AviTrader
AVIATION NEWS PUBLICATIONS
avitrader.com | Edition #136
May 2025

MRO 360°

Engine LLPs

A balancing act between replacing LLPs and scheduled maintenance

StandardAero
Talking to Kim Ernzen, COO

Environmental
Dealing with increasing regulations

Aero Norway
A Look Behind the Scenes

© *Shutterstock*

Dear Industry Colleagues,

In this issue we cover two interesting topics in our feature articles. First, we look at the management of life-limited parts (LLPs) and seek the opinion of MRO operators who have to deal with the balancing act that exists between scheduled maintenance and the replacement of life-limited parts, as there are times when the two do not coincide. Consequently, the management of life-limited parts has become a critical element of engine MRO.

In our second article we investigate environmental concerns regarding aircraft maintenance and ask four leading MROs how they deal with the strict environmental regulations surrounding products and processes.

On top of a couple of one-to-one interviews with MRO operators, we have also included an Expert's Corner contribution from Aero NextGen where Monica Badra goes into even greater detail on last month's topic of New Trends in Aviation Software.

Last, but not least, I would like to thank our readers, contributors and, of course, our many loyal advertisers, without whom our monthly MRO 360° magazine would not be possible.

I hope you enjoy this month's content.

Yours

Peter Jorssen
Publisher

Willis
Aviation Services
Limited

Willis Aviation Services Limited is a subsidiary of Willis Lease Finance Corporation

SEEKING BASE MAINTENANCE FOR YOUR AIRCRAFT?

AVAILABLE NOW
2025 Maintenance Slots!

Willis Aviation Services Limited holds EASA, UK CAA, 2-Reg and Cayman approvals on A320 family and B737NG aircraft at our facility at Teesside International Airport in the UK.

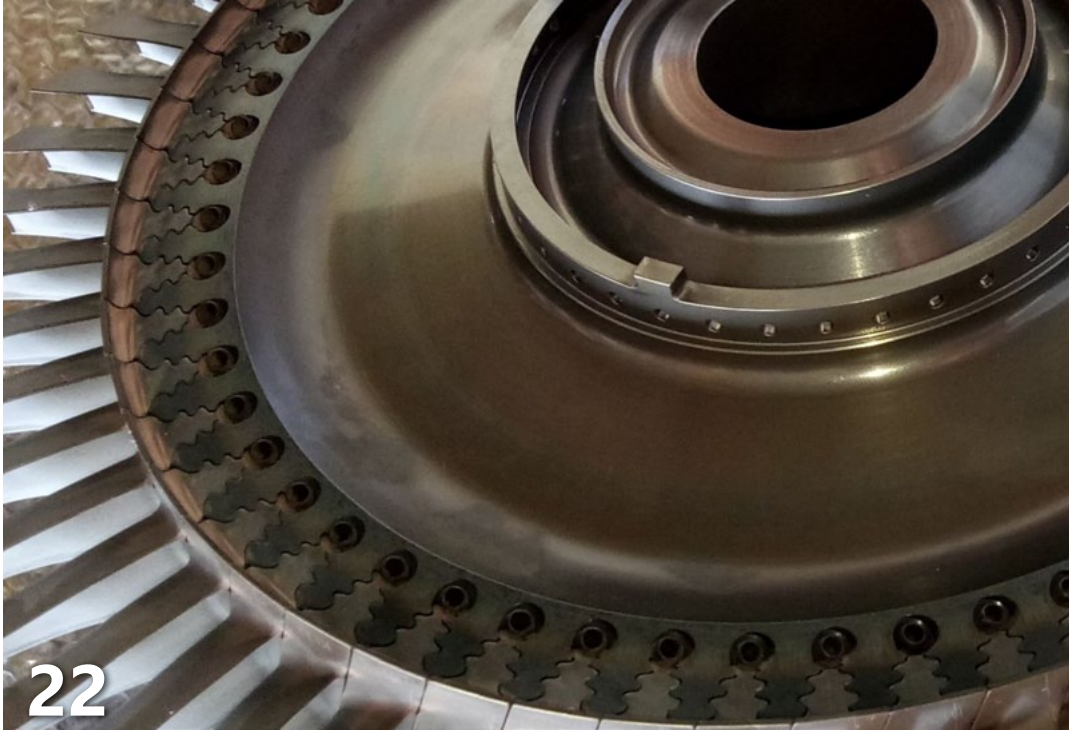
OUR CAPABILITIES INCLUDE:

- ✔ Base maintenance (C-Check)
- ✔ Lease returns, transitions and return to service
- ✔ Parking and storage
- ✔ End of life airframe disassembly

For additional information on how we can assist with your base maintenance needs contact us at
info@willisaviation.com | +44 (0) 1656 508 270 | www.wlfc.global

AviTrader
AVIATION NEWS PUBLICATIONS
MRO 360°

Cover image: *Aero Norway © Siv Sivertsen*



Engine LLPs

EDITORIAL

Peter Jorssen
Publisher
peter.jorssen@avitrader.com

Heike Tamm
Editor-in-Chief
heike.tamm@avitrader.com

David Dundas
Content Writer
david.dundas@avitrader.com

Volker Dannenmann
Graphic Designer
volker.dannenmann@gmail.com

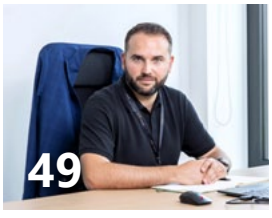
ADVERTISING & CONTRIBUTION ENQUIRIES

Tamar Jorssen
Central, North & South America
tamar.jorssen@avitrader.com
Phone: +1 (778) 213 8543

Malte Tamm
Europe, Middle East & Asia
malte.tamm@avitrader.com
Phone: +49 (0)162 8263049

AviTrader Publications Corp.
Suite 305, South Tower
5811 Cooney Road
Richmond, British Columbia
V6X 3M1, Canada
Phone: +1 (778) 213 8543

Follow us on LinkedIn



AerFin expands global reach with Boeing 777-300ER teardown

AerFin has successfully completed the teardown of a Boeing 777-300ER © *AerFin*

AerFin has taken an important step forward in its global operations with the successful teardown of a Boeing 777-300ER previously operated by Japan Airlines. This marks the first in a series of Boeing 777 aircraft that the company plans to acquire and dismantle over the next 12 months, as it continues to strengthen its position within the aviation aftermarket. The teardown, which took place in New Mexico, focused on recovering key high-value components such as nacelles and reverse thrusters. These major parts have been securely stored in Arizona, while the majority of the remaining harvested material has already been transferred to AerFin's facility in Miami. This distribution ensures that the components are well-positioned to meet demand from clients across the globe. By adding a substantial volume of high-quality serviceable material to its inventory, AerFin is now able to support a wider range of operators, MROs and leasing companies with competitively priced components for the Boeing 777-300ER — one of the most widely used wide-body aircraft in commercial aviation. The move highlights AerFin's commitment to sustainability, efficiency, and value creation in the aftermarket space. Jacqueline Fernandez, SVP Americas at AerFin, commented: "We're proud to bring this B777-300ER material to market at a time when operators are seeking cost-effective, sustainable support for their fleets. With a wide inventory now available from our Miami warehouse, we're well-positioned to serve customers quickly and efficiently across the Americas and beyond." This latest project not only enhances AerFin's global footprint but also reinforces its reputation for delivering reliable and forward-thinking aftermarket solutions. With deep technical knowledge and a commitment to customer service, the company continues to support the evolving needs of the aviation industry with speed, precision, and a solutions-driven mindset.

Turkish Technic to open Rolls-Royce engine maintenance centre

Turkish Technic has signed a landmark agreement with Rolls-Royce to establish an authorised licensed engine maintenance centre at Istanbul Airport. This collaboration marks Turkish Technic's entry into the Rolls-Royce MRO network and represents a major step forward in strengthening Türkiye's role as a global hub for advanced aviation services. Set for completion by the end of 2027, the new facility will provide comprehensive maintenance services for Rolls-Royce's Trent XWB-97, Trent XWB-84 and Trent 7000 engines, which power Airbus A350 and A330neo aircraft. With an expected capacity of around 200 shop visits per year, the centre will be among the largest in the region, significantly boosting Turkish Technic's engine servicing capabilities and global competitiveness. The facility will not only support the Turkish Airlines fleet but also cater to international customers under Rolls-Royce's TotalCare programme. Beyond enhancing maintenance operations, the project is poised to develop domestic engineering talent, stimulate local supply chains, and contribute to building a highly skilled workforce within the aviation sector. Prof. Ahmet Bolat, Chairman of the Board and Executive Committee at Turkish Technic, highlighted that the partnership with Rolls-Royce will enable the company to deliver advanced maintenance solutions across multiple Trent engine models, reinforcing its commitment to world-class service. Rob Watson, President – Civil Aerospace at Rolls-Royce, added that the expansion aligns with their goal of increasing global MRO capacity and reflects strong confidence in Turkish Technic's future as a top-tier engine maintenance provider.

Turkish Technic is establishing a Rolls-Royce authorised licensed engine maintenance centre at Istanbul Airport
© *Turkish Technic*

China Southern Airlines selects RECARO's new R3 economy seats

From left to right: Irene Tan, Yunkai Tan, Mark Hiller, Yongchao Zeng, Denis Altmann, Kai Ni and Abraham Yang
© RECARO Aircraft Seating

RECARO Aircraft Seating has announced a landmark partnership with China Southern Airlines, which becomes the first airline in mainland China to select the latest R3 economy-class seats for its new Airbus A350-900 aircraft. The agreement will see RECARO's state-of-the-art R3 seats installed across ten aircraft, with deliveries scheduled to begin in the third quarter of 2026. This collaboration represents a significant step forward for RECARO's presence in the Asia-Pacific region, marking China Southern Airlines as the launch customer for the R3 product in this market. The airline's decision underlines a strong commitment to enhancing passenger comfort on long-haul routes, aligning with RECARO's mission of delivering superior comfort in the sky. The R3 economy-class seat has been engineered with an optimised ergonomic design that offers passengers improved living space. Key features include a high-comfort seat cushion, enhanced lumbar support, and a six-way adjustable headrest with an integrated, patented neck support function. These innovations aim to deliver an elevated economy-class experience, ensuring passengers can enjoy greater comfort throughout their journey. Additionally, each seat will be equipped with a 13.3-inch 4K in-flight entertainment system, providing high-quality content access at passengers' fingertips. "For China Southern Airlines, comfort in our passenger's travel experience is a top priority. We are proud to partner with RECARO who is renowned for its heritage of delivering highly ergonomic and comfortable seats," said Yongchao Zeng, Executive Vice President of China Southern Air Holding Company Limited.

Diehl Aviation moves into new Querétaro facility

Diehl Aviation has officially moved into its newly completed facility in Querétaro, Mexico, marking a significant step in its expansion across the Americas. The move, completed on schedule in March 2025, signals the start of the production ramp-up phase and the on-site preparation of workforce and operations, with the formal opening of the site planned for autumn 2025. The state-of-the-art facility in Querétaro, spanning 8,000 m², is designed to enhance Diehl Aviation's production capacity and operational efficiency. Located in a strategic aerospace hub, the site will support major final assembly lines in Brazil, Canada and the United States, improving regional collaboration, reducing lead times and enabling more responsive customer service. Initially employing around 30 staff, the site is expected to grow to approximately 500 employees over the medium term. Diehl Aviation is actively developing the necessary production capabilities and training a skilled workforce to meet the aviation sector's highest safety and quality standards. This foundation is vital for the seamless transfer of work packages and long-term operational success. The new facility represents a significant investment—reported in the double-digit million-euro range—and forms part of the company's broader strategy to reinforce its presence in key growth markets. Proximity to major customers such as Airbus, Boeing, Bombardier and Embraer further strengthens the site's strategic value. Additionally, the Querétaro facility is set to generate hundreds of local jobs and contribute to the sustainable growth of the regional aerospace supply chain, firmly establishing Diehl Aviation within Querétaro's thriving aerospace ecosystem.

Diehl Aviation's Querétaro facility © *Diehl Aviation*

Complex MRO vendor network?

We are your one stop shop for repair excellence

AJW®

AJW Group is the world-leading independent component parts, repair, lease, engine, flight hour programme, and supply chain solutions integrator, transforming efficiency in commercial, business and defence aviation.

With hubs and offices on every continent - including AJW Technique, a state-of-the-art component MRO facility in Montreal - nose to tail, we have you covered.

ajw-group.com

Deutsche Aircraft lays cornerstone for D328eco production line

D328eco © *Deutsche Aircraft*

Deutsche Aircraft has reached a major milestone in its development of the D328eco® regional aircraft, with the cornerstone laid for the new final assembly line (FAL) at Leipzig/Halle Airport. The ceremony marks a pivotal step in the journey towards serial production of the D328eco, a next-generation turboprop aircraft designed to offer high efficiency and environmental performance in regional aviation. Following the ground-breaking event in May 2023, significant progress has been made on the site, located at one of Germany's key transportation hubs. The new facility will span 60,500 m^2 —an area roughly the size of eight football pitches—and will include a CO_2-neutral manufacturing plant, a commissioning hangar, a logistics centre and administrative buildings. Construction is expected to be completed by the end of 2025. Once operational, the facility will create employment for an additional 250 to 350 staff, with an annual production capacity of up to 48 aircraft. This development not only strengthens the position of Deutsche Aircraft but also contributes to the economic and technological landscape of the Leipzig region. The project reflects a strong collaboration between stakeholders across sectors such as logistics, aviation, and regional infrastructure. The next milestone for Deutsche Aircraft will be the unveiling of its first test aircraft, the D328eco TAC 1, on May 28. The aircraft will debut at the company's headquarters at the Air Tech Campus in Oberpfaffenhofen, showcasing what is described as the world's most efficient and eco-friendly aircraft in its category. This initiative highlights Germany's commitment to innovation and sustainability in regional aviation.

Magnetic Engines to deliver CFM56 repairs for Lufthansa Group

Magnetic Engines, a division of the Magnetic Group, has unveiled a new partnership with Group Engine Management GmbH (GEM), a subsidiary of Deutsche Lufthansa AG that oversees engine management for airlines within the Lufthansa Group. This cooperation marks an important milestone for Magnetic Engines as it continues to expand its footprint in the global aviation maintenance market. Beginning in May, Magnetic Engines will undertake cost- and time-efficient repairs on CFM56-5B engines at its Tallinn-based facility. These engines are operated by various carriers within the Lufthansa Group and managed by GEM, who has opted for a consolidated solution to streamline maintenance operations across the Group's fleet. This collaboration is part of a strategically significant alignment for the company, complementing its broad portfolio of clients spanning Europe, Africa, and Asia. The agreement also builds on the company's established history with Lufthansa Group airlines, having previously provided both base and line maintenance, alongside engine shop repairs. The partnership underscores both companies' commitment to innovation and operational efficiency, while reinforcing Magnetic Engines' role as a trusted provider of tailored engine maintenance solutions for major aviation clients worldwide.

© Magnetic Engines workshop

Air Seychelles enhances A320neo efficiency with Airbus fleet support

Air Seychelles has selected Airbus services to strengthen its fleet efficiency © *Airbus*

Air Seychelles, the national carrier of the Republic of Seychelles, has selected Airbus' flight hour services – Fleet Technical Management (FTM) to optimise the performance and operational efficiency of its Airbus A320neo fleet. This strategic agreement is aimed at improving reliability, reducing maintenance costs and ensuring high safety and airworthiness standards. Through the partnership, Airbus will assist Air Seychelles with continuing airworthiness management organisation (CAMO) tasks. This includes providing engineering support to the airline's maintenance control centre and implementing preventive measures to enhance aircraft reliability and minimise operational disruptions. Air Seychelles has operated Airbus A320 aircraft since 2012, a relationship that has played a key role in strengthening the country's aviation sector. The airline's current fleet includes two A320neo aircraft, which provide vital connectivity between Seychelles and destinations across Asia and Africa. Headquartered in Victoria, Air Seychelles continues to focus on growth and excellence in regional aviation through strategic partnerships such as this.

HALO secures first loan of multi-aircraft and engine portfolio for Crestone

HALO AirFinance (HALO), the joint venture between GA Telesis and Tokyo Century Corporation, has successfully closed a senior loan to support the acquisition of a Boeing 737-800 by a special purpose entity managed on behalf of Crestone Air Partners (Crestone). The entity is primarily funded by Blue Owl Capital, and the aircraft is currently leased to a Canadian-based airline. This deal marks the first loan closing in a broader multi-aircraft and engine portfolio financing programme, signalling HALO's growing role in aviation finance. The transaction highlights HALO's ability to deliver bespoke capital solutions that align with the strategic goals of leading aviation investors. According to Marc Cho, co-head and Managing Director at HALO, the financing demonstrates the company's capacity to support sophisticated investors like Crestone and Blue Owl as they expand their portfolio of high-quality leased aircraft assets. Crestone's CEO, Kevin Milligan, noted that financing the aircraft under a structured portfolio with HALO delivered both cost and structural efficiencies. He praised HALO's flexibility and creative approach, which he considers essential traits in a financing partner navigating the complex landscape of aviation asset management. The loan underscores HALO's strategic focus on the global mature aircraft market and its commitment to providing tailored financial solutions for airlines, lessors, and investment platforms. Backed by the broad technical and financial capabilities of GA Telesis and Tokyo Century, HALO continues to build its reputation as a versatile lender capable of supporting transactions across the spectrum of aircraft and engine types, from new to mid-life and mature assets.

