that will help shape the future for commercial aerospace", said David Manten, Managing Director at DTC.

Thermoplastic parts can be manufactured in minutes and the process can be easily automated, which makes thermoplastic composites an ideal material for high-rate aircraft production. Thermoplastics are lighter than conventional aircraft materials and require fewer fasteners, which further reduces weight and required maintenance.



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Collins Aerospace Signs Agreement with Japan Airlines 787 fleet

Agreement covers avionics, sensors, and fire protection equipment on the airline's 787 fleet.

Collins Aerospace has signed a long term agreement with Japan Airlines (JAL). This agreement covers the fleet of Boeing 787 aircraft through its Dispatch flight hour program.

Collins Aerospace will provide high performance avionics and communication assets to customer around the globe. Through this agreement we can see the good relations between Collins Aerospace and Japan Airline (JAL).

Lisa Steffen, Vice president and General Manager for Collins Aerospace said that "We have a longstanding relation with Japan Airline (JAL) and we see this new agreement as a show of confidence in our program and the services Collins provides. With thousands of aircraft covered globally, Dispatch is a proven, cost effective solution to help airlines like JAL keep their fleet flying at peak performance."

Collins Aerospace provides service



to the airline's fleet of Boeing A350 through an existing Dispatch maintenance contract Collins will also provide support which will include global pool

access, maintenance service including upgrades, technical assistance and access to Collins Aerospace's worldwide 787 asset pool.

HAECO ITM and Tigerair Taiwan Extends Agreement

Tigerair Taiwan continues to benefit from an optimised set of home-based component stock in Taipei while gaining access to HAECO ITM's pool of components in Hong Kong.

HAECO ITM Limited, a member of the HAECO Group, announced that the company has extended its long-standing agreement with Taiwan low-cost carrier Tigerair Taiwan to provide inventory technical management support to the airline's Airbus A320 fleet. The new agreement will run until 2027.

Lai Chun Ti, Chief Operations Officer of Tigerair Taiwan signs a long-term inventory technical management agreement with William Arblaster, Executive General Manager of HAECO ITM to support the airline's Airbus A320 fleet.

William Arblaster, Executive General Manager of HAECO ITM, said "We are very pleased to continue to support Tigerair Taiwan during these challenging times. The extension of the long-standing partnership reaffirms the high-quality services provided by HAECO



ITM and our unwavering commitment to developing cost-effective solutions tailoring to our customers' needs."

HAECO ITM has been providing inventory technical management support to Tigerair Taiwan since 2016. Under the extended contract, Tigerair Taiwan continues to benefit from an optimised

set of home-based component stock in Taipei while gaining access to HAECO ITM's pool of components in Hong Kong. The scope of work includes closed-loop repair management, value engineering services, AOG support as well as a newly introduced engine shop visit support solution.

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ST Engineering bags maintenance contract from Virgin Australia Airlines

Under the five-year contract, ST Engineering will provide full integrated component support to Virgin Australia Airlines' growing fleet of Boeing B737NG from this month.

ST Engineering announced that its Commercial Aerospace business has secured a component Maintenance-By-the-Hour (MBH™) contract from Virgin Australia Airlines.

Under the five-year contract, ST Engineering will provide full, integrated component support to Virgin Australia Airlines' growing fleet of Boeing B737NG from this month. Included in this are repair management, pool access, and provision of consignment stock in Australia. On top of this is the airframe heavy maintenance currently offered as part of its Singapore Facility.

"Emerging from this challenging period for the aviation industry, we appreciate



being selected by Virgin Australia Airlines to support their business activities and recovery. Our comprehensive life cycle nose-to-tail support capabilities will be leveraged to provide Virgin Australia Airlines with the highest quality and most reliable services that our customers have come to expect from ST Engineering" said Jeffrey Lam, Commercial Aerospace President at ST Engineering.

Virgin Australia Airlines' Chief Opera-

tions Officer, Stuart Aggs, said, "Virgin Australia Airlines is pleased to have selected ST Engineering as our strategic partner for component MRO services through a comprehensive tender process. We look forward to maximising our strategic partnership as domestic and international travel ramps up and our fleet, team and passengers return to the skies."

