

# MRO 360°

## MRO Outlook 2025

### Experts' View for the Future of the Industry

#### **Inventory**

Outsourcing Expendables  
and Consumables

#### **Maintenance Delays**

Effects on Operations and  
Passenger Experience

#### **Mechanic Skills**

Specialisation Versus  
Multi-Skilled Approaches





**D**ear Industry Colleagues,

As the year draws to a close, many of us will take the holidays as an opportunity to rest and spend time with our loved ones.

Like many industries, the MRO industry is also undergoing a constant process of change. In this issue, we asked colleagues what they expect for the coming year and what challenges we will face.

Many of us are familiar with supply chain challenges. Despite IT support, it often remains difficult to provide the right material in the required quantity at the right location. We therefore asked ourselves whether there are clever solutions for expendables and consumables.

We also look at the topics 'specialisation or multi-skills for technical personnel', 'differences between FAA and EASA' and 'effects of maintenance delays'.

We warmly invite you to participate as a contributor to our MRO 360° magazine. We will continue to have interesting topics in our monthly issues in 2025. [Here you can download our Editorial Calendar 2025](#). Simply send us the form with your selected topics to provide your input to our articles.

The entire AviTrader team wishes you a peaceful holiday season and a happy and prosperous New Year. We look forward to providing you with interesting content in 2025 as well.

Enjoy reading.

**Peter Jorssen**  
Publisher

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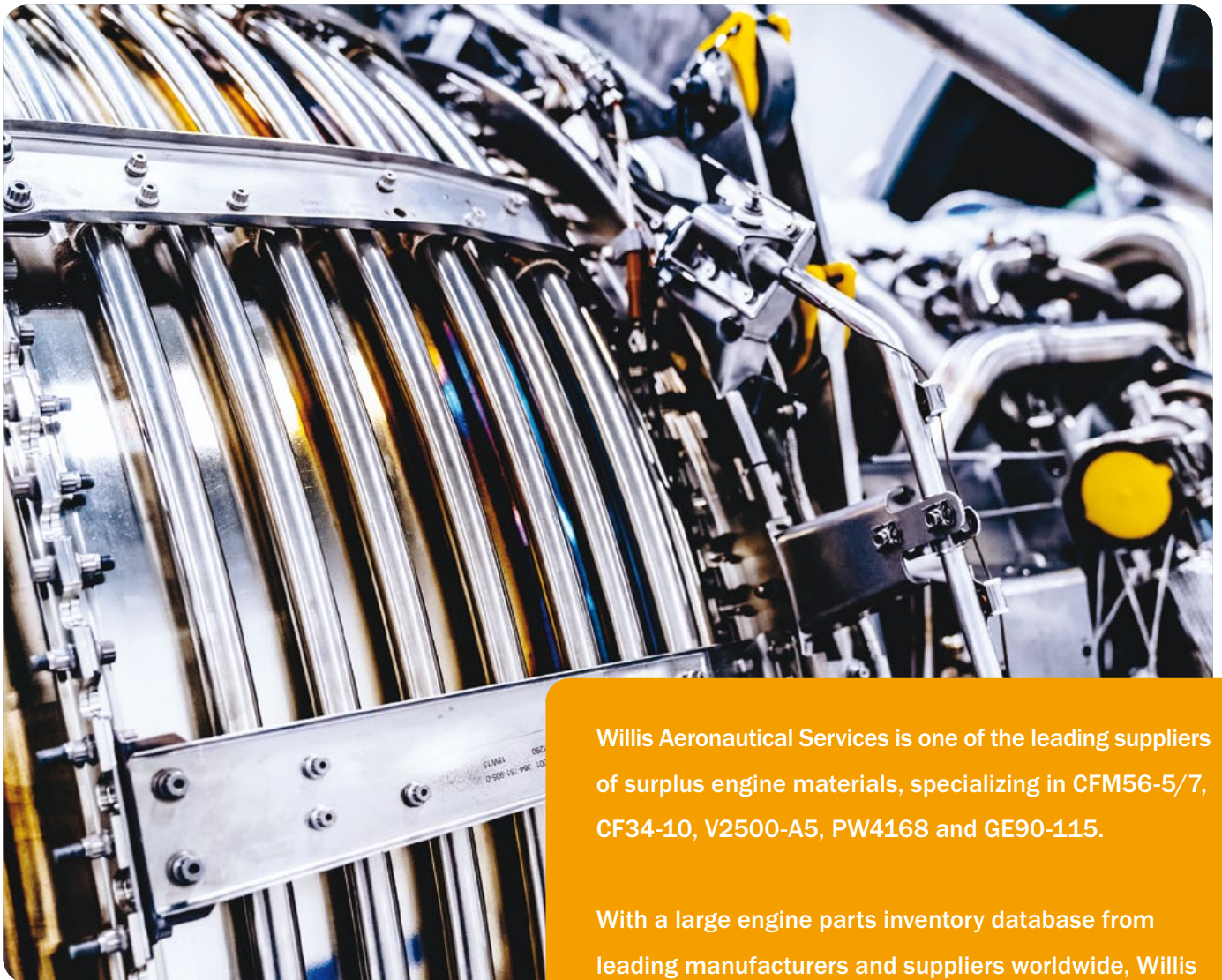