FL Technics approved for 737 MAX base maintenance

FL Technics has received official EASA Part-145 approval to perform base maintenance on Boeing 737 MAX aircraft. The certification applies to both the 737-8 and 737-9 variants, powered by CFM LEAP-1B engines. This significant development enables FL Technics to conduct heavy maintenance work on the aircraft at its facilities in Kaunas and Vilnius, Lithuania. The approval further strengthens the company's position as a top-tier MRO provider for next-generation narrow-body aircraft in Europe and globally. Juozas Lapeika, Deputy CEO for Base Maintenance at FL Technics, stated that the certification allows the company to remain aligned with the evolving aviation market, which is increasingly focused on sustainable and modern fleets. He emphasised that this capability will allow FL Technics to continue delivering high-quality, forward-looking service across the region. As the Boeing 737 MAX continues to be a cornerstone of airline fleet renewal strategies worldwide, FL Technics is now better positioned to support this demand, offering certified, efficient, and high-quality maintenance services to operators seeking reliable MRO solutions.

BEST4YOU

« I've been an Avionics Technician for 12 years. Aviation is my passion. Using my experience and skills to provide you with the highest quality service is a no-brainer. I pay special attention to details when I'm working on aircraft instruments including ELTs, Smoke Detectors, Nose Wheel Steering systems, and Triple Pressure Indicators. Your satisfaction is always a top priority for me. »

***Alexandra**, Avionics Technician*

BEST4YOU

100% Innovation

100% Global Network

100% Airline MRO

100% Adaptiveness

Barfield provides complete adaptive components solutions for the A320 family and for A330, 777/737, Bombardier, Dash 8, ATR 42 & 72 and Embraer 170 & 190 aircraft. As part of the AFI KLM E&M network, Barfield has the agility of a local company combined with the strength of one of the largest airlines in the world, guaranteeing the BEST4YOU in the Americas.

@afiklmem

80 BARFIELD YEARS OF INNOVATION

AIRFRANCE INDUSTRIES KLM Engineering & Maintenance

WLFC closes US$64.8 million in JOLCO engine financing deals

© Willis Lease Corporation

Willis Lease Finance Corporation (WLFC), the prominent lessor of commercial aircraft engines and global provider of aviation services, has announced the successful closing of three Japanese operating lease with call option (JOLCO) transactions, securing a total of US$64.8 million in financing. Two of the financings were completed in the first quarter of 2025, covering a PW1127GA-JM engine and a PW1133G-JM engine, respectively. Both loans mature in 2033. The third transaction, which closed in April 2025, financed a LEAP-1A engine and will mature in 2034. These transactions bring the company's total JOLCO financings to approximately US$119.8 million, further enhancing WLFC's capital structure and providing additional flexibility to support its global customer base. "The JOLCO market remains an attractive way to diversify financing options and we're proud to deepen our relationship with Japanese counterparties," said Scott B. Flaherty, WLFC EVP and Chief Financial Officer. "Through global capital sources like this, WLFC is able to offer our airline customers compelling lease and financing solutions." WLFC completed its first JOLCO engine transaction in August 2023 and continues to expand its presence in this market segment. WLFC offers innovative and customised leasing solutions to airlines, OEMs, and MRO providers worldwide, with a focus on delivering value through long-term partnerships and reliable access to critical aviation assets.

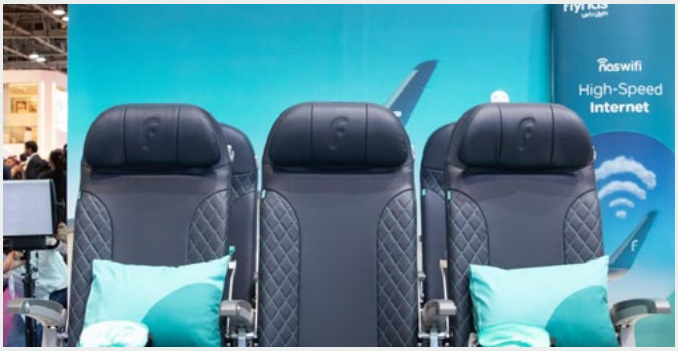
Korean Air to build aerospace hub in Bucheon

Signing ceremony in Bucheon, attended by key stakeholders © *Korean Air*

Korean Air plans to invest KRW 1.2 trillion in the construction of a cutting-edge Urban Air Mobility (UAM) and Aviation Safety R&D Centre in Bucheon, Gyeonggi Province. The ambitious initiative marks a major step in the airline's long-term vision to lead future mobility and aerospace innovation in South Korea, with the facility set to become a focal point for next-generation aviation technologies, pilot training and safety advancement. The project was formally launched on April 30, through a signing ceremony at the Bucheon Arts Center, attended by senior figures including Keehong Woo, Vice Chairman of Korean Air, Bucheon Mayor Yong-eek Cho, Han-Joon Lee, CEO of Korea Land and Housing Corporation (LH), and Myung-hee Won, CEO of Bucheon Urban Development Corporation. The new centre, scheduled to break ground in 2027 and begin operations by May 2030, will cover more than 65,800 m² — an area equivalent to ten football pitches. Once completed, it will house over 1,000 personnel, including researchers and instructors, and will serve as a comprehensive hub for aerospace research and professional training. Three core components will define the new facility in Bucheon: UAV Research Centre, Flight Training Centre and Safety Experience Centre. The project also aligns with Korean Air's integration with Asiana Airlines, enhancing the merged carrier's infrastructure as it prepares for future aviation challenges.

flynas to equip 60 new A320neo aircraft with Safran seats

flynas, the low-cost Saudi air carrier, has announced the signing of an agreement with Safran, the prominent manufacturer of aircraft seats for both crew and passengers. The deal will see the next 60 new A320neo aircraft joining the flynas fleet fitted with the latest-generation seats, setting a new benchmark for comfort and convenience in low-cost aviation. The new seat features were unveiled at the Arabian Travel Market, held in Dubai from April 28 to May 1, in the presence of Bander Almohanna, Managing Director and CEO of flynas, and Quentin Munier, EVP of Safran Seats France. The agreement includes economy-class seats with a premium configuration located at the front of the cabin. These seats will be tailored specifically for flynas, incorporating smart cushion designs and advanced technologies to enhance passenger comfort—particularly important as flynas operates A320neo aircraft on routes of up to six hours duration. The new seats are specially designed for medium- to long-haul flights. Scheduled for delivery in the second half of 2025, each aircraft will be fitted with 174 new seats, offering enhanced comfort, privacy, and functionality. Economy seats will include a holder for portable electronic devices, a dual USB A and C power port (60w output), a lower literature pocket, a coat hook and a cup holder. Premium Class seats, arranged across four rows, will feature greater seat pitch, adjustable headrests and a middle seat blocker to provide improved personal space and a more enjoyable in-flight experience.



flynas' new cabin with Safran next-generation seats © *Safran*

Airbus secures key Spirit AeroSystems assets to strengthen aircraft production

Airbus has finalised a definitive agreement with Spirit AeroSystems to acquire industrial assets related to its commercial aircraft programmes. Under this agreement, Airbus will take ownership of several key Spirit AeroSystems assets. These include the Kinston site in North Carolina, US, which produces A350 fuselage sections, and the St. Nazaire site in France, which also manufactures A350 fuselage sections. Airbus will also acquire the Casablanca site in Morocco, responsible for components for the A321 and A220, as well as the production of A220 pylons in Wichita, Kansas, US. The production of A220 wings in Belfast, Northern Ireland, and the A220 mid-fuselage in Belfast will also be transferred, unless Spirit AeroSystems finds a suitable buyer for the part of the site dedicated to these activities. Additionally, Airbus will take over the production of wing components for the A320 and A350 at the Prestwick site in Scotland. Spirit AeroSystems has stated its intention to sell the Subang site in Malaysia to a third-party owner. The compensation for this deal has been adjusted in accordance with the revised transaction perimeter, as outlined in the binding term sheet agreement announced on July 1, 2024. Airbus will receive US$439 million from Spirit AeroSystems, subject to certain adjustments at the time of closing. This agreement's conditions and financial impact are in line with the EBIT adjusted and free cash flow before customer financing preliminary estimates set forth in Airbus' 2025 guidance, released on February 20, 2025. Through this transaction, Airbus aims to ensure a stable supply for its commercial aircraft programmes, advancing both operational and financial sustainability for crucial Airbus work packages. The transaction is expected to close, with the official transfer of operations, in the third quarter of 2025, pending regulatory and customary approvals. Furthermore, Airbus has signed a memorandum of agreement with Spirit AeroSystems, under which it will provide Spirit AeroSystems with non-interest-bearing lines of credit totalling US$200 million. This will support Spirit AeroSystems in its efforts to maintain and enhance Airbus programmes.

DAE completes US$2 billion acquisition of Nordic Aviation Capital

Dubai Aerospace Enterprise (DAE) has officially completed its acquisition of Nordic Aviation Capital (NAC), including all its consolidated subsidiaries, from NAC Holdings Limited. The deal, which was first announced in January 2025, has an enterprise value of approximately US$2 billion and significantly expands DAE's global footprint in the aircraft leasing industry. Following the acquisition, DAE's total fleet now stands at around 750 aircraft, including owned, managed and committed aircraft. Of these, approximately 650 are owned or managed and currently leased to 161 airline customers across 74 countries. The company also holds commitments to acquire a further 100 aircraft from major manufacturers including Boeing, Airbus and ATR, as well as from trading partners. Firoz Tarapore, Chief Executive Officer of DAE, noted that the enlarged fleet now makes DAE the third-largest aircraft lessor globally by aircraft count. He welcomed NAC's clients into the DAE family and expressed appreciation for the contributions made by the NAC team over its 35-year history. He also acknowledged the leadership of NAC Chairman Yadin Rosov and CEO Norm Liu, praising their professionalism and commitment during the acquisition process. DAE was advised by legal firm Allen Overy Shearman Sterling LLP and consulting firm KPMG throughout the transaction. The acquisition represents a major step in DAE's continued global expansion and strategic growth in the aircraft leasing market.

Avolon's net income up 36% in Q1 2025

© Avolon

Avolon, the global aviation finance company, has reported strong financial results for the first quarter (Q1) of 2025, with net income rising 36% year-on-year to US$145 million. Lease revenue reached US$683 million; a 10% increase compared with Q1 2024. The company generated robust operating cash flow of US$365 million, up 8% year-on-year.

During the quarter, Avolon also issued US$850 million in senior unsecured notes due in 2030 and, following the quarter's close, raised an additional US$1.1 billion through a senior unsecured term loan also maturing in 2030. Avolon's liquidity position remains strong, with US$8.1 billion in total available liquidity, including US$1 billion in unrestricted cash and US$6.4 billion in undrawn debt facilities. Its balance sheet is bolstered by an unsecured to total debt ratio of 70%, a net debt-to-equity ratio of 2.5 times and US$20 billion in unencumbered assets. The company's positive credit trajectory continued, with Moody's placing Avolon on review for an upgrade and both Moody's and Fitch maintaining a positive outlook on its current ratings (Baa3 and BBB- respectively). Avolon acquired 115 aircraft in Q1, including the completed acquisition of Castlelake Aviation Limited, expanding its delivered fleet to 639 owned and managed aircraft. The company sold 34 aircraft during the quarter and had 66 aircraft agreed for sale by the end of March. Avolon's total owned, managed, and committed fleet stood at 1,096 aircraft, which includes 457 next-generation aircraft on order or under commitment. Avolon placed 15 aircraft from its orderbook in the quarter and now has 97% of its orderbook placed for delivery over the next 24 months.

ANA to use AeroSHARK on Boeing 777 aircraft

All Nippon Airways (ANA), Japan's largest airline, will be the first company in Asia to utilise AeroSHARK, the fuel-saving riblet film developed by Lufthansa Technik and BASF, on its Boeing 777 passenger aircraft. Furthermore, ANA will be the first airline worldwide to operate the Boeing 777 equipped with this technology on both cargo and passenger aircraft. A Boeing 777-300ER fitted with the innovation will commence commercial operations with ANA on April 28. This is ANA's second aircraft (JA796A) incorporating the technology. ANA has been operating a Boeing 777 Freighter (JA771F) featuring the riblet technology since September 2024. The AeroSHARK film, inspired by the structure of shark skin, reduces frictional resistance, thereby decreasing fuel consumption and CO_2 emissions. ANA has verified these benefits since the first aircraft entered service, confirming the technology reduces fuel consumption and emissions by approximately one percent. "The implementation of the AeroSHARK technology on more ANA aircraft represents our ongoing commitment to reduce our carbon footprint and improve operational efficiency," said Kohei Tsuji, Executive Vice President, Engineering and Maintenance Centre at ANA. "This innovative technology is building a more sustainable future for ANA and the aviation industry." As the riblet technology is now being used on passenger aircraft, promotional decals will be applied to the door area, and sample products will be installed on board, allowing customers to directly touch and feel the riblet technology. ANA plans to further expand the use of this technology across other aircraft of the same type to achieve the ANA Group's medium-to-long-term environmental goals. The airline will continue to advance sustainability management through various initiatives under the "ANA Future Promise" programme, which aims to realise a sustainable society.

ANA Boeing 777-300 © ANA

EFW and Confity sign Airbus A330P2F deal

Contract signing between Elbe Flugzeugwerke (EFW) and Confity Capital Partners (Confity) © *EFW*

Elbe Flugzeugwerke (EFW), centre of excellence for Airbus freighter conversions, has signed an agreement with Confity Capital Partners (Confity), a UAE-based growth equity and investment firm, for a multi-aircraft order under its Airbus A330 Passenger-to-Freighter (P2F) programme. This order forms part of a new partnership between Confity and EFW to introduce EFW's wide-body Airbus P2F solution to operators in India, supporting the sub-continent's rapidly expanding freight market, as well as to global customers in other emerging markets. This strategic expansion into India follows EFW's successful introduction of its standard body A321P2F and A320P2F freighter aircraft to the market in 2022. The A330P2F conversions for Confity will commence at the end of 2025 at EFW's facility in Dresden, Germany, as well as at its partner conversion sites worldwide. Jet Freight Logistics, a listed Mumbai-based cargo service provider with over four decades of extensive experience, will serve as the launch customer and become the first Indian cargo airline to operate the widebody Airbus P2F platform. "For us at Confity Capital Partners, after identifying the need and the possible partners, it was imperative to partner with the leading technical experts of this field," said Amit Baum, Senior Partner at Confity. "From a broader view, having EFW experts partner with us on this project is a major technical risk reduction as they have proven their capabilities. We can also say we are already looking beyond this project and have additional plans for cooperation in the near future." The A330P2F programme is available in two variants – the A330-200P2F and the A330-300P2F – both equipped with advanced technology offering airlines impressive operational and economic benefits. The A330-200P2F can carry a gross payload of up to 60 tons for over 7,700 km, while the A330-300P2F provides a gross payload of up to 62 tons and a containerised volume of up to ~18,581ft³ (~526m³), delivering a new paradigm of efficiency with up to 23% more cargo volume than other freighter aircraft in the same class.

Air Serbia chooses LISA Aircraft Records Management for digital transformation

Air Serbia has chosen LISA Aircraft Records Management as its digital system for managing aircraft records, marking a significant milestone in the airline's digital transformation journey. With a fleet of 29 aircraft, Air Serbia now has access to a comprehensive suite of tools specifically designed to streamline records management. The implementation also includes a custom API integration with AMOS, the prominent maintenance and engineering software, ensuring that the aircraft archive stays up-to-date and is ready for redelivery at any time. "At AMROS, we've always said that managing aircraft records well is an art — one that requires the right tools," said Giuseppe Renga, CEO of AMROS Group. "With LISA Aircraft Records Management, Air Serbia now has a system that speaks the same language as its fleet: user-friendly, seamless in reliability, fluent in readiness. LISA brings clarity, structure, and real-time confidence to aircraft records management — a part of the business that too often stays in the background." Developed by AMROS Innovations, LISA provides an intelligent, AI-powered, centralised platform for managing aircraft records, offering full lifecycle transparency and operational control. Air Serbia's adoption of LISA highlights the growing trend among airlines to invest in digital tools and AI that simplify processes, enhance regulatory oversight, and create a consistent foundation for effective aircraft asset management.