ST Engineering added that its Commercial Aerospace business provides round-the-clock support and delivers more than 100,000 components annually from its six components MRO facilities located in Singapore, Hanoi and Ho Chi Minh City in Vietnam, as well as Stockholm, Sweden.

Rolls-Royce and Etihad Airways signs agreement for sustainable aviation

Rolls-Royce and Etihad Airways to target the application of electrification technologies and hybrid systems, together with the use of electric motors for commuter aircraft and the fast emerging urban air mobility (UAMs) sector.

Rolls-Royce and Etihad Airways have agreed to formalise their common interest in decarbonising air travel by signing a comprehensive agreement facilitating the development of sustainable aviation as part of Etihad's broader strategic sustainability programme.

Rolls-Royce and Etihad will work alongside partners including Airbus to test and apply new technology solutions and developments in sustainability to Etihad's incoming fleet of A350, spearheaded by the Sustainability50 flagship aircraft.

"Agreement is built on our long history with Rolls-Royce and formalises our cooperation for decarbonisation, as we research, develop and test sustainable solutions to move the industry forward toward net zero. There is no quick fix to overcome the challenge of aviation sustainability, it is going to take a united effort if we are to reach our shared goals of drastically reducing the carbon emissions of air travel," said Tony Douglas, Group Chief Executive Officer of Etihad Aviation Group.



Chris Cholerton, President, Rolls-Royce Civil Aerospace said: "Our commitment to net zero emissions by 2050 can only be achieved by working collaboratively with our valued customers. Our long-standing relationship with Etihad Airways provides an excellent foundation to build innovative solutions in aviation

as we embark on our common journey towards an increasingly sustainable industry."

Rolls-Royce believes that its innovations in electrification and use of sustainable aviation fuels (SAF) hold the keys to unlock the door of opportunity on decarbonisation.

Royal Jordanian again sealed Lufthansa Technik for component maintenance

Five-year Total Component Support (TCS) for the airline's entire Airbus A320 family fleet.

Royal Jordanian, the national airline of the Hashemite Kingdom of Jordan, and Lufthansa Technik AG has signed an agreement regarding comprehensive component maintenance for the airline's entire Airbus A320 family fleet. For a period of five years, Lufthansa Technik will provide its Total Component Support (TCS) including spares support, parts pooling and homebase support services for a total of five A319s, six A320s and two A321s.

In line with TCS, Lufthansa Technik's experts will take care of all aspects of supplying Royal Jordanian's fleet with components, from initial provisioning studies and home base allocation at Amman's Queen Alia International Airport to repair and overhaul, troubleshooting, documentation and engineering services. This comprehensive spectrum of services will ensure Royal Jordanian highest aircraft availability while avoiding a big capital investment for their own dedicated spare-parts inventory. As a customized service package, TCS is exactly tailored to the airline's specific requirements.

"Lufthansa Technik and Royal Jorda-



nian have been partners over the past few years, and we are pleased to build on this partnership for the coming five years. We trust that their efficient and timely component support will serve our keenness to maintain our fleet at its best performance," said Samer Majali, Vice Chairman and CEO, Royal Jordanian.

Kai-Stefan Röpke, Vice President Corporate Sales Europe, Middle East and Africa, Lufthansa Technik said "Royal Jordanian is one of our long-term partners in the Middle East, the prouder I am to extend this outstanding cooperation well into the future. We are commit-

ted to ensuring our valued customer best-in-class aircraft availability and will moreover combine it with the outstanding service levels our component services are known for."

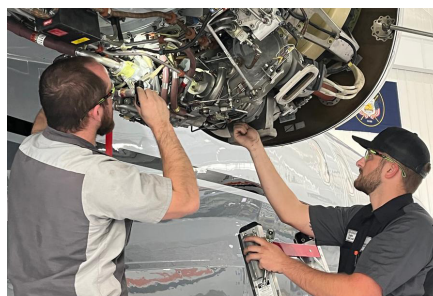
The new TCS contract builds on a previous agreement in which Lufthansa Technik provided component MRO for Royal Jordanian since 2017. In 2019, the two partners also extended their collaboration to components of the CFM56 turbofan engine. Royal Jordanian's A320 family fleet also relies on Lufthansa Technik for overhauls of its landing gears.

Duncan Aviation Expands Honeywell Engine Service Authorization

The company has made the investment in both training and tooling to secure this authorization.

Duncan Aviation, in an agreement with Honeywell Aerospace, recently announced an extension to its engine service authorizations designating the Provo, Utah, location as a Honeywell AS907 (HTF7000) Line Service Center.

Eric Sorensen, Duncan Aviation's PVU Engine Line Assistant Manager, said "The Provo Engine Line has a team of factory-trained technicians to perform engine removals and installations, line level inspections, maintenance, and repair, and service bulletins. We have the necessary tooling and spare parts to perform fan balancing and gearbox seal



replacement, among other maintenance tasks. We are ready to assist our AS907 Series customers."

Duncan Aviation will now file MSP warranty claims for program customers

for AS907 line service maintenance performed at the company's Provo location.

Cobi Lane, PVU Director of Production Operation said "We are excited to have Provo as an authorized AS907 (HTF7000) line service center. Our collaborative effort with Honeywell will enhance our brands well into the future."

The Honeywell AS907 (HTF7000) Series engines are installed on Bombardier Challenger 300 (HTF7000), Challenger 350 (HTF7350), Gulfstream 280 (HTF7250), Embraer Legacy 450 / 500 (HTF7500), and the Cessna Citation Longitude (HTF7700) aircraft.

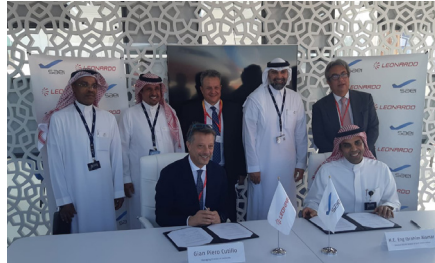
SAEI and Leonardo Sign Maintenance Services MOA

Through this MOA, SAEI will enter a qualification process to be recognised as a Leonardo Authorized Service Centre in country for the bestselling AW139 model and will deliver basic maintenance for the type.

Saudia Aerospace Engineering Industries (SAEI) and Leonardo announced the signing of a Memorandum of Agreement (MOA), that will strengthen the level of maintenance services for the growing fleet of AW139 intermediate twin engine helicopters in the Kingdom of Saudi Arabia. The MOA also includes the addition of the AW169 helicopter and the AW609 TiltRotor in the future.

Captain Fahd Hamzh Cynndy, CEO, SAEI said "We are delighted to be appointed as the first authorised Leonardo service centre in the KSA for Leonardo's AW139, AW169, and AW609 types. I am confident that our industry-leading capabilities will provide airline owners and operators with easy access to reliable, cost-effective and timely services, enabling them to achieve enhanced safety and efficiency while offering superior passenger connectivity and convenience."

"We are honoured to partner with SAEI to provide the growing fleet of AW139 helicopters in Saudi Arabia with



the level of quality service their operators deserve to maximise the advantages of using the world's best aircraft in its category. We fully share common values and goals on flight safety and efficiency. SAEI's unique skills and expertise in aircraft maintenance services will be highly beneficial for the AW139 operations to effectively and timely serve their national communities," said Gian Piero Cutillo, MD, Leonardo Helicopters.

This MOA demonstrates Leonardo's long-term commitment to the region and aligns to Leonardo's focus on stronger support services and proximity. Enhanced services will help maximize

the helicopter fleet's mission effectiveness and safety for the benefit of operators, crews and the served communities. With more than 90 service centres in over 40 countries worldwide, Leonardo is committed to providing leading, comprehensive support and training services to deliver unprecedented benefits to operators in terms of safety, quality, effectiveness, cost, and sustainability as a cornerstone of Leonardo's Be Tomorrow 2030 Strategic Plan.

The world's most important helicopter programme since its certification in 2004 and the bestselling type in its category, the AW139 has logged orders for over 1,200 units from more than 290 customers in over 70 countries to date. The type has proven extremely successful in the Middle East with over 150 units in service across the region for the wide scope of missions including corporate transport, emergency medical service, search and rescue, law enforcement, offshore transport, and government duties.