Giuseppe Renga, CEO of AMROS Group (l) and Jiri Marek, CEO of Air Serbia (r) © *AMROS*


The Power of Partnership:
Seamless Solutions for MRO
THERMAL SOLUTIONS
• World's largest thermal component MRO provider
• In-house design and manufacturing of core materials
APU & LANDING GEAR
• Exclusive Honeywell authorized APU overhaul provider
• Landing gear overhaul specialists
• In-house machining, plating, grinding, and painting facilities
Stress-Free MRO starts here.
www.tat-technologies.com
TAT
Technologies
APU • LANDING GEAR • AIR & THERMAL • SPECIALTY PROCESSING & MACHINING

VSE Corporation reports acquisition of Turbine Weld Industries

VSE Corporation, a provider of aviation aftermarket distribution and repair services, has announced the acquisition of Turbine Weld Industries (Turbine Weld), a specialist maintenance, repair, and overhaul (MRO) enterprise focused on complex engine components for business and general aviation (BG&A) platforms. Founded in 1986, Turbine Weld is a leading provider of high-value engine component repairs, specialising in hot section components for Pratt & Whitney Canada engines—including the PW100, PT6, and JT15D series, with around 25,000 engines currently in service. Operating from its MRO centre of excellence in Venice, Florida, with a team of approximately 60, Turbine Weld has repaired over 80,000 components and is renowned for its outstanding service and technical expertise. The acquisition of Turbine Weld Industries strengthens VSE's position in the business and general aviation (B&GA) engine aftermarket by expanding its technical and proprietary capabilities, including specialised MRO services for high-demand platforms. Turbine Weld's close collaboration with OEMs has resulted in the development of numerous proprietary repair specifications, positioning it as the sole-source provider for critical repairs on two of the most widely used B&GA engine platforms. The acquisition also deepens VSE's alignment with OEM partners by broadening its service

Turbine Weld Industries acquisition by VSE Corporation © *Turbine Weld Industries*

capabilities and repair offerings. VSE intends to invest in Turbine Weld Industries' operational capacity to meet rising demand and drive future growth. "This acquisition marks another important step in the strategic expansion of our aviation services business," said John Cuomo, President and CEO of VSE Corporation. "Turbine Weld brings industry-leading expertise in complex engine component repair, further positioning VSE as a comprehensive solutions provider to our OEM and aftermarket partners. We are thrilled to welcome the Turbine Weld team and look forward to growing together." "Turbine Weld's proven track record, technical depth, and dedication to quality make them an outstanding addition to VSE Aviation," said Ben Thomas, Chief Operating Officer of VSE Corporation, adding that: "Expansion of Turbine Weld's highly technical repair capabilities is critical to supporting the tens of thousands of PT6 and PW100 operators in the global fleet. This partnership allows us to significantly increase Turbine Weld's capacity, broaden our capabilities, and deliver even greater value to our customers." VSE acquired Turbine Weld for approximately $50 million in cash, subject to working capital adjustments. The purchase was financed through the Company's existing credit facility.

PPG to invest US$380 million in new facility in North Carolina

PPG has announced a US$380 million investment to build a state-of-the-art aerospace coatings and sealants manufacturing facility in Shelby, North Carolina. This strategic expansion is aimed at meeting the rising global demand within the aerospace sector and strengthening PPG's operational capabilities in the region.

Set on a 62-acre site, construction of the new 198,000-ft² facility will begin in October 2025, with completion expected in the first half of 2027. The plant will feature both manufacturing and warehousing units and is projected to employ more than 110 people once operational. It will produce PPG's full range of aerospace coatings and sealants, helping to boost capacity and responsiveness to customer needs.

The site has been strategically selected for its access to key transport links, which will enhance logistics, streamline supply chains, and improve service delivery to aerospace clients. This development reflects PPG's ongoing commitment to investing in modernised, digitised infrastructure that supports sustainable growth and innovation across the industry.

The new facility will also incorporate advanced manufacturing technologies designed to minimise environmental impact while maintaining stringent quality and safety standards. This aligns with PPG's broader sustainability goals and mission to "protect and beautify the world."

The announcement has been welcomed by North Carolina Governor Josh Stein, who emphasised the state's reputation as a manufacturing hub and highlighted the value of the local workforce. The project is expected to contribute significantly to regional economic development while reinforcing PPG's leadership in aerospace materials manufacturing.

Avincis chooses Gannet to enhance maintenance management

Avincis chooses Gannet aircraft maintenance management software © *Avincis*

Avincis has announced the implementation of Gannet, an aircraft maintenance information system developed by Lundin Software, to enhance and optimise its maintenance management processes across its extensive global operations. This partnership highlights Avincis' steadfast commitment to providing safe, reliable, and efficient services to its customers and stakeholders. Following the successful initial adoption of the software within its Nordic operations, Avincis has recognised the substantial benefits of Gannet and is now extending its use to establish a comprehensive global executive maintenance management system. By implementing Gannet, Avincis can harness advanced analytics to enhance safety and optimise operational costs across its fleet. Crucially, the software offers daily users real-time access to essential aircraft data, including global inventory visibility. This functionality reduces the need for manual input, boosts efficiency, and further strengthens Avincis' extensive international presence. "Implementing Gannet as our executive system represents a significant step in refining our global maintenance capabilities. This advanced software not only enhances our operational processes but strengthens our commitment to safety and efficiency on a global scale. This initiative reflects our dedication to leading industry advancements and delivering the highest standards of operational excellence." stated John Boag, Group CEO of Avincis. Magni Arge, a partner of Lundin Software, expressed pride in expanding the partnership with Avincis as they begin the global rollout of the Gannet maintenance information system. "Our collaboration has strengthened our shared commitment to enhancing safety and efficiency across Avincis' operations, and we look forward to supporting their continued success."

Wizz Air partners with Aerogility to streamline aircraft maintenance planning

Wizz Air has announced a strategic partnership with Aerogility, a provider of AI-based digital twin solutions, to enhance its long-term heavy base maintenance planning. As Wizz Air prepares for significant fleet expansion over the next five years, it will utilise Aerogility's model-based artificial intelligence to efficiently integrate new aircraft while optimising maintenance for its existing and future fleet. The technology allows Wizz Air to anticipate maintenance needs even for aircraft not yet in service, supporting smarter and more agile operational planning. Aerogility will create a digital twin of Wizz Air's full maintenance operation, generating accurate and predictive forecasts by analysing aircraft utilisation, operational constraints and resource availability. This data-driven approach will be integrated into Wizz Air's existing AMOS platform, enabling the airline to schedule heavy base maintenance activities, such as C and D checks and powerplant servicing, at the most efficient times. This proactive planning aims to reduce maintenance-related downtime and costs, while ensuring high levels of aircraft availability and operational performance. The partnership arrives at a critical moment as Wizz Air continues its rapid expansion and prepares to meet rising passenger demand. By deploying Aerogility's intelligent forecasting and planning capabilities, Wizz Air is reinforcing its commitment to safety, sustainability, and operational excellence, while effectively managing the lifecycle of its growing fleet.

24H

AOG doesn’t wait – neither do we!

24/7 AOG solutions

- 100+ supply chain managers
- 7 global warehouses
- Worldwide component delivery

For AOG support, reach out at **AOG@FLTechnics.com**


© Shutterstock

A Critical Aspect of Engine MRO - Management of Life-Limited Parts

A balancing act between replacing LLPs and scheduled maintenance

By David Dundas

Every engine has to undergo a regularly scheduled overhaul based on its hours of use and the manufacturer's recommendations in order to adhere to safety regulations and maximise efficiency. However, a balancing act exists between scheduled maintenance and the replacement of life-limited parts, as there are times when the two do not coincide. Consequently, the management of life-limited parts becomes a critical element of engine MRO.


Dag Johnsen, Chief Operating Officer, Aero Norway

We were fortunate enough to be able to seek the opinions of nine industry professionals who were able to give us wide-ranging views on a number of topics related to the management of life-limited parts, the results of which make interesting reading.

What role do engine life-limited parts play when determining the work scope of an engine shop visit?

When an engine enters the shop, there are two types of shop visits: for performance restoration, or for LLP replacement. An engine overhaul is a multi-million-dollar expense for the operator. Smart work scoping is the key to balancing cost and a long on-wing time before the engine has to be removed again. Consequently, we specifically wanted to know what role engine life-limited parts play when determining the work scope of an engine shop visit. Anca Mihalache, Managing Director, AERO CARE advises that: "As shop visits are expensive, a good idea is to combine the two (if the LLPs are run out). This is called smart work scoping, and it means that the engines' owners manage to align LLP replacement timing with the engine's projected future use. For example, if an engine is expected to remain on-wing for a long interval post-shop visit, and the current LLPs would expire mid-cycle, it may be more cost-effective to replace them during the current visit. This ensures that the engine won't need to be removed early solely due to LLP expiry."

Aero Norway believes that the two most important elements of cost effective workscoping during an engine shop visit are 'know what you have' and 'what you

> ***"Knowing what LLP life you are building within the modules - such as fan, core and low-pressure turbine (LPT) - provides an opportunity to look for used residual life LLPs in the market, this can save millions during a shop visit."***
>
> *Dag Johnsen, Chief Operating Officer, Aero Norway*

© Aero Norway

want'. For example, what the condition of the engine going into the shop is: removal reason, hardware condition, commonly known hardware fallouts, remaining LLP life, applicable airworthiness directives etc. Dag Johnsen, its Chief Operating Officer, explains further: "This way you know what you have to work with and what parts you need to start sourcing, including expensive LLPs. The next factor to consider is what you want out of the engine when the engine is completed. The key is to have a pre-determined target build life relevant to hardware and LLP residual life so you don't overbuild or under-build the engine. Knowing what LLP life you are building within the modules - such as fan, core and low-pressure turbine (LPT) - provides an opportunity to look for used residual life LLPs in the market, this can save millions during a shop visit." However, he does include a codicil. "This does not necessarily apply to the entire engine. Not all modules need to reach the same build goal as you can, for example, can plan a "light" shop visit sometime in the future to swap out a major module such as an LPT."

Engine life-limited parts have a significant role in the creation of work scope. Life-limited parts (LLPs) always account for a high proportion of total engine maintenance costs on short-haul operations because of short average cycle times and the high rate of accumulation of FC, with approximately 70% of the cost of an engine shop visit is due to replacement of material. Consequently, as Oliver Boro, Engine Specialist at AMROS Global, tells us: "If life-limited parts (LLP) require replacement the material cost will increase further. LLPs should ideally be replaced when the engine is due for a high-level work scope. This way the engine needs to be in a high level of disassembly, and so the additional man-hours required to perform LLP replacement possible will be minimal." Bruce Ansell, Technical Manager Engine Division, APOC Aviation, goes into greater depth: "To maximise the life of the engine the LLPs should have an equal amount of life remaining; this ensures that they will all expire together. Although this makes for an expensive shop visit, it reduces the possibility of excessive EFC (engine flight cycles) being lost. (LLPs with less than 4k cycles remaining are difficult to justify.) Alternatively, it is possible to build an engine based on modular life i.e. different modules may have different levels of life remaining, although this can again lead to lost life if there are only a few thousand cycles remaining between the modules."

Engine life-limited parts (LLPs) define the safe operational lifespan of key components, measured in flight hours or cycles. During an overhaul, their status is critical; if many LLPs are nearing their limits, a broader overhaul with multiple part replacements becomes necessary to ensure safety and reliability, directly impacting cost and downtime. Thus, as Virgil D. Pizer, Chief Executive Officer, PEM-AIR Turbine Engine Services points out, "Smart work scoping reviews historical usage and predicts wear on LLPs. When parts are still within safe limits, maintenance can be more targeted, extending on-wing time while balancing the expense of replacements. This careful planning minimizes unplanned downtime while keeping the engine compliant with safety standards. Furthermore, integrating LLP assessments into overall maintenance strategy not only mitigates risk but also supports lifecycle planning. Advances in predictive analytics and digital tracking now enable more precise scheduling of overhauls, optimizing both cost and performance."

Of course, we shouldn't forget that there are many different engines out there with differing requirements, as we are reminded by David Blackburn, Senior Vice President Asset Leasing & Trading with PTS Aviation, a StandardAero company. "Speaking specifically about CFM56-5B and -7B engine shop visits, it is wise to match the LLP cycles remaining to the condition and performance of the engine. In other words, you do not want to spend an inordinate amount of money restoring the core blades, vanes and hot section components of a CFM56 engine when the life remaining in your LLP expires in 3,000 cycles. Conversely, you do not want to spend an inordinate amount of money purchasing new or high-cycle remaining LLP when the performance of your engine will allow you to operate only another 3,000 cycles. The plan should be to match

> ***"The plan should be to match your overhaul and repair workscope to the engine's remaining LLP life, to ensure that you have enough performance to last to your first LLP expiry."***
>
> *David Blackburn, Senior Vice President Asset Leasing & Trading with PTS Aviation, a StandardAero company*

David Blackburn, Senior Vice President Asset Leasing & Trading with PTS Aviation, a StandardAero company

your overhaul and repair workscope to the engine's remaining LLP life, to ensure that you have enough performance to last to your first LLP expiry."

Engine life-limited parts, or LLPs, provide the upper bound of possible engine usable life, commonly referred to as "green-time." The lowest limiter on the LLP is an engine's maximum amount of operation before maintenance is required. As a result: "Matching LLP life across a stack of LLPs during the material procurement process helps asset owners improve their margins, i.e., if a stack has non-uniform life remaining, there will be usable LLP life in some LLPs that is paid for but not operated because one LLP reached its usable life before the others," Andrew Storch, VP of Asset Management, Setna iO, points out. John McCarthy, Director Business Development, VAS Europe rounds off the topic nicely by pointing out that: "In an ideal world, planned shop visits for overhaul or performance restoration would be driven by engine life-limited parts reaching the end of their available cycles. Engine life-limited parts play a critical role in the shop visit and determine to a large degree the extent of engine shop visit work scope. At every engine shop visit, maintenance and repair managers must ask the question: Can we use the opportunity of this shop visit to optimise the engine life-limited parts status? If that is the case, then more detailed questions follow, such as: what is the longer-term cost of not using the opportunity to optimise the engine life-limited parts?"

Virgil D. Pizer, Chief Executive Officer, PEM-AIR Turbine Engine Services

Should or can you avoid removing engines due to life-limited parts?

The general consensus on this aspect is that you can't avoid removing an engine if a life-limited part needs replacing and this cannot be done with the engine still on-wing. When it comes to expired life-limited parts (LLPs), the objective isn't to avoid engine removals merely for the sake of maintenance logistics but to strategically plan them so that you're not forced into an unscheduled event. Once an LLP reaches its approved limit, it becomes a non-negotiable safety issue—continued operation is not permitted under regulatory standards. This means if an LLP expires while still on-wing, you're obligated to remove the engine to carry out the necessary replacements. According to Virgil Pizer, "The best approach is to plan engine removals in advance based on predicted LLP wear. By aligning scheduled maintenance with the expected expiration of these parts, operators reduce the risk of an unplanned, costly removal. In essence, proactive work scoping is key: it ensures that you replace LLPs before they reach their limit, thereby avoiding emergency removals while balancing costs and maximizing on-wing time. Beyond this, embracing advanced predictive maintenance tools can further refine your schedule. These systems analyse usage data and predict the remaining life of LLPs, enabling you to time your maintenance events more precisely while avoiding the pitfalls associated with expired parts."

Beyond this, David Blackburn tells us that: "Most operators have engine fleets with a mixture of high, medium and low cycles remaining in each engine's LLP stack. Operators should plan engine removals and engine shop visits accordingly to ensure that they have the necessary thrust/lift when needed, especially in order to support operations in high-utilization seasons (when airlines and cargo companies can generate the strongest revenues and profits throughout the year). Ideally an operator should attempt to match LLP cycles remaining throughout the engine stack in order to run down the majority of their LLPs to the last cycle. Discarding LLP with sub-optimal cycles remaining (which cannot

> ***"The best approach is to plan engine removals in advance based on predicted LLP wear. By aligning scheduled maintenance with the expected expiration of these parts, operators reduce the risk of an unplanned, costly removal."***
>
> *Virgil D. Pizer, Chief Executive Officer, PEM-AIR Turbine Engine Services*

be remarketed or sold) can be costly and unnecessary…and proper LLP procurement and management for each engine can maximize build efficiencies during each engine shop visit," while Andrew Storch suggests that, in theory, engine health monitoring metrics such as exhaust gas temperature (EGT) should correlate with LLP life utilisation. "When an engine is operating at higher temperatures and/or increased vibration, it is usually the case that the LLPs are reaching the ends of their usable lives. If this is not the case, the engine needs to be removed and serviced while the LLPs still have usable life. Obviously, this process costs the asset owner time and money, so efficient engine green time management involves overhauling or repairing assets to operate to the extent of the LLP limiter," he advises.

If the engine operates within its performance parameters, in the end you can't avoid removing engines when life-limited-parts expire. If you operate an engine long enough, the life-limited parts will reach their limit. We have seen this in many CFM56-5B and CFM56-7B engines through the 2010's where the engines performed flawlessly and reached their LLP limits says John McCarthy at VAS, adding that: "What you seek to avoid is having to remove an engine for just one expired life-limited-part deep in the HPC – HPT modules while there are substantial operational cycles remaining in the rest of the engine LLPs and the EGT and ECM parameters."

Dag Johnsen gives an interesting overview of the problem in his explanation of the situation – an engine has three 'lifelines': performance such as EGT margin; hardware condition such as out of limit conditions found routine inspections, and lastly LLP expiration, or (in some cases) other mandatory removal requirements. He then expands further: "Aero Norway believes the goal is to try to match all these removal drivers together as closely as possible. In other words, if you overhaul an engine to a full performance restoration level and then have to remove the engine due to LLP expiration with lots of performance life remaining, lots of the money spent on the full restoration cost will be lost. Operators in hot and harsh environments will typically see removals due to hot section inspection fallout or running out of EGT margin prior to reaching LLP life, while operators with the same engine model in a less severe environment may be able to operate the engine to the full LLP life. The goal is to closely restore the engine to the optimum level according to where and how the engine will operate next."

© Siv Sivertsen

Anca Mihalache, Managing Director, AERO CARE

Ben Jacques, VP Marketing and Acquisitions, Contrail Aviation Support, together with Anca Mihalache, Oliver Boro and Bruce Ansell are all very succinct in their advice, none of which is contradictory. According to Jacques, "Engines should be removed ideally when it's most cost effective for the maintenance required, it is inevitable that sometimes that will be due to LLP expiry. The most cost-effective time is not always what was planned due findings uncovered during the shop visit!", while Mihalache suggests that: "Whenever possible it is recommended to avoid removing engines only because the LLPs are expired. Once an engine is inducted for LLP replacement, the engine must be opened. Which means that the mechanics/engineers will be able to notice issues with non-LLP parts that need to be repaired before the engine can be put back in circulation in

> ***"Once an engine is inducted for LLP replacement, the engine must be opened. Which means that the mechanics/engineers will be able to notice issues with non-LLP parts that need to be repaired before the engine can be put back in circulation in serviceable condition."***
>
> *Anca Mihalache, Managing Director, AERO CARE*

© Pem-Air

serviceable condition. Again, planning is very important to avoid just an LLP replacement shop visit." Oliver Boro is adamant that: "Installed life-limited parts shall not exceed the approved limitation as specified in ALS. When the approved limitation expires, the engine shall be removed from the aircraft for maintenance and disposal of the expired life limited parts," while, to round things off, Bruce Ansell puts it very bluntly: "No, the LLPs are life-limited for a reason, there are safety factors in play and the loss of an LLP whilst in flight could be catastrophic. We have to trust that the OEM has got their R & D work completed and verified by the regulating authorities."

What role do used serviceable LLPs play?

Used serviceable LLPs play an essential role in engine maintenance by offering cost-effective, certified replacements for new LLPs. These are components that, although previously used, have been inspected and confirmed to be within their approved service limits with complete traceable documentation. By using these parts, operators can significantly reduce overhaul expenses compared to buying brand-new parts, while still meeting stringent safety and regulatory requirements – and when properly utilized, extend the green-time of an engine. Virgil Pizer goes on to say that: "Their inclusion in an engine shop visit allows maintenance teams to align their work scopes more economically. When a shop visit involves parts nearing expiration, integrating used serviceable LLPs can optimize the balance between cost and extended on-wing time. This strategic approach not only helps manage budgets but also minimizes unexpected removals and downtime. Advances in traceability and predictive analytics further enhance the viability of using these parts, ensuring that every used LLP is rigorously tracked back to its origin. This guarantees reliability and maintains the engine's residual value, making used serviceable LLPs a cornerstone of modern, cost-effective engine maintenance strategies."

David Blackburn decided that one specific area was especially important, and that was mid- to high-cycle remaining LLP, stating that: "Used serviceable mid-to-high cycle remaining LLP is vital to help minimize engine build material costs, and each build will depend on an operator's monthly and yearly utilization schedule and equipment needs. Due to the limited availability of cycle-specific time-continued LLP, engine operators, owners and MROs should strategically be in the market '100% of the time.' acquiring engines and stand-alone LLP packages in order to support and promote future cost-effective engine build solutions." Andrew Storch adds: "Serviceable LLPs almost always provide substantial cost and lead time savings, while maintaining reliability. Given that dynamic, demand for serviceable LLPs is always strong, even with a sunset aircraft or engine platform."

Used serviceable LLP's offer real savings over new. For example, a life-limited used serviceable part with say 10,000 cycles remaining on a 20,000 limit, will sell at 50% of the new price. If the engine it is being fitted to an engine expected to run for another five years, then this USM LLP should last until the engine is removed from service. As John McCarthy further explains: "Buying the same engine life-limited part new, at twice the price, and fitting it to an engine with a predicted five-year run will result in a life-limited part that has 50% of its life remaining when that engine comes out of service. As engines age and the market shifts to newer generations, the future market for this LLP with 50%

Andrew Storch, VP of Asset Management, Setna iO

> ***"Serviceable LLPs almost always provide substantial cost and lead time savings, while maintaining reliability. Given that dynamic, demand for serviceable LLPs is always strong, even with a sunset aircraft or engine platform."***
>
> *Andrew Storch, VP of Asset Management, Setna iO*

Ben Jacques, VP Marketing and Acquisitions, Contrail Aviation Support

> ***"When Contrail offers used serviceable LLPs it helps our customers achieve a cheaper shop visit compared, not just compared to new LLPs but sometimes against repairs. Particularly during a period of limited repair capacity it can play a key role in reducing delays."***
>
> *Ben Jacques, VP Marketing and Acquisitions, Contrail Aviation Support*

of its cycles remaining may not be very robust. So, in this instance, the USM LLP is a very effective alternative for an engine with five years life left, in terms of both upfront purchase costs and the potential diminished residual value of a new part with cycles remaining." Anca Mihalache in the meantime makes a valid point when looking at lead times for new OEM parts and how that can affect decisions. "If the OEM still produces the LLPs, it does so with a lead-time that can be long. So, if the market has second-hand LLPs on offer, it can be a good alternative. But the next challenge is availability of LLPs on the market, and what CR (cycles remaining) the engine's owner is looking for. The price of USM (used serviceable material) LLPs might also give an advantage to the OEMs FN (factory new) LLPs as cycle pro rata might be below 100% which would allow the buyer to save money. However, if the market is very tight, used LLPs might cost even more than the new ones," she says.

Ben Jacques is of a like mind to Anca Mihalache when it comes to the time factor. "Used serviceable LLPs play a crucial role in cost effective shop visits, to help minimise costs while maximising time on wing. When Contrail offers used serviceable LLPs it helps our customers achieve a cheaper shop visit compared, not just compared to new LLPs but sometimes against repairs. Particularly during a period of limited repair capacity it can play a key role in reducing delays," he comments, while Dag Johnson briefly states that: "Used serviceable LLPs can save money during a shop visit as the customer can find close matching residual life LLPs - to a target build, as opposed to purchasing brand new LLPs." On the other hand, Bruce Ansell tends to look more at the mature phase of an engine to assess the true merits of serviceable LLPs. "At APOC we see these playing a big part in planning an engine build in its mature phase. An engine build can use these for a limited number of cycles, either to meet end-of-lease conditions, or to maximise the remaining life of an engine. They can also be used to replace damaged parts, or parts subject to an airworthiness directive," he tells us.

To conclude this section, the use of used serviceable LLPs is a common cost-saving practice in the maintenance of mature aircraft engines, says Oliver Boro. He adds that: "Given the right material acquisition cost and the maintenance status and remaining life of the engine, this practice can generate substantial savings in engine maintenance costs. An example is the case of swapping used modules with time-continued or 'green time' modules taken from a disassembled engine."

Are there any special considerations for aging engine types?

Aging engine types introduce unique challenges that call for a more nuanced approach to maintenance planning. Over time, cumulative wear and environmental exposure can erode performance margins such as the exhaust gas temperature (EGT) margin. This means that even if an engine operates within prescribed limits, its components may show varying signs of fatigue, wear, or residual damage that aren't as apparent in newer engines, suggests Virgil Pizer at PEM-AIR. He goes on to further explain: "Therefore, LLP evaluations become even more critical for aging engines. Since these engines have already accumulated a high number of cycles and hours, there's less margin for error when assessing the remaining safe life of critical parts. Used serviceable LLPs, while cost-effective, must be scrutinised carefully to ensure they haven't been over-stressed in previous operations. Special non-destructive inspections and more frequent monitoring might be necessary to catch early signs of material degradation. Additionally, aging engines usually don't integrate as seamlessly with modern predictive maintenance tools. Operators and MRO providers often need to rely on a combination of historical data, rigorous physical inspections, and advanced analytics tailored to the engine's specific wear patterns. This blended approach helps in scheduling proactive maintenance actions that ultimately extend on-wing time and prevent unplanned removals while keeping safety and regulatory compliance in sharp focus."

With delays in deliveries of aircraft, both from Boeing and Airbus, many operators are now flying aircraft for longer than they had anticipated, leaving MROs with new, corresponding challenges. With older aircraft comes older engine types, and we were keen to see how this affected the use of LLPs. In response to the question, Ben Jacques at Contrail Aviation Support advised that: "As the industry matures, collectively we tend to find solutions for aging engine types but there are definitely engine types under pressure due to the OEMs no longer providing new parts and the current teardowns of these types not producing enough USM to support the shop visits. Given the number of module swaps performed in the last three years on the CFM56-5B and 7B and the variety of different operational histories being combined without a performance restoration of the resulting combination of modules, the next few years are likely to develop some new special considerations for that market. It's a credit to both those engine types that the extraordinary robustness of those engine variants that operators are

© Siv Sivertsen

so willing to work with Lessors to keep these module combinations working so well." At Aero Norway Dag Johnsen sees light at the end of the tunnel for supply chain problems relating to engine parts for mature engines. "The good news is that as fleets are staring to retire, more engines are being disassembled and this provides a steady stream of serviceable parts," he tells us.

At AERO CARE Anca Mihalache stresses the importance of planning ahead. "For older engine models, LLPs (but also other components) can be harder and slower to source. In some cases, OEMs stop producing certain parts, and availability depends on the USM market. However, the CR requirements are also lower because these engines are not so widespread. The shop visit is most likely cheaper than the newer engines and it makes sense for the engine owners to be able to build an engine with lower CR, due to a lower cost," she comments. Looking from an alternative perspective, Oliver Boro at AMROS Global suggests that: "Acquiring aging engine types can be an economic solution for airlines operating older aircraft for a few years rather than conducting full maintenance. This particularly applies to savings related to buying new life limited parts (LLPs). This can suit airlines that operate owned fleets in the last few years of their life before scrapping and retiring them."

Bruce Ansell at APOC Aviation, David Blackburn at PTS Aviation, Andrew Storch at Setna iO and John McCarthy at VAS all provided inciteful and succinct responses to the question. "Yes, availability of spares, both new and used; operators' timing requirements i.e. when will they retire the aircraft; also some MROs stop supporting some engine variants due to lack of spares support, or a reduction in market requirements," says Ansell, while Blackburn commented that: "Operators and engine owners should consider module exchanges, advanced procurement of high demand engine parts and components, and hospital-type quick engine repairs to return their engines to service in minimal time at minimal cost." Storch tells us that: "Generally, aging aircraft types and their associated power plants will be built to a lower LLP limiter to save cost and maintain fleet planning flexibility. Older twin-aisle platforms such as the PW4000 and CF6 are usually built to a much lower LLP limits, roughly half of their single-aisle counterparts like the V2500 and CFM56. This is due to both platform age and typical annual utilization," and to conclude, McCarthy advises that: "The consideration is to match the projected life of LLP with the likely service life of the engine. It is critical to avoid purchasing new engine life-limited parts close into the sunset period."

What role do the leasing companies play when it comes to the build-up of an engine during shop visits?

Leasing companies play a crucial role in the process, primarily by defining the return conditions and financial parameters of the lease. They set clear maintenance standards and return condition requirements that the engine must meet at the end of each lease term. While they monitor reserve payments

Oliver Boro, Engine Specialist, AMROS Global

> ***"Acquiring aging engine types can be an economic solution for airlines operating older aircraft for a few years rather than conducting full maintenance. This particularly applies to savings related to buying new life limited parts (LLPs). This can suit airlines that operate owned fleets in the last few years of their life before scrapping and retiring them."***
>
> *Oliver Boro, Engine Specialist, AMROS Global*

and review maintenance records, it is ultimately the operator's responsibility to plan and execute the necessary work—such as replacing high-cost, life-limited parts—to preserve the engine's residual value. This proactive approach, supported by advances in predictive analytics and traceability, enables operators to schedule repairs in a timely, cost-effective manner while ensuring compliance with contractual requirements. Virgil Pizer suggests that: "This collaborative dynamic requires an effective partnership where the leasing company provides the framework and oversight on asset performance, while the operator manages the hands-on buildup and maintenance schedule. Advances in predictive analytics and traceability further empower the operator to optimize shop visits, ensuring that repairs and replacements are timely and that the engine remains in a lease-compliant condition. Adding an MRO service provider can add significant value in this partnership by serving as the technical and process-oriented bridge between the lessor's asset requirements and the operator's day-to-day maintenance needs. With deep technical expertise, they optimize shop visits through precise forecasting of component wear and ensure that every repair is thoroughly documented and meets both manufacturer and regulatory standards. Their involvement streamlines maintenance reserve payments, work scoping, and scheduling, ultimately reducing downtime and financial risk while supporting long-term asset performance. Pem-Air has developed these partnerships with lessors that resulted in added value to both,

John McCarthy, Director Business Development, VAS Europe

© PTS Aviation

the lessors and operators when it comes to maintenance related aspects of the relationship – and that not just for LLPs.

"Most leasing companies work closely with their lessee to optimise engine life-limited part configurations. Typically leasing companies have well-resourced, experienced powerplant teams dedicated to optimising LLP / degradation," suggests John McCarthy, adding that: "This is further supported by engine reserve fund management as the driving measurement of the effectiveness of the engine maintenance and repair programme." Andrew Storch takes a more cautious viewpoint, advising us that: "Leasing companies want to ensure that their asset is maximally marketable upon lease return, so there may be covenants with the lessee to not install PMA parts, utilise DER overhauls, and to return the engine with a certain amount of green time remaining."

Leasing companies should independently monetise each engine asset

> ***"Most leasing companies work closely with their lessee to optimise engine life-limited part configurations. Typically leasing companies have well-resourced, experienced powerplant teams dedicated to optimising LLP / degradation."***
>
> *John McCarthy, Director Business Development, VAS Europe*

and invest in and/or build each engine depending upon their forecasted return on investment (ROI) and/or EBITDA goals. Operational life remaining, along with on-wing dependability and reliability, will make a huge impact on whether or not a particular lease asset will generate the necessary revenue and profit for a leasing company, advises David Blackburn. He goes on to say that: "Short-term and long-term leasing opportunities are useful to lessors, operators and MROs alike. Having strong engines available for installation and use will ensure aircraft are flying and generating the predicted revenue for both the lessee and lessor. Lease financials and specific shop visit engine builds will be based on projected and/or required airline utilization models, as well as the benign, medium or harsh environments they operate in."

Leasing companies tend to approach engine shop visits in several different ways and the influencing factors are often whether or not they hold cash maintenance reserves and at what point during the lease the shop visit occurs alongside several other lesser factors. Leases without cash maintenance reserves are often the preserve of airlines with significantly better than average financial performance, those same airlines are often experienced and sophisticated with maintenance management, able to negotiate well with maintenance facilities, the OEMs and optimise engine build performance. In this case although lessors will have protections through the lease for engine build standards, they are often not heavily involved in shop visit work or planning. Ben Jacques goes on to advise that: "As the engine ages through its lifecycle and the likelihood of the aircraft moving out of it's lessee operation and transitions into operation with other lessees, the chance of lessor involvement in shop visit planning and build up dramatically increases. At this point the agenda of the lessor and the airline align toward squeezing every cent of value from the engine with any new investment being scrutinized for the value it brings through an increased ability to generate revenue for the lessee and lessor. Lessors in the (late) mid-life to end-of-life lease end of the market are more likely to specialise in streamlined portfolios to maximise efficiencies within their portfolios. A portfolio of 10 aircraft with the same engine type provides many opportunities to purchase LLPs, modules and parts packages, benefitting the lessor with a discount compared to individual purchase pricing. If you specialise in a small number of engine types, a lessor can benefit from end-of-life scenarios where they can harvest their own used serviceable material supporting other leased engines within their portfolio. Protecting them from market volatility and providing their lessees with an increased surety of turnaround time because there is no need to "wait for the market" or submit to overpaying because the lessee and lessor can't find optimal parts. In this period of uncertainty and volatility it remains a truism that when the interests of a lessee, their lessor and the maintenance provider are aligned, everybody wins."

Anca Mihalache makes some interesting comparisons between lease types. "There are few differences between leasing companies but there are those that prefer long term leases (most of the leasing companies) and others that prefer short term and green time leases. Long term leases require a longer time on wing so they will require high cycles remaining on the LLPs. Green time lessors are satisfied with shorter limits on the LLPs and they tend to part-out the engine once the green time is gone. On this type of engine, the lessors don't consider stacking that important," she comments. Dag Johnsen delves slightly deeper, taking onto account the relationship between the lessee and the owner/lessor, advising that: "We often find our airline customers with leased engines in a bi-party position when they send us their engines for overhaul. This itself does not pose any problems, but it can often take more time to discuss workscope escalations as both parties, operator and lessor, need to agree. Aero Norway also refurbishes engines sent to us directly from leasing companies and the process is similar to engines from operators. Lessors provide a build goal, and we collaborate on workscope levels, including locating new or used LLPs making sure we optimise the shop visit for them."