FL Technics and Wizz Air Signs Long Term Base Maintenance Contract

FL Technics will be providing heavy maintenance services for Wizz Air Airbus A320/A321 CEO and NEO fleet.

FL Technics, a global independent MRO service provider, and Wizz Air, Europe's leading low-cost carrier, recently signed an agreement covering partnership for base maintenance solutions with a planned start of services in July 2022.

Based on the agreement, FL Technics will be providing heavy maintenance services for Wizz Air Airbus A320/A321 CEO and NEO fleet, including both, planned heavy maintenance checks as well as short-heavy maintenance visits.

A four-year contract, with extension possibility, was signed at the beginning of November and is yet another major partnership development between the two organizations, in addition to the existing long-term cooperation focused on the line maintenance services.

"Wizz Air continues the strong growth



path in this decade to offer affordable travel opportunities to our customers. FL Technics' competitive cost base, operational flexibility and high service and performance quality gave us the confidence to award Base Maintenance Services to FL Technics. We are looking forward to starting this cooperation and continuing the successful joint growth path in the next years" said Julia Brix, Head of Technical Services for Wizz Air Group.

Juozas Lapeika, deputy CEO for

production at FL Technics, said "This contract demonstrates our commitment to being the leading and most innovative MRO service provider in terms of quality and efficiency. And there is no better way to achieve the goal than partnering with a leading low-cost carrier such as Wizz Air, renowned for its' focus on effective services and quality processes. I trust this partnership will be a wonderful opportunity to leverage our MRO expertise and support Wizz Air in their operations and growth, while maintaining one of the Europe's leading low-cost airline fleet."

This development is strong evidence of mutual trust and result of recent years of successful partnership, all together symbolizing promising prospects towards recovering aviation industry.



Embraer Signs MoU with the Netherlands Aerospace Centre for Strategic Collaboration Relating to Aerospace Research

This MoU is a further development to the earlier signed in September 2021 to discuss potential strategic relationships in the fields of aviation and sustainability.

Embraer and the Royal Netherlands Aerospace Centre (Royal NLR) have recently signed a Memorandum of Understanding (MoU) for a potential strategic collaboration relating to aerospace research.

The research areas include technology development and innovation in defense and space systems, general aviation, MRO, air mobility, and sustainability. The MoU also brings together the possibility to extend and increase long-term relations between Embraer and Royal NLR during the design and development of Embraer products, such as the E-Jets family and recent E2 models, the legacy family of executive jets and the KC-390 Millennium multi-mission aircraft, and programs. In this context, the two companies are already discussing potential

opportunities related to automated maintenance procedures.

"Embraer and NLR are long-time collaborators with each party contributing specific expertise necessary to conduct complex research and developments to be applied in advanced technologies and innovative products. This new MoU is another important step in our long-term relationship in The Netherlands and reiterates our commitment to further strengthen our collaborative partnership with NLR in a dynamic aerospace ecosystem," said Jackson Schneider, President and CEO of Embraer Defense & Security.

Michel Peters, CEO of Royal NLR, adds "Indeed, Embraer and Royal NLR have a longstanding relationship and we are happy to strengthen and extend our relation even more through this MoU.

This partnership is an opportunity for both parties to address shared challenges, identify common interests and to develop innovative approaches and methods to address the issues of global aviation. I really welcome the increased cooperation between Embraer and Royal NLR, and I am looking forward to see our mutual benefit."

In the last two decades, Embraer and Royal NLR have been working in close collaboration in research and development in such areas as new materials, flight-deck technology, system development, and aerodynamics applied in the company's leading-edge products including wind tunnel tests and advanced aero-elastic wind tunnel models. Embraer and Royal NLR are both members of The Netherlands Aerospace Group (NAG).

Embraer presents the four concepts of the Energia Family

The Energia Family is comprised of four concept aircraft of varying sizes, each aircraft is being evaluated for its technical and subsequent commercial viability.

Embraer has announced a family of concept aircraft that it is exploring to help the industry achieve its goal of net zero carbon emissions by 2050.

The company has partnered with an international consortium of engineering universities, aeronautical research institutes, and small and medium-sized enterprises to better understand energy harvesting, storage, thermal management and their applications for sustainable aircraft propulsion.