Over at APOC Aviation, Bruce Ansell raises a very valid point when it comes to the financial aspects of terms laid down by leasing companies. "Generally, at APOC we see that leasing companies set the return conditions to help with their remarketing, usually half-life or above. Sometimes an engine will be stub-leased to use up available life prior to a shop visit, or teardown. They can often request that an operator does not carry out a shop visit prior to return if the maintenance reserves held in place, plus the remaining engine value, are of higher value than an engine fresh from a shop visit might be," while to conclude matters, Oliver Boro points out that: "The leasing companies refer to the provisions of the Lease Agreement stipulated in the Maintenance of the Engine and Redelivery Condition. Conditions such as Qualifying Refurbishment, Full Engine Refurbishment, Minimum Cyclic Life (LLP), Minimum Flight Hours (HTC), Exhaust Gas Temperature Margin, compliance with all outstanding mandatory orders and directives etc. will have an effect on creating the workscope."

Bruce Ansell, Technical Manager Engine Division, APOC Aviation

> ***"Generally, at APOC we see that leasing companies set the return conditions to help with their remarketing, usually half-life or above. Sometimes an engine will be stub-leased to use up available life prior to a shop visit, or teardown."***
>
> *Bruce Ansell, Technical Manager Engine Division, APOC Aviation*

Kellstrom Aerospace
A VSE Aviation Company

AVIATION
LIFECYCLE SOLUTIONS

Kellstrom Aerospace Group is uniquely capable of supporting aircraft owners, operators and MROs with cost-saving solutions and value-added services at each phase of the aircraft's lifecycle. We work closely with our clients to provide tailored solutions for their evolving aircraft and engine parts needs, helping them optimize operational efficiency. Our products and services are tailored to the commercial aftermarket enabling organizations to:

- Minimize Aircraft & Engine Downtime
- Improve Maintenance and Operating Cost
- Optimize Asset Value Realization
- Access Highest Quality Genuine OEM Parts & Services

Learn more: www.kellstromaerospace.com/lifecycle-solutions

sales@kellstromaerospace.com | www.kellstromaerospace.com | 24/7 AOG: +1 (847) 233-5800

It All Started In 1911

Interview with Kim Ernzen, Chief Operating Officer, StandardAero

By David Dundas

The Early Years

StandardAero's origins date back to 1911, just eight years after the Wright brothers' historic flight at Kitty Hawk. Founded by Charles Pearce and William Bickell in Winnipeg, Manitoba, Canada, the company—then known as Standard Machine Works—specialized in the repair, overhaul, and rebuilding of automobile, truck, and tractor engines. Recognized for its exceptional craftsmanship, skilled workforce, and advanced equipment, Standard Machine Works quickly established a reputation for excellence, as noted in contemporary publications.

As civil aviation grew in the region during the mid-1920s, the demand for trusted engine service increased. Shipping engines to manufacturers in Montreal, Toronto, Detroit, or Ottawa took time and added costs.To meet this demand, Standard Machine Works expanded its services to include aircraft engines. They established an Aero Engine Division in the basement and first floor of their St. Matthews facility. In April 1936, the team rebuilt its first aircraft engine — an Armstrong Siddeley Cheetah piston engine.

By November 1936, most engine manufacturers had appointed Standard Machine Works as an authorized service station, including Canadian Pratt & Whitney, de Havilland, and Jacobs. That fall, the company also became an authorized service station for Bendix Aviation Corporation of Bendix, NJ, maintaining Bendix-Eclipse starters, generators, and control boxes.


Kim Ernzen, Chief Operating Officer, StandardAero

In 1949, the company incorporated as Standard Aero Engine Limited (SAE) and expanded its facilities and capabilities, sharpening its expertise in civilian and military aircraft engines. By 1960, SAE began overhauling turbine engines, investing heavily in tooling and training. They also partnered with Trans-Canada Air Lines to use one of the airline's engine test cells.

Over the next six decades, the company grew steadily through strategic acquisitions, new program wins, and expanded services. StandardAero earned recognition as one of the aerospace industry's leading independent maintenance, repair, and overhaul (MRO) providers. Our success reflects the merger of businesses with complementary specialties, enhancing our

capabilities and driving customer loyalty and value.

StandardAero Today

Today, StandardAero operates two primary divisions: Engine Services and Component Repair Services. These divisions represent our core strengths — comprehensive engine MRO capabilities and an extensive portfolio of component repair services for business aviation, commercial aviation, military, fixed-wing, helicopter, and industrial power customers.

Our team of nearly 7,500 talented professionals works across 49 primary facilities worldwide, supported by strategically located regional service and support centres.

StandardAero holds OEM authorisations and approvals for aircraft and rotorcraft engines, auxiliary power units, components, airframe services (including major alterations), FAA-authorised avionics capabilities, comprehensive engineering services, and custom exterior and interior design, completion, and paint. The company delivers these services through a global network of specialised facilities and mobile service teams.

The Interview with Kim Ernzen, StandardAero´s Chief Operating Officer

AviTrader MRO 360⁰: Kim, last year you were appointed StandardAero´s Chief Operating Officer. Sounds like a challenging position bearing in mind that StandardAero has 50+ sites worldwide. What is your focus to drive companywide efficiency across all these sites?

Kim Ernzen: It was a real honour to join StandardAero as the company's Chief Operating Officer (COO) last June. StandardAero enjoys a leading reputation that is based on our strong track record of safety, reliability and operational performance built over more than 100 years of successful operations in the aerospace aftermarket. Our company also has a broad presence across the commercial aerospace, military, helicopter, energy and business aviation end markets, supporting customers through our engine services, component repair services, airframe maintenance and avionics system capabilities.

It was especially exciting to join


© StandardAero

StandardAero in the same year that the company went public. Shares of StandardAero are now trading on the New York Stock Exchange (NYSE) under the ticker symbol "SARO" following the completion of our initial public offering (IPO) on October 2nd. The funds raised through this process enabled us to pay down our debt and significantly de-lever our business, while also offering access to new funding opportunities for future growth.

My role as COO certainly brings lots of challenges, given that – in addition to our 50+ sites – StandardAero is now a $5.2 billion business with nearly 8,000 employees. However, it is truly rewarding to be part of a growing, customer-centric company in what I have to say – as an aerospace engineer by training, with over 25 years of experience – is one of the most interesting industries out there!

My day-to-day duties include being responsible for StandardAero's global operational performance, efficiency and excellence, from initial customer contact to delivery. I have responsibility not only for our operations, but our quality, safety, engineering and supply chain management. In addition, the three divisional presidents within our Engine Services segment report to me, as does the President of our Component Repair Services (CRS) segment, thereby enabling me to maintain close oversight of our overall business performance.

With regards to driving companywide efficiency across our sites, since joining StandardAero, I've been focused on identifying key activities that enable us to standardize and simplify how we execute. This is an amazing time to be part of the StandardAero team: all of our segments and divisions are currently engaged in expansion projects, with two of the most critical being the growth of our recently introduced CFM International LEAP-1A/LEAP-1B line at our San Antonio campus, and the expansion of the CFM International CFM56-7B product line into our DFW International Airport location.

StandardAero joined the LEAP open MRO ecosystem in March 2023 as a CFM LEAP Premier MRO provider for both the LEAP-1A and LEAP-1B engines. Last year we inducted both our first LEAP quick-turn shop visit (QTSV) and our first performance restoration shop visit (PRSV), following correlation of the first two test cells at our San Antonio campus. We already support LEAP airline operators and asset managers across North America, Latin America, Europe, the Middle East, South Asia and the Asia-Pacific region, while our CRS team has now industrialised over 300 repairs for the engine.

StandardAero has provided GE/CFM-authorized support for the CFM56-7B since 2009. We initially started in our Winnipeg MRO location, and the inauguration of our new 147,000 sq. ft. CFM56-7B facility at our DFW International Airport location now allows us to offer CFM56-7B MRO support – including correlated test cell capabilities – from two locations, meeting the needs of customers around the world while also providing the assurance of test cell capability redundancy.

Both of these projects have involved the adoption of the very latest in lean

LEAP-1A on test cell © *StandardAero*

manufacturing techniques, with our operations teams having had the benefit of being able to design optimal flow line layouts.

The impressive progress made by our team with these two new engine lines has provided us with a unique opportunity to compare how we run our 'legacy' businesses against the cutting edge of MRO operations. This has given us an incredible opportunity to contrast and measure the performance and benefits of two different operating systems, and to ensure that best practices are adopted companywide. I will expand more on that later!

How come you have so many sites worldwide? Is this related to acquisitions?

Yes, our 50+ facilities are primarily associated with the 13 acquisitions we have completed since 2015. StandardAero's disciplined approach to evaluating and executing M&A is focused on acquiring companies that add strategic engine platforms, new capabilities and intellectual property, and enables us expand our business with targeted customers and/or geographies. We have a proven playbook for integrating new acquisitions and achieving significant synergies, accelerating the growth and financial performance of the combined businesses.

Our most recent acquisition, completed last August, involved Aero Turbine Inc. (ATI), a California-based provider of engine component repair and MRO services specializing in the GE Aerospace J79 and J85 turbojets. In operation since 1978, ATI has significant experience supporting the U.S. Air Force, Navy and Army, as well as international military fleets.

Prior to this, our notable acquisitions included the 2021 purchase of the former Signature ERO business, whose five operating entities included Dallas Airmotive and H+S Aviation, and the 2017 purchase of Vector Aerospace, which significantly expanded StandardAero's presence worldwide.

Our global network of MRO facilities and service locations enable us to provide operators with local support on a global scale, thereby ensuring that we understand and support the customer's specific requirements. This focus on offering tailored services reflects our mission of exceeding customer expectations through inspired teamwork!

Doubtless you have a lot of internal customer / supplier relationships across the sites. Do they all use the same operating system?

This is a topic close to my heart: while StandardAero does pride itself on our proven playbook for integrating acquired companies, it's inevitable that after acquiring 13 different companies in the space of a decade, there will be some differences in operating systems across our 50+ sites. After comparing our legacy businesses to our newly introduced LEAP and DFW CFM56 lines, my staff and I concluded we had a big opportunity to refine StandardAero's operating model – collectively the processes, role responsibilities/accountabilities, and supporting technology – in order to drive substantial improvements across the enterprise. The magnitude of this opportunity, and the rapid expected growth across our segments and divisions over the coming years, gave us the impetus to act in an expedited fashion, and last November we launched a companywide project to process-map our existing operating models, determine key areas of simplification and improvement, and define the ideal state for our company.

This effort has been primarily focused on our Engines Services sites, in particular those sites which supported multiple engine programs, thereby enabling us to pressure test operating best practices. The project has benefitted from the support of highly experienced team members from across the company, leveraging our collective know-how in order to optimize our processes to deliver the highest quality product on time every time.

Following six months of intense effort, we have formally documented a common, optimized StandardAero Operating System (SAOS), which is now being rolled out across all of our sites. In addition to the financial savings that this adoption of company- and industry-wide best practices will realize, SAOS also promises to further enhance the quality of service delivered to our customers, especially those who are supported from multiple sites and/or divisions: our customers will now experience a uniformly high level of service, with common processes, procedures and paperwork.

This exercise has also enabled us to define requirements for all future enterprise resource planning (ERP) development within StandardAero, giving the company a clear focus for its future investments in this area as we continue to grow – both organically and inorganically – over the coming years and decades.

> "SAOS also promises to further enhance the quality of service delivered to our customers, especially those who are supported from multiple sites and/or divisions: our customers will now experience a uniformly high level of service, with common processes, procedures and paperwork."


ASCENT
AVIATION SERVICES
TUCSON INTL AIRPORT
Tucson, Arizona
PINAL AIR PARK
Marana, Arizona
MAINTAINING
THE MAGIC OF FLIGHT
Ascent Aviation Services is a fully integrated MRO providing maintenance, storage, reclamation, modification, interior, and paint services to owners, operators and lessors of wide body, narrow body, and regional aircraft.
A Class IV 14 CFR Part 145 certified Repair Station maintaining approvals and certifications from regulatory authorities globally, including FAA, EASA, TCCA, BCCA, CAACI, NCAA, ANAC, 2-REG, and Aruba.
ascentmro.com
Experts in comprehensive full life aircraft care, providing solutions for a wide array of commercial aircraft.
SEE OUR WEBSITE FOR CAREER OPPORTUNITIES
https://ascentmro.com/careers.html

© MAAS Aviation

Environmental Concerns Regarding Aircraft Maintenance

How do MROs deal with the strict environmental regulations surrounding products and processes?

By David Dundas

There is no question that when it comes to environmental concerns, the aviation industry is under remarkable levels of scrutiny in relation to operating methods and procedures, which very much extend to MROs and aircraft maintenance. It is easy to think of several areas where these activities present environmental challenges, including emissions from aircraft and ground vehicles, waste generation, and the use of potentially hazardous cleaning chemicals. These issues can contribute to air and water pollution, climate change, and potential health risks for both workers and surrounding communities.

MRO activities on the ground involve the use of vehicles which contribute to emissions of greenhouse gases and pollutants like NOx and ozone, impacting local air quality while burning fossil fuels in aircraft engines, both on the ground and in the upper troposphere, releases CO2 and other pollutants that contribute to climate change and local air quality issues. Then we have the power used by MRO activities which can have a carbon footprint depending on the energy source and contribute to overall energy consumption.

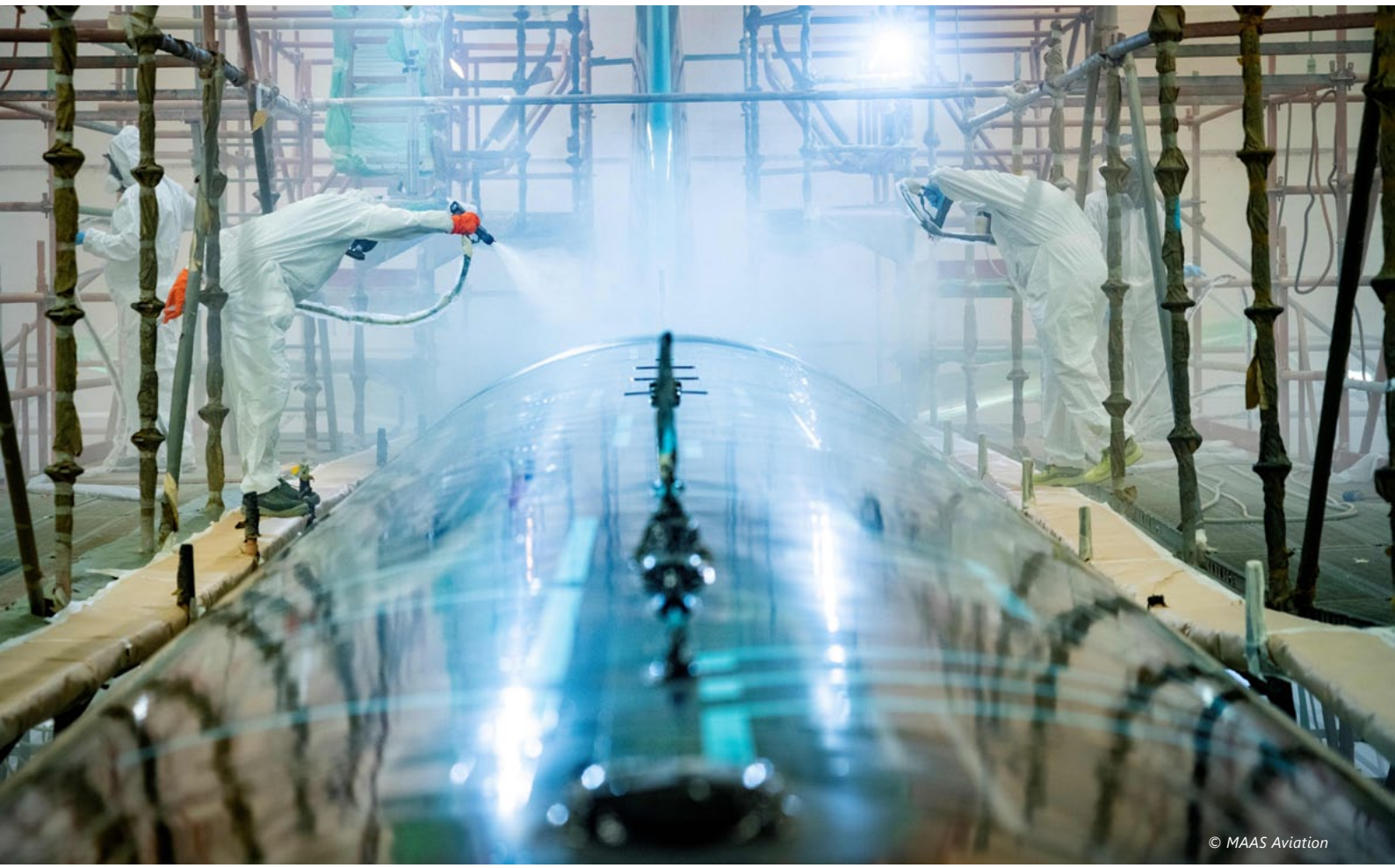
Beyond this we have hazardous and non-hazardous waste generation, the former including cleaning chemicals, used aircraft components, and fluids, the latter involving paper, cardboard, and other packing and protective materials which can strain landfills if not managed sustainably. Hazardous substances come in the form of cleaning chemicals which can produce hazardous waste due to the acidic nature of the products. Aromatic hydrocarbons, methyl ethyl ketone, and chlorinated solvents are examples of chemicals that need to be handled and disposed of carefully or they could pollute nearby water systems.