The Energia Family is comprised of four concept aircraft of varying sizes that incorporate different propulsion technologies – electric, hydrogen fuel cell, dual fuel gas turbine, and hybrid-electric.

Luis Carlos Affonso, Embraer's Sr. VP of Engineering, Technology and Corporate Strategy, said "We see our role as a developer of novel technologies to help the industry achieve its sustainability targets. There's no easy or single solution in getting to net zero. New technologies and their supporting infrastructure will



come online over time. We're working right now to refine the first airplane concepts, the ones that can start reducing emissions sooner rather than later. Small aircraft are ideal on which to test and prove new propulsion technologies so that they can be scaled up to larger aircraft. That's why our Energia family is such an important platform."

"We will see a big transformation in our industry towards a more sustainable aviation. With 50 years' experience in developing, certifying and supporting regional aircraft, Embraer is in a unique

position to make viable the introduction of new disruptive green technologies," said Arjan Meijer, President and CEO of Embraer Commercial Aviation.

Although the Energia airplanes are still on the drawing board, Embraer has already made advances in reducing emissions from its aircraft. It has tested drop-in sustainable aviation fuel (SAF), mixes of sugarcane and camelina plant-derived fuel and fossil fuel, on its family of E-Jets. The company is targeting to have all Embraer aircraft SAF-compatible by 2030.

Chrono Aviation goes live with ENVISION's modules

Chrono Aviation is the latest in a long line of exciting companies to select ENVISION as their software of choice.

Chrono Aviation, the Canadian charter airline, has successfully deployed ENVISION as its airworthiness and maintenance solution.

Chrono Aviation provides charter services from its bases in Montreal, Quebec City, and Rimouski to destinations across Canada and the US. After 9 years in operation, they now have a fleet of 14 aircraft ranging from Pilatus PC-12's to Boeing 737's. Chrono will also soon be adding a 737-800 to the fleet, its largest aircraft to date.

Chrono performs most of its maintenance in-house through subsidiary WAAS Aerospace, who also conduct extensive 3rd party work. The company is currently constructing a new 66,000 sq ft hangar at

Montreal Saint-Hubert Longueuil Airport to accommodate recent growth.

Chrono will use its Fleet Management module for continuing airworthiness and maintenance planning, Base, Line & Component Maintenance modules for MRO execution, and Inventory Management for its warehouses. It will also use ENVISION's Human Resources, Quality & Safety, and Finance & Accounting modules to support these functions.

"We have experienced significant levels of growth over the last five years and as such needed to upgrade our maintenance information system to manage our larger fleet and increased MRO activities. We were looking for an

advanced and modern solution that was cost-effective at the same time. In ENVISION we found one software that could do it all and be the foundation for our continued growth," said Dominic Cayouette, PRM/DOM at WAAS Aerospace.

Julian Stourton, CEO, said: "Both the teams here at Rusada, and at Chrono and WAAS, have done an exceptional job in getting the system live despite the challenges presented by the pandemic. I am very proud of our continued success in what has been a difficult 18 months for the industry and look forward to next year which promises to be even better."

Chrono Aviation becomes Rusada's first customer in Canada.

Boeing to Deliver More Chinook Helicopters to U.S. Army Special Operations

\$246.48 million contract is for six MH-47G Block II Chinook plus spares.

Boeing will build six more MH-47G Block II Chinook for the U.S. Army Special Operations Aviation Command as part of a \$246.48 million contract.

Delivery of these aircraft will start in 2023. With this additional order, Boeing is now under contract for 30 MH-47G Block II Chinooks, four of which have been delivered to date.

These aircraft will be the first to include the new Active Parallel Actuator Subsystem (APAS), a mission system that helps pilots execute more difficult maneuvers while improving safety and reliability of flight.

Andy Builta, Boeing, Vice President and H-47 Program Manager said “APAS is one of many next-level capabilities that allows the Chinook to deliver more payload – faster, farther and smarter.”

The MH-47G Block II Chinook also features improved structure and weight reduction initiatives like new lighter



weight fuel pods that increase performance and efficiency.