We then have the challenge of noise pollution as MRO activities, particularly those involving engine testing and ground operations, can generate considerable noise, impacting residents near airports and MRO facilities. Beyond this we also have less obvious hurdles such as supply chain issues in the search for sustainable and eco-friendly materials and even the challenges that come with decommissioning older aircraft.

To give us a greater insight into the challenges being faced in the MRO sector of the industry, we discussed the problem with four leading operators who were kind enough to share their thoughts with us on a number of specific topics.

How does aircraft painting impact the environment, and what are the key areas of concern?

Here, energy consumption seems to be a recurring theme, and one shared by several companies. In answer to the


© MAAS Aviation

question as a whole, Andy Wheeler, DVP and Managing Director, AEM/AMETEK MRO tells us that: "Aircraft maintenance has significant environmental impacts, including the generation of hazardous waste and emissions and high energy and water consumption. Key concerns for AEM/AMETEK MRO include maintaining air quality, handling chemicals safely, and ensuring compliance with waste disposal regulations. At our Ramsgate plating operation where we apply metal finishes such as cadmium, chrome, copper, nickel, and silver, these impacts are driven by the requirements for component repair and overhaul." Yuriy Bolonny, Environmental Compliance Manager, MAAS underlines the problem about excessive energy consumption, pointing out that "As a service provider, the biggest environmental impact at MAAS comes from energy use — particularly the heating and cooling required to maintain stable climate conditions in our hangars during paint stripping and application. That's why energy was the first area we focused on in our environmental strategy." However, he then goes on to explain how concerted efforts are being made to mitigate the problem. "Where we control the energy supply— such as in Kaunas, Lithuania, and the Netherlands — we have switched to certified 100% renewable electricity contracts. In other hangars, where we don't have control over suppliers, we cannot directly influence the energy source. However, we offset a portion of our emissions. We offset around 15% of our total carbon footprint, helping to minimise our overall impact. Our new hangars are built to the highest energy efficiency standards, and our newest US facility is certified to LEED Gold level— a key milestone in reducing operational emissions," he says.

Where Aero Norway is concerned, they have identified four key areas which are of particular importance – use of hazardous materials, emissions, waste generation and resource consumption. However, they are keen to provide a good counterbalance to these problems by demonstrating how environmentally responsible maintenance practices can make a meaningful difference and focusing on sustainability through: (1) Reuse and Recycling: By refurbishing and reusing engine components, we significantly reduce the need for new parts, which lowers the demand for raw materials and reduces industrial waste; (2) Enhanced Engine Efficiency: Our high standards of overhaul and servicing contribute to engines that perform more efficiently, reducing fuel consumption and emissions during flight, and (3) Extended Engine Lifespan: Well-maintained engines last longer, delaying the need for manufacturing new units and thereby decreasing the environmental footprint associated with production and material sourcing. As Siv Janne Aarrestad, HR & HSE Manager, Aero Norway puts it: "... while aircraft maintenance poses inherent environmental risks, innovative and sustainable practices, as demonstrated by Aero Norway, can mitigate these impacts and support greener aviation operations."

Over at IBA, the company sees both a direct and indirect impact on the environment where aircraft MRO is concerned. Kane Ray, Head of General Aviation and Aftermarket explains further: "There is the physical maintaining of the aircraft and its associated equipment as well including labour, tools, and facilities that enable the maintenance to be undertaken. For example, and respectively, the waste and recycling effort associated to a cabin refit as part of an airframe heavy check and the amount of hangar power to enable

> **"...while aircraft maintenance poses inherent environmental risks, innovative and sustainable practices, as demonstrated by Aero Norway, can mitigate these impacts and support greener aviation operations."**
>
> *Siv Janne Aarrestad, HR & HSE Manager, Aero Norway*

a workforce to complete that refit safely and efficiently. Growth in maintenance is important, and the market has seen a surge from existing maintenance providers to implement additional maintenance capacity to both meet demand but also reduce maintenance turnaround times. Associated to this, there are some high growth and even established geographic markets that are underserved locally. Expect further growth in various geographies, particularly in Asia and Middle East. It will be important to observe how additional facilities, intended to add capacity, are being developed in different countries and regions. Are we witnessing broad installation of solar panels, energy efficient lighting, all-electric ground vehicles and power units, rainwater harvesting systems, and non-fossil fuel heating ventilation and air conditioning systems such as electrified heat pumps for example?"

What are the biggest challenges MROs face in reducing their environmental footprint?

One of the largest challenges is adherence to environmental targets and a universal commitment to them. Additionally, many MROs operate multiple facilities, and implementation of targets facility-wide is critical, but equally, takes time. In larger organisations, and particularly in Europe, dedicated teams have been established to lead the MRO in sustainable practices through initiatives such as ESG reporting to investors and internal audits to ensure best practices are happening, Kane Ray tells us. He then goes on to further advise: "Such teams are driving new initiatives with allocated capital investment to support research & development and for the continual replenishment of the latest energy efficient tooling and facility utility upgrades. Internal commitment to it varies across continents and countries within those continents. Like other industries, effective and meaningful central policy with measures such as fiscal policy could be necessary. Although a separate industry, observe recent strategies at large conglomerates like BP who are scaling back on its green energy investment, in favour of fossil fuel exploration/extraction projects and we can easily question whether the environment topic could be construed as a marketing tick-box to an onlooker. It is therefore important to monitor attitudes to ESG in industries such as Aviation also."

Siv Janne Aarrestad touches on an area that perhaps doesn't get the attention it deserves when she talks about customer expectations and market pressures. "Airlines and clients expect quick turnaround times and low costs. Sustainability initiatives can sometimes increase lead times or costs, putting MROs at a competitive disadvantage unless customers are willing to pay a premium for green services," she says. However, there is a major problem highlighted by Andy Wheeler when he talks about legacy processes, primarily because older aircraft still require the use of more hazardous materials than, say, a next-gen Boeing 737 Max jetliner. He points out that "AEM faces several challenges, including legacy processes that rely on non-eco-friendly chemicals, the need to ensure regulatory compliance without disrupting operations, the limited availability of sustainable aviation-certified solutions, and effective waste disposal." Finally, Yuriy Bolonny touches on the relationship between regulation and safety, which he feels go hand in hand as both are non-negotiable. He then expands further: "Every product and process we use has to meet strict requirements and go through official approval before anything can be changed. That makes progress slower than in many other industries, and it's something we have to manage very carefully. An additional challenge is that we don't always operate in facilities we own. In places where we rent hangars, we've got limited control over things like infrastructure — especially where the energy comes from or what improvements we're allowed to make.

Siv Janne Aarrestad, HR & HSE Manager, Aero Norway.

Despite this, we do what we can within those limits. Paint is another challenge. These are very specific materials designed for aircraft, and they need to follow tight technical and safety standards. Since we don't produce the coatings ourselves, we can't influence how they're made — but we still count the emissions from using them, because they're part of our total footprint."

How can aircraft painting facilities minimise hazardous waste generation?

In respect of hazardous materials (hazmat), there are long established regulatory frameworks which address how organisations must deal with them from the identification of what waste they are through to their handling procedures and appropriate disposal. Governed by Aviation Authorities, failure to comply can result in legal action and severe penalties. Kane Ray then goes on to tell us that: "Sound practices are often the starting point; good inventory management, packaging and proper segregation of hazmat, (or segregation of hazmat and time expired hazmat); using the appropriate labelling/ signage on such materials to identify what it is and how it should be handled and stored; providing appropriate garments for handling; contingency plans such as spill response, spill kits and evacuation procedures plus the recurrent training that comes with these processes on-site; compliance audits and key performance indicators; having accountable personnel to monitor regulatory changes etc. In summary, a facility framework to used, handle and dispose of hazmat."

Yuriy Bolonny admits that this is not an easy task and that both commitment and investment are required to achieve the necessary results. He tells us that "At MAAS we build all our own facilities, so can ensure that they are designed to manage waste from our processes responsibly and that materials can be recycled wherever possible. An example of this is a water treatment plant at our Kaunas facility, the system processes chemical waste from our daily operations and separates the water from the contaminants, which are then turned into dry waste to enable cleaner and easier disposal. All our paint bays also have underground sump systems built below the hangar floor to ensure no waste chemicals or contaminated water ends up on the apron or local area. We continue to explore new ways to further reduce hazardous wastewater and install water filtration systems on site. While this work is ongoing, we're focused on staying efficient and not using more material than necessary — it's part of our operational culture." In terms of requiring investment, AEM confirms that is exactly what they have done. "AEM has invested more than £1 million (US$1.34 million) in its pollution abatement project at its Ramsgate machining and plating facility for the management and treatment of hazardous waste to reduce pollutants. AEM uses a closed loop vacuum evaporation and reverse osmosis system to reuse effluent that is generated by plating processes. This zero to drain technique is managed internally. It flushes chemicals away to minimise the impact on air and water quality and keep people safe. It helps reduce hazardous waste by 192 tons and recycles over 47,000 gallons of water annually. The abatement project is crucial in future proofing AEM's business to meet the demands of the aviation industry," confirms Andy Wheeler. In addition, Siv Janne Aarrestad highlights three elements to Aero Norway's waste management "... first through segregation at the source by separating hazardous from non-hazardous waste to prevent cross-contamination and separating metal waste to maximize reuse and capture alloys. Second is appropriate storage solutions, using clearly labelled, secure containers to prevent spills or leaks and finally, compliant disposal processes, which involves working with certified waste management providers to ensure disposal follows national and international regulations." She further adds that "Aero Norway staff are trained in waste management best practices, helping to maintain high safety and environmental standards."

© MAAS Aviation

Andy Wheeler, DVP and Managing Director, AEM/AMETEK MRO

What eco-friendly alternatives exist for traditional cleaning agents, solvents, and degreasers used in maintenance?

When it comes to eco-friendly options, Siv Janne Aarrestad points out that: "There are several eco-friendly alternatives to traditional cleaning agents, including: biodegradable solvents such as water-based cleaners, natural cleaners like baking soda, white vinegar, and castile soap, and also green industrial cleaners - products specifically designed to be environmentally friendly." As many of us know, necessity is the mother of invention, and Yuriy Bolonny at MAAS tells us that is exactly what they did to deal with the problem of finding an eco-friendly alternative: "To address this, at MAAS we have developed our own unique recycling technology which allows us to recover 80% of the solvents we use. These are then redeployed for cleaning equipment such as paint guns, lines and pipes. As well as this, all the dry materials we use in the painting process, such paper, plastic sheeting and tape, are also recycled." While there are various solutions, Andy Wheeler at AEM acknowledges that the company faces restrictions in what chemicals can be used, but points out that "Eco-friendly alternatives, such as aqueous-based degreaser, bio-based solvents, and enzymatic cleaners, are available," though he adds: "...these alternatives must meet stringent aviation safety and performance standards."

> **"AEM has invested more than £1 million in its pollution abatement project at its Ramsgate machining and plating facility for the management and treatment of hazardous waste to reduce pollutants."**
>
> *Andy Wheeler, DVP and Managing Director, AEM/AMETEK MRO*

> **"Full digitisation appears likely to occur beyond the 2020s although there is a realisation amongst entities that a greater adoption of the digital systems of today, which are seen as more reliable comparative to earlier offerings, is needed."**
>
> *Kane Ray, Head of General Aviation and Aftermarket, IBA*

What role does digitalisation play in reducing paper waste and improving efficiency in maintenance records?

If we consider an entity like AAR, in its latest ESG report, it claimed that it had completed its first paperless maintenance check using a proprietary digital MRO tool. This was implemented at its Airframe MRO Rockford, Illinois facility and was due to transition to other facilities. Records have long been digitised; it is just that a proportion of these digitised records have been scanned from physical paper and therefore paper trails and digitised records often complement the other. Kane Ray is keen to point out that beyond this, "One bottleneck that is often cited is the adoption of software that enables digital record keeping. Further still, the structure of how aircraft are owned often requires a paper trail. Full digitisation appears likely to occur beyond the 2020s although there is a realisation amongst entities that a greater adoption of the digital systems of today, which are seen as more reliable comparative to earlier offerings, is needed. In practice, it seems likely that MROs will digitise certain facets in a gradual move rather than a complete digital switch."

Yuriy Bolonny is quick to point out that despite the drive to digitalisation and digitisation, "...some things need to be on paper — especially when it's required by clients or for compliance reasons. So, while we haven't fully eliminated it, we avoid it whenever we can. From an emissions standpoint, paper use isn't a significant contributor to our overall footprint. But we still see value in reducing it. Small details matter — because if you're not paying attention to the small things, it's hard to take the big commitments seriously. So even if the climate impact is minor, minimising paper use is part of a wider mindset we've built into the culture at MAAS." Andy Wheeler chooses to focus solely on what can be digitalised, telling us that: "AEM has transitioned from hard copy component maintenance manuals to electronic versions. Digital asset management systems are now used for part traceability. Work orders, certificates, and other documents that form the job pack are stored electronically. As well as reducing paper waste and improving efficiency, it provides AEM with accessibility and cost saving benefits."

What innovations are shaping the future of environmentally friendly aircraft maintenance?

The biggest innovations are in the paint systems being developed, which are much more environmentally friendly and deliver great advances in drying times. These more sustainable, and often waterborne, solutions are fast replacing the older chromated products. In the automotive sector, water-based products and UV technology to aid drying times have been established for a long time, but the additional testing and approvals needed in the aviation sector means it takes a lot longer to break through. But many have been introduced now. In terms of the next big jump, it's likely to be the introduction of water-based and dual-cure technologies to further enhance processes, Yuriy Bolonny tells us, before explaining how he implements such innovation. "We work closely with all of our partners and especially the major aircraft paint manufacturers to ensure we are using the latest technology coatings and techniques. The high-performance aerospace coatings we use not only look superb but also reduce aircraft weight to improve fuel efficiency, thereby lowering carbon emissions during the lifetime of the aircraft. Our aim is to foster the best combination of performance and sustainability across our multi-site operations," he explains.

At Aero Norway, Siv Janne Aarrestad has kindly provided several examples where aircraft maintenance practices are evolving to reduce environmental impact.

Kane Ray, Head of General Aviation and Aftermarket, IBA

For example: "When testing engines, Aero Norway uses Sustainable Aviation Fuels (SAF): SAF refers to fuels derived from renewable resources, such as plant oils, agricultural waste, and even algae, that can replace or supplement traditional jet fuel and reduces carbon emissions." When it comes to recycling and reusing parts and extending the life cycle of components, she further explains that: "Instead of discarding used aircraft parts, the Aero Norway maintenance teams are increasingly adopting practices to inspect, refurbish, and reuse components. This not only saves costs but significantly reduces waste and demand for raw materials." The result? "Environmental benefits that include cutting down on landfill waste from old parts, reduction in the carbon footprint associated with manufacturing new components, and encouragement of a circular economy within the aviation industry," she suggests. And to round things off, Andy Wheeler touches on one key element that every British environmentally friendly organisation strives for, and that is a particular ISO number as he tells us that "From AEM's perspective where possible, utilising electric equipment to reduce emissions, employing Teams meetings to minimise the carbon footprint by reducing travel and reworking components to reduce waste and conserve materials are some of the initiatives undertaken. Another key factor for AEM is the integration of its environmental management systems in alignment with ISO 14001 to ensure systematic environmental management."

Monica Badra, Owner, Aero NextGen

Monica Badra and New Trends in MRO Software Solutions

Monica Badra is the owner of Aero NextGen, a company which partners with top-tier, vetted technology and service providers to ensure they get the right solution the first time. Aero NextGen's profound MRO expertise enables the company to deliver tailored, high-impact results with full accountability. The company also acts as a trusted adviser – solving challenges with precision, speed and keeping sustainable performance in mind, and whose operations can best be summed up as: matching aviation companies and MROs to trusted technology solutions and services providers to solve systemic pain points.

Monica is a dynamic leader with deep expertise in aerospace, finance, strategy, and tech. Having worked at Bombardier and AJW, she led large business transformations driving growth, profit and company culture. Monica brings a strong background in business development, data strategy, process optimization, customer experience, M&A, and innovation. She is also a serial entrepreneur, and Strategic Advisor to startup firms in gen-AI, blockchain, robotics, and more. Her leadership mantra – "Seek a never-ending uphill climb" – reflects her commitment to excellence.

New Trends in MRO Software Solutions – a follow-up

Last month we published a comprehensive article on *New Trends in Aviation Software* and one of the contributors to the article was Monica. What particularly impressed us was her in-depth knowledge and understanding of the current landscape where MRO operators and digital software is concerned, but her response to our questionnaire also left us with a slight problem. The comprehensive nature of her answers meant we could only use around a tenth of what she had to share with us, yet it seemed such a waste of valuable insights and information, so this month we decided to invite Monica to be a guest in our "Expert Corner". In the following we are delighted to share with you her full answers to the questions we asked concerning new trends in aircraft software:

AviTrader MRO 360º: How have aircraft MRO software solutions evolved in the last five years?

> "A notable trend is the rise of startups founded by ex-MRO executives and veterans who intimately understand the industry's pain points."

Monica Badra: Aero NextGen is a brokerage for solutions in Aviation and MRO. We match Aviation companies and MROs to trusted technology solutions and services providers to solve systemic pain points. Our mission is to advance aviation with smart solutions. We are constantly keeping track of advancements in MRO software solutions.

The evolution of aircraft MRO software over the past five years reflects a dynamic shift in addressing long-standing industry challenges. Many legacy solutions remain content with their existing capabilities due to the perceived complexity for MROs to migrate systems and are therefore not proactively keeping up with industry trends. Why spend on new developments, when customers are locked in anyways! Nevertheless, the industry has seen significant strides in innovation driven by both established players and new entrants.

A notable trend is the rise of startups founded by ex-MRO executives and veterans who intimately understand the industry's pain points. These innovators are bringing targeted solutions to market, addressing issues like workflow inefficiencies, supply chain bottlenecks, and technician productivity. Their insider perspective has fuelled a wave of purpose-built tools designed to overcome specific operational hurdles.

Predictive analytics and process automation has gained traction, enabling MROs to anticipate maintenance needs and reduce unplanned downtime. Procurement and RFQ (Request for Quotation) automation have also become industry staples, streamlining supply chain processes and driving efficiency across operations.

Cloud-based platforms are transforming how MROs interact with software. By ensuring all customers are on the same version of the software, these solutions eliminate the need for disruptive yearly version upgrades and reduce the risk of backend infrastructure failures.

This seamless approach is particularly appealing to organisations looking for stability and scalability.

In conclusion, the past five years have been a period of transformation for MRO software, with a clear focus on efficiency gains, operational stability, and solutions that address real-world challenges. These advancements are paving the way for a more agile and resilient aviation maintenance ecosystem.

What are the key drivers behind the latest innovations in MRO software?

The latest innovations in MRO software are being driven by a combination of industry challenges, technological advancements, and shifting market demands. Key drivers include:

Labor Shortages and Rising Labor Costs - The aviation industry is struggling with a significant shortage of skilled labour, coupled with rising labour costs. These pressures are driving MROs to optimize their indirect cost structures while increasing direct component touch-time to maintain profitability. Software solutions that streamline operations, enhance workforce productivity, and improve resource allocation are becoming essential to address these challenges.

Operational Efficiency and Cost Optimization - Rising maintenance costs and inefficiencies in manual processes are pushing MROs to adopt solutions that reduce turnaround times, optimize resource utilisation, and enhance cost-efficiency. Automation and predictive analytics are helping MROs achieve measurable ROI by minimising downtime and maximising productivity.

Demand for Real-Time Data and Visibility - Real-time insights into operations, inventory, and workforce planning have become critical. MROs need tools that provide centralised, actionable data to make informed decisions, improve operational reliability, and enhance overall performance. Green is good and red is great! Now we know what needs fixing!

Supply Chain Challenges - Persistent issues like part shortages and fragmented supplier networks have led to advancements in procurement and RFQ automation. These tools streamline sourcing, improve inventory management, and enhance supplier performance, ensuring smoother operations and reducing disruptions.

Customer Expectations for Scalability and Stability - As MROs scale their operations, they require solutions that are stable, adaptable, and scalable. Cloud-based platforms offer seamless upgrades, consistent software versions, and reduced risks of infrastructure failures.

Regulatory Compliance and Quality Assurance - Meeting stringent aviation regulations while maintaining high-quality standards remains a top priority. Software innovations now integrate compliance management and quality assurance features, reducing risks and ensuring adherence to safety standards.

Insider-Led Innovation - Startups led by ex-MRO executives are driving purpose-built solutions tailored to specific pain points. Their deep industry knowledge has resulted in tools that directly address inefficiencies, workforce challenges, and operational bottlenecks.

Digital Transformation in Aviation - The broader push toward digital transformation has spurred the adoption of advanced technologies like machine learning, IoT, and blockchain. These innovations enable predictive maintenance, real-time tracking, and secure data sharing, further enhancing efficiency.

Focus on Workforce Optimization - With labour shortages and cost pressures, MROs are focusing on solutions that optimize workforce planning, cross-training, and skills development. Tools providing visibility into future workloads and automating workforce management are critical to addressing peak demand periods and maintaining operational stability.

Personalised and User-Centric Solutions - The need for intuitive, workflow-aligned software is reshaping the market. Tools like Aero NextGen's ERP Finder simplify software selection, enabling MROs to quickly identify

solutions purpose-built for their unique operational needs.
The latest innovations in MRO software are being driven by the dual pressures of labour challenges and cost optimization, alongside the broader pursuit of efficiency, stability, and scalability. These advancements are equipping MROs to navigate an increasingly complex and competitive landscape while ensuring operational resilience.

How is digital transformation shaping the future of aircraft maintenance?

Digital transformation is advancing aircraft maintenance by enabling smarter, more efficient, and data-driven operations. The integration of advanced technologies is addressing long-standing industry challenges and setting new standards for operational excellence. Key areas where digital transformation is shaping the future include:
Predictive Maintenance and Data-Driven Insights - Digital transformation is driving the adoption of predictive analytics, allowing MROs to anticipate maintenance needs before failures occur. By leveraging IoT sensors and real-time data, operators can monitor aircraft health, reduce unplanned downtime, and enhance fleet reliability. This shift from reactive to proactive maintenance is a game-changer for operational efficiency.
Automation and Workflow Optimization - Automation tools are streamlining manual, time-intensive processes such as work order management, inventory tracking, and compliance documentation. By eliminating inefficiencies, MROs can focus on increasing direct component touch-time and improving technician productivity, all while reducing turnaround times.
Cloud-Based and Scalable Solutions - Cloud platforms are enabling seamless collaboration across teams, vendors, and stakeholders. These systems ensure all users are on the same version of the software, reducing the risk of disruptions from upgrades and allowing MROs to scale their operations without compromising stability.
Enhanced Supply Chain Management - Digital tools are transforming procurement and RFQ processes, addressing supply chain inefficiencies such as part shortages and delayed POs. Advanced analytics and automation are improving inventory visibility and supplier performance, ensuring parts are available when and where they're needed.
Workforce Empowerment and Optimization - With labour shortages and rising costs, digital transformation is equipping MROs with tools to optimize workforce planning, cross-training, and skills development. Augmented reality (AR) and mixed reality (MR) technologies for example, are enhancing technician training, troubleshooting, and maintenance support.
Regulatory Compliance and Quality Assurance - Digital solutions are simplifying compliance by automating documentation, tracking regulatory changes, and ensuring quality standards are met. This reduces the risk of penalties and enhances safety across operations.
Sustainability and Green Initiatives - As the industry embraces sustainability, digital tools are helping MROs go paperless, reduce waste, and track emissions. This aligns with global efforts to create more environmentally friendly aviation operations.
Personalised Software Selection - Recognising that one size does not fit all, tools like Aero NextGen's ERP Finder are helping MROs identify purpose-built solutions tailored to their specific workflows. This ensures that digital transformation efforts are aligned with unique operational needs and deliver measurable ROI.
Digital transformation is not just a trend—it's the foundation for a smarter, more resilient future in aircraft maintenance. With the right tools and trusted advisors like Aero NextGen, MROs can navigate this transformation seamlessly, unlocking efficiency, scalability, and long-term success.

What role does AI and machine learning play in modern MRO software?

AI and machine learning (ML) are advancing modern MRO software by enabling smarter decision-making, optimizing operations, and addressing critical pain points in aviation maintenance. These technologies are playing a transformative role in several key areas:
Predictive Maintenance - AI and ML are at the forefront of predictive maintenance, analysing vast amounts of real-time data from IoT sensors to detect patterns and predict potential failures before they occur. This reduces unplanned downtime, extends asset life, and ensures higher fleet reliability, making maintenance more proactive and cost-efficient.
Automated Anomaly Detection - Machine learning algorithms are being used to identify anomalies in aircraft performance and maintenance data that might be missed by human operators. This allows MROs to address potential issues early, improving safety and reducing costly repairs.
Workforce Productivity and Skill Augmentation - AI-powered tools such as augmented reality (AR) and virtual reality (VR) are enhancing technician training and maintenance execution. These technologies provide real-time guidance, troubleshooting assistance, and immersive training experiences, helping technicians work faster and with greater accuracy.
Supply Chain Optimization - AI is transforming supply chain management by improving demand forecasting, inventory optimization, and supplier performance tracking. By accurately predicting part requirements and

"AI-powered tools such as augmented reality (AR) and virtual reality (VR) are enhancing technician training and maintenance execution. These technologies provide real-time guidance, troubleshooting assistance, and immersive training experiences, helping technicians work faster and with greater accuracy."

optimizing procurement processes, MROs can reduce delays, avoid overstocking, and streamline operations.
Dynamic Scheduling and Resource Allocation - Machine learning models are enabling dynamic scheduling of maintenance tasks and resource allocation. By analysing operational data, these tools can optimize technician assignments, minimise bottlenecks, and improve overall efficiency.
Enhanced Decision-Making with Big Data - AI-driven analytics tools process and analyse massive data sets from multiple sources, providing actionable insights for MRO decision-makers. These tools improve visibility into operations, help identify inefficiencies, and support data-driven strategies for continuous improvement.
Regulatory Compliance and Quality Assurance - AI simplifies compliance by automating documentation and ensuring adherence to regulatory standards. Machine learning models can also analyse historical data to identify trends and ensure that quality standards are consistently met.
Customer Experience and Transparency - AI-powered customer portals are improving client engagement by providing real-time updates on maintenance progress, costs, and timelines. Customer Service AI Agents are also becoming a trend, reducing response time and increasing efficiencies for MROs.

What are the advantages of cloud-based MRO solutions compared to on-premises systems?

Cloud-based MRO solutions are transforming aviation maintenance by offering significant advantages over traditional on-premises systems. These benefits include:
Seamless Upgrades and Scalability - Cloud-based platforms ensure all users operate on the same version of the software, eliminating the need for disruptive, time-consuming upgrades. This stability reduces the risk of backend infrastructure failures and allows MROs to scale operations seamlessly as their business grows.
Cost Efficiency - Unlike on-premises systems, which require significant upfront investments in hardware, infrastructure, and IT resources, cloud-based solutions operate on a subscription model. This reduces capital expenditures and lowers long-term IT maintenance costs, freeing up resources for other operational priorities.
Accessibility and Collaboration - Cloud solutions provide real-time access to data and workflows from any location with an internet connection. This accessibility enables better collaboration across teams, vendors, and stakeholders, ensuring faster decision-making and improved operational efficiency.
Data Security and Disaster Recovery - Leading cloud providers offer robust security measures, including data encryption, regular backups, and advanced threat detection, to safeguard sensitive information. Additionally, cloud systems ensure data recovery in the event of hardware failures or disasters, minimising downtime and operational disruptions.
Improved Data Integration and Visibility - Cloud-based platforms enable seamless integration with other systems, such as ERP, supply chain, and predictive maintenance tools. This centralisation of data improves visibility into operations, enhances decision-making, and provides actionable insights for continuous improvement.
Reduced IT Burden - With cloud solutions, MROs no longer need to manage complex IT infrastructure or allocate resources for system maintenance. Software updates, patches, and maintenance are handled by the provider, allowing MROs to focus on core operations.
Faster Deployment and Implementation - Cloud-based systems are quicker to deploy compared to on-premises solutions, which often involve lengthy installation and configuration processes. This allows MROs to start realising the benefits of the software faster, accelerating ROI.
Flexibility with Remote Work - Cloud solutions support remote work environments, enabling technicians, planners, and managers to access critical systems and data from anywhere. This flexibility is particularly valuable for global operations and during unforeseen disruptions, such as travel restrictions or emergencies.

> “Cloud-based systems are quicker to deploy compared to on-premises solutions, which often involve lengthy installation and configuration processes.”

What are the biggest challenges MRO software providers face today?

MRO software providers face several challenges as they strive to meet the evolving needs of the aviation industry. These challenges include:
Legacy System Integration - Many MROs are still reliant on outdated legacy systems, making it difficult for software providers to implement modern solutions. Integrating advanced tools with these systems often requires significant customisation, increasing complexity, cost, and implementation timelines.
Resistance to Change - MROs are often hesitant to adopt new software due to concerns about disruption to operations, high training costs, and the perceived risks of transitioning from legacy systems. Overcoming this resistance requires robust change management strategies and clear communication of the ROI and benefits.
Siloed Systems and Data Management - MROs frequently operate in environments with siloed systems that lack integration. This creates challenges for software providers in ensuring seamless data flow, collaboration, and accessibility across different departments and stakeholders.
Labor Shortages and Workforce Adaptation - With the aviation industry facing labour shortages and rising workforce costs, software providers need to design solutions that optimize workforce productivity and are intuitive enough to be adopted by a diverse range of employees.
Regulatory Compliance - Aviation is a highly regulated industry, and software providers must ensure their solutions comply with complex and changing

regulations. This requires continuous updates, rigorous testing, and a deep understanding of global aviation standards.
Customisation vs. Standardisation - MROs often demand highly customised solutions to address their unique operational needs. Balancing this demand with the scalability and cost-efficiency of standardised software is a significant challenge for providers.
Cybersecurity Risks - With the increasing reliance on digital tools and cloud-based platforms, MRO software providers face growing concerns about data breaches, insider threats, and other cybersecurity risks. Ensuring robust security measures is critical to maintaining trust and operational integrity.
Cost Pressures and ROI Expectations - MROs are under constant pressure to optimize costs, which extends to their technology investments. Software providers must demonstrate clear and measurable ROI while keeping pricing competitive, often within constrained budgets.
Adoption of Emerging Technologies - The rapid pace of technological advancements, such as AI, IoT, and blockchain, presents both opportunities and challenges. Providers must continuously innovate to stay ahead but also ensure these technologies are practical, reliable, and easy to integrate into existing MRO workflows.
Global Market Complexity - Serving a global aviation market means navigating diverse operational requirements, cultural differences, and regional regulations. Software providers must adapt their solutions to meet the varied needs of MROs across different geographies.

What does the future of MRO software look like in the next decade?

The future of MRO software is poised to be transformative, driven by rapid technological advancements, evolving industry demands, and a focus on efficiency, sustainability, and scalability. Over the next decade, we can expect the following trends to shape the landscape:
AI and Machine Learning as Industry Cornerstones - AI and ML will continue to revolutionise MRO software by enabling more advanced predictive maintenance, anomaly detection, and real-time decision-making. These technologies will evolve to provide even more accurate insights, helping MROs maximise asset utilisation, reduce downtime, and optimize workforce productivity.
Widespread Adoption of IoT and Predictive Analytics - The integration of IoT sensors with predictive analytics will become standard practice, providing MROs with real-time aircraft health monitoring and maintenance alerts. This will further shift the industry from reactive to preventative maintenance, reducing costs and improving fleet reliability.
Cloud-Based Ecosystems and Interoperability - The next decade will see the rise of fully integrated cloud-based ecosystems, allowing seamless collaboration between MROs, airlines, suppliers, and regulators. These systems will enable real-time data sharing, streamlined operations, and enhanced scalability while reducing infrastructure maintenance costs.
Blockchain for Supply Chain Transparency - Blockchain technology will play a vital role in ensuring transparency and traceability in the aviation supply chain. MROs will benefit from secure, tamper-proof records of parts and maintenance histories, improving compliance and reducing the risk of counterfeit parts.
Focus on Sustainability and Green Operations - As the aviation industry prioritises sustainability, MRO software will incorporate tools to track and reduce emissions, optimize fuel consumption, and minimise waste. Paperless workflows and energy-efficient operations will become the norm, aligning with global environmental goals.
Enhanced Workforce Management and Training - With labour shortages expected to persist, MRO software will focus heavily on workforce optimization. Advanced tools leveraging augmented reality (AR) and virtual reality (VR) will provide immersive training experiences, improve technician efficiency, and support remote troubleshooting.
Personalised, User-Centric Solutions - The future of MRO software will prioritise personalisation, offering tailored solutions that align with each MRO's unique workflows and operational needs. Tools like Aero NextGen's ERP Finder are setting the stage for this trend, helping MROs identify purpose-built software with ease.
Regulatory Compliance and Automation - As regulations become increasingly complex, MRO software will integrate automated compliance management features. These tools will ensure adherence to evolving aviation standards, reduce manual documentation, and enhance safety across operations.
Data-Driven Decision-Making - Big data analytics will become even more sophisticated, providing MROs with actionable insights to drive continuous improvement. Predictive and prescriptive analytics will empower decision-makers to optimize operations, reduce costs, and improve overall performance.
Collaborative Platforms and Digital Marketplaces - The next decade will likely see the rise of digital marketplaces where MROs can find, compare, and implement software solutions tailored to their needs. Aero NextGen's ERP Finder is an early example of this trend, simplifying the software selection process and accelerating digital transformation.
The role of Aero NextGen's Maintenance-Software Match Tool is to allow aviation professionals to complete a three-minute survey and receive a report with the software solutions that are purpose-built for their unique workflow and operational needs. This marks a step forward in demystifying software selection and accelerating the adoption of technology.