Boeing has more than 4,600 Boeing employees in Pennsylvania supporting H-47 Chinook, V-22 Osprey, MH-139A

Grey Wolf and a number of services and engineering efforts. Boeing’s presence, including suppliers and vendors, supports an estimated 16,000 total jobs in Pennsylvania.

PZL Mielec To Manufacture Major Assemblies For Global F-16 Program

From 2022, PZL Mielec will build components and assemblies for the latest generation F-16 Block 70/72.

PZL Mielec, a Lockheed Martin company and one of Poland’s longest established aircraft manufacturers, is to be a manufacturing partner for one of the world’s most successful fighter aircraft programs. This development marks a significant new milestone for PZL Mielec, which was last involved in the production of fighter aircraft in the 1960s.

Beginning next year, PZL Mielec will manufacture the rear fuselage, center fuselage, cockpit structure, cockpit side panel and forward equipment bay for new production F-16s, exporting the aerostructures to Lockheed Martin’s final assembly line in Greenville, South Carolina.

Robert Orzyłowski, Lockheed Martin director for Poland, Central and East Europe, said “This announcement under-

lines our commitment to PZL Mielec and to growing Lockheed Martin’s industrial footprint in Poland, where we currently employ around 1,600 people directly and sustain work for more than 5,000 others in the Polish supply chain.”

“During our 20+ year strategic partnership with Poland, we’ve delivered technology transfer, research and development opportunities, long-term sustainable high technology jobs, growth and exports,” Orzyłowski adds. “Poland’s acquisition of the F-35 opened the door for a further expansion of this relationship and helped enable today’s exciting announcement.”

With orders already secured for the F-16 Block 70/72 from five customers, global interest remains high for new-build production aircraft and for F-16V upgrades.

Poland has operated F-16s in its own fleet for the past 15 years, and this summer marked a 100,000 flight-hour milestone.

“The F-16 remains a critical part of the Polish Air Force. This new production work at PZL Mielec will further ensure Poland is part of the F-16 global enterprise for many years to come,” said Danya Trent, Lockheed Martin vice president, F-16 program.

Beyond the F-16, Poland is also procuring 32 F-35s, the first of which will be delivered in 2024. The complementary capabilities and interoperability between both fighter aircraft types serves to strengthen Poland’s airpower capabilities and enables partnerships across missions, training, equipment and tactics with other NATO members.

EXECUTIVES IN FOCUS

Kevin Wall joins APOC as Senior Vice President, Business Development – Americas

Prior to joining, Kevin Wall was Chief Commercial Officer & Deputy CEO at Dublin Aerospace.

APOC appoints Kevin Wall as Senior Vice President, Business Development, to lead its expansion programme in America. His remit will encompass increasing market share for APOC's growing leasing and asset acquisition business, alongside the trading and sale of aircraft parts, engines, and landing gear from APOC's narrowbody aligned portfolio. Walls' career encompasses senior sales and engineering roles at Lufthansa Technik and Fokker Aircraft BV.

Max Lutje Wooldrik, CEO said "2022 will see us focus on spearheading the APOC 'can-do' business approach from our Miami facility. The new role of Senior VP Business Development – Americas is of strategic importance as we broaden APOC's global footprint. Kevin is a highly respected member of the aviation community with a reputation for team motivation and commercial success. He will be located at our Miami facility in the New Year, and I know he will enjoy the challenges that this multi-faceted market will undoubtedly deliver."

The growth of APOC since its inception some five years ago has been impressive and has attracted favorable attention from both the industry and investors alike so Wall anticipates exciting times ahead. Walls commented "APOC's dynamic and entrepreneurial approach towards doing business is refreshing. With more than three decades of experience I can see how their attitudes towards service and real-time visibility of stock via their benchmark software applications will resonate well with airlines and lessors alike across the region."

With recent investments in aircraft spares inventory and larger assets APOC is ideally placed to become a major player in the marketplace. Wall adds, "As the aviation industry continues to recover in the post-COVID timeframe, I anticipate that with APOC's innovative business model and secure financial status we will be able to not only take advantage of investment opportunities in engines, landing gear and airframe assets, but also to wisely shape our support programmes as airlines evolve and explore new ways to operate."



International CALENDAR

2021

Date	Event	Venue
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
15-18 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 Antonio, 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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