> "The future of MRO software is poised to be transformative, driven by rapid technological advancements, evolving industry demands, and a focus on efficiency, sustainability, and scalability."

Aero Norway © Siv Sivertsen

Aero Norway - A Look Behind the Scenes

By David Dundas

Aero Norway is headquartered at Stavanger Airport on Norway's west coast, and has established itself as a premier independent engine maintenance, repair, and overhaul provider, specialising in the CFM56 engine series. With a rich history and forward-looking strategies, the Company is renowned for its focus on delivering dependable MRO support to operators and lessors worldwide.

Historical Overview

The origins of Aero Norway trace back to 1991 when Braathens, a Norwegian airline, established an engine repair shop at Stavanger Airport. In 2000, Pratt & Whitney acquired the facility, investing in advanced equipment to enhance the repair capabilities for CFM56 engines. By 2013, Aero Norway had emerged as an independent entity and the Company was acquired in 2015 by Qatari businessman Tariq Al Jehani. Under his leadership, the business has embarked on a growth programme requiring continuous investment in training, equipment, and technology. During the COVID-19 pandemic in 2020, AERO Norway adapted its operations to maintain normal capacity, ensuring uninterrupted support for its customers during this uncertain time.


Jeremy Colin, Chief Commercial Officer, Aero Norway

Current Operations and Capabilities

Today, Aero Norway operates a state-of-the-art 14,500 sqm facility capable of handling up to 120 engines annually. The facility's streamlined workflow allows for the concurrent repair of sixteen engines, supported by a team of approximately 100 highly trained technicians and engineers, along with 50 personnel dedicated to customer support and administration.

The Company's exclusive focus on CFM56 engine maintenance enables it to deliver competitive turnaround times, tailored customer services, and engineering support. Aero Norway's commitment to quality is evident in its industry-recognised exhaust gas temperature (EGT) margins and adherence to international standards, holding certifications from EASA, FAA, CAAC, and other regulatory agencies.

In line with its continuous improvement strategy, Aero Norway has invested in advanced technologies, including


© Aero Norway

the addition of a new plasma spraying machine. This Oerlikon MultiCoat Pro system enhances the Company's repair capabilities by offering multiple thermal spray processes in one platform, increasing efficiency and versatility.

Leadership and Strategic Direction

In October 2023, Neil Russell was appointed as CEO of Aero Norway, succeeding Glenford Marston. Russell, who previously served as Chief Operating Officer, brings extensive experience in operations, engineering, and supply chain management. He is known for implementing process improvements that have established the Company's reputation for precision and efficiency.

Under Russell's leadership, Aero Norway continues to focus on enhancing efficiencies and reducing turnaround times. The company is scheduling heavy engine maintenance programmes, primarily for the CFM56-5B and -7B engines, and anticipates sustained demand for these services in the coming years. Investments in machinery, specialist equipment, and training are central to supporting this demand.

In February 2024, Dag Johnsen joined Aero Norway as Chief Operating Officer, bringing with him a decade of experience from United Airlines, where he managed the Powerplant Engineering team overseeing over 700 CFM56-7B engines. Johnsen's appointment aligns with AERO Norway's programme to expand its capabilities to include engine module repairs for the LEAP-1A and -1B, catering to the growing A320neo and B737MAX fleets.

The Interview:

We were fortunate enough to be able to catch up with Jeremy Colin, Chief Commercial Officer at AERO Norway and to ask him a few leading questions about the company.

AviTrader MRO 360⁰: Aero Norway has become a key player in the engine MRO market. Can you tell us a bit about what paved such a success story?

Jeremy Colin: I think there are many factors that have contributed to the Company's success: the commitment and work ethic of the people, the focus on continuous improvement and investment - being just two of them.
What has really set Aero Norway apart is our ability to deliver engines back into service that provide operators with

> "What has really set Aero Norway apart is our ability to deliver engines back into service that provide operators with maximised performance. The CFM56 -5b, -7b engines are incredibly reliable of course, but every little saving in fuel through improved efficiency adds to the bottom line – and that matters."

Aero Norway © Siv Sivertsen

maximised performance. The CFM56 -5b, -7b engines are incredibly reliable of course, but every little saving in fuel through improved efficiency adds to the bottom line – and that matters.
We also have a great reputation for customer support. The rigorous attention that we pay to keeping the lines of communication open and immediate reassures operators and lessors that we have their best interests front of mind 24/7/365.

Is it an advantage for the customer that Aero Norway concentrates its efforts to maintain only CFM56 technology engines?

Our dedicated focus has been on CFM56 engines since the Company's inception. For operators of the CFM56-3, -5b and -7b types this specialism brings with it an incredible knowledge base and expertise. It is doubtful that there is any kind of MRO 'occurrence' that we have not seen before, determined the best solution, and engineered out the problem.
We will be introducing the LEAP model later this year and customers can expect the same dedication and focus from Aero Norway – it is just how we do things.

How far are you with the introduction of your LEAP capabilities?

As you would expect, we are building this capability with rigorous attention to detail at every stage. Any kind of engine MRO service requires the ultimate in process accuracy and precision. Aside from the investment, accreditation, training, integrations of new equipment – we will be starting with selected modules later this year and then ramping up to full engines in a controlled manner.
Can you tell us a bit about the next phases in the development of Aero Norway?

Our business strategy is confidential, but we will be primarily focusing on CFM56-5b and -7b with the LEAP engine introduction in parallel, then building and sustaining this business stream. We are also looking at the geographical focus of our business and building some new services that align to operators' differing market needs. Also, we are exploring ways to be more agile and responsive to meet constantly evolving customer demand. Flexibility is a key component of that and across our organisation, from HR to IT, procurement to engine work-scopes, we are examining ways to reinvent ourselves for mutual benefit.

Talking To Oleg Novak, Managing Director of Airhub Aviation

By David Dundas

Airhub Aviation is based in three aviation hubs and operates in Europe and the Middle East. The company manages aviation assets worth over US$200 million and specialises in mid-life and end-of-life asset management including aircraft wet leasing and component dry leasing, and aircraft management through its AOC. Airhub Aviation provides a full suite of technical services including continuing airworthiness, maintenance, component supply, repair management, and aircraft base maintenance, while its work spans the global aviation market, serving a diverse clientele that includes airlines and aircraft lessors. The journey began in 2019, with a vision to redefine aviation services through innovation and excellence, being inspired by experience working with ACMI airlines and leasing companies, which focused on keeping their technical and fleet management units as lean as possible. Since then, Airhub Aviation has rapidly evolved into a comprehensive aviation group, delivering top-tier aircraft leasing and management, MRO, CAMO, and rotable components supply and repair management services.

Oleg Novak, Managing Director, Airhub Aviation

The Interview:
We recently had the pleasure of interviewing Oleg Novak, the managing director of Airhub Aviation, who kindly provided us with a far greater insight into the company.

AviTrader MRO 360⁰: You appear to be involved in several different sectors of the commercial airline industry. Would you care to tell us a little bit more about your fields of expertise?

Oleg Novak: At Airhub Aviation, we are involved in several areas of the aviation industry, with our main focus on asset management. We offer services like fleet management, aircraft transitions,

© Airhub Aviation

component repair management, and MRO, providing tailored solutions for airlines, lessors, and asset owners. Our primary goal is to help airlines and lessors extend the life of mid-life and end-of-life aircraft, ensuring these assets are appreciated and maintain maximum market value.
Our full-cycle approach allows us to offer vertically integrated solutions—from aircraft acquisition, leasing, and maintenance to eventual end-of-life management—making us a strategic partner for aircraft operators worldwide.

You recently launched MRO operations at Siauliai International Airport (SQQ), Lithuania. Are you able to share with us the reasoning behind this move?

Our decision to establish an MRO facility at SQQ was driven by a few key factors. Firstly, we were driven by our sister ACMI airlines, and secondly, by market demand and slot shortages globally. We see a clear niche in the market: airlines and lessors are extending the lifespan of aircraft rather than replacing them with new ones due to rising acquisition costs, long lead times, and production constraints. At the same time, the global aircraft fleet is projected to grow by 28% over the next decade, while maintenance slot shortages and supply chain disruptions continue to challenge operators and lessors. These factors are driving a surge in demand for flexible, comprehensive MRO solutions. By establishing our MRO facility in Lithuania, we are strategically positioned to meet this growing need. Our facility is designed as a one-stop shop, offering EASA-compliant modifications, LOPA retrofits, engine swaps, and end-of-lease transitions—ensuring aircraft are ready for sale, lease, or their next mission with minimal downtime.
Additionally, as part of GetJet Aviation Holdings, we have built strong in-house technical capabilities, including line maintenance, engineering, technical procurement, and repair management, to maintain our fleet at the highest operational standards. However, to achieve full technical control and flexibility, a dedicated full-scale MRO facility was the missing piece.
The reasoning behind why we chose Siauliai International Airport (SQQ) is its strategic location and cost efficiency. Siauliai International Airport offers 24/7 operations, long runways (3.5 km each), and dual-use NATO security infrastructure, making it an ideal location for maintenance activities. Additionally, Lithuania provides cost-effective solutions, helping operators reduce MRO expenses. We are not only committed to supporting our own fleet but are also open to providing these services to third-party lessors and operators. Part of our strategy is to always keep an ad-hoc bay in the hangar facility for last-minute inductions, which will be a great benefit for repossessed aircraft, delivery projects, and engine swaps.
You are welcome to book your next maintenance slot with us!

What aircraft types are you currently focusing on, and why?

We focus on mid-life and end-of-life narrow-body aircraft types such as the Airbus A320ceo and Boeing 737NG. These aircraft are the backbone of global airline fleets, and operators are increasingly extending their service life rather than

> “Our full-cycle approach allows us to offer vertically integrated solutions—from aircraft acquisition, leasing, and maintenance to eventual end-of-life management—making us a strategic partner for aircraft operators worldwide.”

© Airhub Aviation

replacing them with new aircraft. We see strong demand for heavy maintenance, EASA modifications, and end-of-life asset management for these types.
We hold base maintenance approvals for the Airbus A320ceo family, covering C, 6Y, and 12Y checks. Boeing 737NG approval is in progress, and we anticipate adding this to our capabilities in 2025.
Additionally, we provide line maintenance and out-of-scope maintenance for legacy platforms such as Boeing 737 Classics and the NG, Airbus A330, Airbus A340, and NEOs like the A320neo and A330neo.
Our engine ratings allow us to perform full back-to-back borescope inspections on CFM56 and IAE V2500 engines.

Do you also provide services on aircraft components?

Absolutely. Component support is a key part of what we do.
At Airhub Aviation, we are fundamentally an aviation asset management company, specialising in component trading and repair management. Our core focus is on providing tailored solutions for airlines and lessors using our extensive network of shops, including OEM shops and smaller component shops in the region.
Our asset management mindset is central to how we approach aircraft components, allowing us to make smart, value-driven maintenance decisions that help our clients maximise the longevity and efficiency of their fleets. Airhub Aviation maintains around 100 clients globally on component services.

What are your plans for the next five years?

Looking ahead, we're focused on expanding our asset management, asset leasing, and MRO capabilities, with a primary goal of maximising the green time of mid-life and end-of-life aircraft. This includes enhancing our services such as engine module replacements, aircraft (re) deliveries, and development of our end-of-life management services.
In the coming years, we aim to broaden our engine services and continue growing our MRO facility. We'll focus on mid-life Airbus and Boeing narrow-body aircraft, gradually extending our services to NEO and MAX models. For NEO aircraft, we're looking to introduce engine swaps and out-of-phase maintenance as part of our expanding capabilities.
Ultimately, our goal is to become a leading provider in the region, offering efficient, high-quality maintenance solutions that help airlines operate their fleets longer and more cost-effectively.

PEOPLE

on the move

Geoff Ellis

APOC Aviation, the intuitive trading and leasing specialist focused on engines, landing gear and USM components, has announced the appointment of aviation expert **Geoff Ellis** as Technical Asset Manager. Ellis will support engine leasing, powerplant acquisitions and sales, as well as material sales and trading. His role will also encompass the management of technical records, oversight of shop visits, supervision of pre-buy inspections and the handling of end-of-lease returns. Ellis explains that it is APOC's ambitious growth plans and the opportunity to specialise in one area that attracted him to the Company. "APOC's strong financial backing, which ensures its continued growth, gives me an exciting opportunity to be part of a dynamic and forward-thinking team." With nearly 40 years of experience in aviation, Ellis has worked across manufacturing, structural maintenance, and aircraft mechanics. He holds multiple qualifications, including EASA Part 66 B1.1, B2 Avionics, and B1.3 Turbine Helicopter licences. His career has encompassed roles in line and base maintenance, charter engineering, and supervisory positions, providing him with a well-rounded perspective on aviation maintenance. **Bruce Ansell**, APOC Technical Manager Engine Division, affirms that Ellis is a great match for APOC. "Geoff brings a wealth of experience and a deep understanding of the aviation industry, making him an invaluable addition to our team. His diverse background along with his numerous qualifications, will play a crucial role in strengthening our capabilities."

Dr Christian Leifeld and Dr Janna Schumacher *© LHT*

The Executive Board of Lufthansa Technik AG has welcomed two new members effective May 1, 2025: **Dr Christian Leifeld** will assume the role of Chief Financial Officer, while **Dr Janna Schumacher** becomes the new Chief Human Resources Officer. The company's Supervisory Board appointed both individuals for an initial three-year term, simultaneously expanding the Executive Board from three to four members. Dr Leifeld, currently Head of Group Controlling at Lufthansa and a member of the Group Executive Committee, will oversee Finance, along with Purchasing, Infrastructure, and the Digital Fleet Services business division. He succeeds **Dr William Willms**, who departed the company at the end of March at his own request. Dr Schumacher will lead the newly established Human Resources and Legal department, taking on the formal role of "Labour Director" and additional responsibility for the Original Equipment and Special Aircraft Services division. Dr Leifeld joined the Lufthansa Group in May 2023 and has served as the group-wide Head of Controlling and Risk Management, focusing on enhancing performance-driven business management, refining investment and cash flow planning, and digitalising controlling processes. The financial analyst, who holds a doctorate in economics, is also responsible for an efficiency programme aimed at improving the group's administrative functions, processes and costs. Dr Schumacher rejoined the Lufthansa Group in 2014 following her tenure at the international law firm Allen & Overy. For the past four years, she has led Legal, Compliance, Foreign Trade Law and ESG at Lufthansa Technik. Her current role centres on operationalising the legal department and ensuring compliance with export, customs, and embargo regulations for the entire Lufthansa Group. Most recently, she established and developed the company's ESG division.

Laurans A. Mendelson will become Executive Chairman of the Board of Directors at HEICO and his two sons Eric A. Mendelson and Victor H. Mendelson will take the role of co-CEOs
© HEICO

HEICO Corporation has announced a key leadership transition set to take effect on May 1, 2025. **Laurans A. Mendelson**, currently the company's Chairman and Chief Executive Officer, will assume the role of Executive Chairman of the Board of Directors. In this new position, he will continue to lead the Board, maintain a strong focus on strategic planning, and oversee relationships with investors and key stakeholders. Simultaneously, **Eric A. Mendelson** and **Victor H. Mendelson** will be appointed as Co-Chief Executive Officers. The two have jointly served as Co-Presidents of HEICO since 2009. Eric Mendelson is also President & CEO of the Flight Support Group, which he founded in 1993, while Victor Mendelson has led the Electronic Technologies Group since founding it in 1996. They will retain these roles in addition to their new positions as Co-CEOs. This change is part of a long-established, carefully structured succession plan, reviewed annually by the Board of Directors. The transition has been occurring gradually over a number of years and reflects the increasing leadership responsibilities both Eric and Victor Mendelson have taken on. In addition to the leadership announcement, HEICO disclosed that its subsidiary Mid Continent Controls, Inc. has acquired all ownership interests in Rosen Aviation, LLC. The Eugene, Oregon-based company designs and manufactures in-flight entertainment products, particularly in-cabin displays and control panels for the business and VVIP aviation markets. Financial terms were not revealed, though HEICO expects the acquisition to be accretive to earnings within the year. Rosen will operate as a wholly owned subsidiary of MC2, and both companies anticipate strong synergies through their complementary technologies. Together, they aim to provide a wider array of integrated, state-of-the-art aircraft interior solutions.