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## AAR and AFI KLM E&M to establish joint venture for nacelle MRO services

AAR CORP. and Air France Industries KLM Engineering & Maintenance (AFI KLM E&M) have partnered to establish a new joint venture focused on maintenance, repair and overhaul (MRO) services for next-generation aircraft nacelles in the Asia-Pacific region. This venture marks the second collaboration between the two companies, following a 2021 joint venture with Triumph Product Support, acquired by AAR earlier this year, to serve the Americas region. The new facility will be based in AAR's Chonburi, Thailand, location, specialising in advanced nacelle MRO services. Its offerings will include on-wing and on-site inspections, alongside ensuring robust part availability for customers. By combining the strengths of an independent MRO provider and a global airline MRO, the joint venture aims to deliver top-tier

service and support for operators in the region. Both companies emphasised their commitment to addressing the evolving needs of the aviation industry while maintaining their reputations for excellence. The venture will contribute to a global network of nacelle service providers, enhancing support for operators with increased efficiency and reliability. Regulatory approval is pending for the official formation of the partnership. This collaboration strengthens both companies' foothold in the Asia-Pacific region, setting new benchmarks for nacelle MRO services while aligning with industry advancements.



The new joint venture will specialise in advanced nacelle MRO services

© AFI KLM E&M/ Patrick Delapierre

## First Trent 1000 MRO engine arrives at Rolls-Royce Dahlewitz facility



The first Trent 1000 engine has arrived in Dahlewitz, Germany, for MRO

© Rolls-Royce

Rolls-Royce has announced the arrival of the first Trent 1000 engine for maintenance, repair and overhaul at its Dahlewitz facility in Germany. This marks a significant step in the company's £55 million investment initiative to expand assembly, testing, and shop visit capacity across the UK and Germany,

a move that will create approximately 300 jobs. The investment, announced in March, aims to meet rising demand for Rolls-Royce's civil large engines and enhance aftermarket support for its global fleet. Rolls-Royce anticipates an annual growth of 7-9% in Rolls-Royce-powered aircraft in service through the

remainder of the decade, as outlined during its 2022 Capital Markets Day. Half of the total investment, and about one-third of the new jobs, will be focused on Dahlewitz. Initially, the facility will support Trent 1000 engines, providing additional global capacity while preparing to introduce a durability enhancement package next year. In the long term, the facility is expected to transition assembling and testing new Trent XWB-84 engines. The durability enhancement package, already in use on the Trent 7000 engine, is part of a broader £1 billion investment in the Trent-engine fleet. This package will significantly extend engine time on-wing, more than doubling its performance. An additional package of hot-section enhancements, due in 2026, is expected to deliver a further 30% improvement. This strategic investment underscores Rolls-Royce's commitment to advancing its capabilities and supporting its growing global fleet while driving innovation in engine performance and durability. (£1.00 = US\$1.27 at time of publication).

## Lufthansa Technik to open state-of-the-art MRO facility in Portugal by 2027

Lufthansa Technik is set to enhance its global MRO capacities with the construction of a cutting-edge facility in Portugal. Located in the Lusopark business park in Santa Maria da Feira, roughly 35 kilometres south of Porto, the plant is expected to be operational by the end of 2027. The ambitious project will create over 700 jobs, with applications opening as early as next year. The newly acquired 230,000 m<sup>2</sup> site will house advanced MRO technologies, reinforcing Lufthansa Technik's strategy of expanding its global network. The signing ceremony for the purchase



Image of the new facility in Santa Maria da Feira, Portugal

© Lufthansa Technik

agreement, was held with representatives from Portuguese politics and business and Harald Gloy, Chief Operating Officer of Lufthansa Technik. After extensive evaluation, Santa Maria da Feira was deemed the ideal location for this multi-million-euro investment. "Great things will be created here—for the region, for Lufthansa Technik and for our employees and customers. This investment also underscores the Lufthansa Group's commitment to Portugal," Gloy noted. The project received strong support from the Portuguese government and the city of Santa Maria da Feira, facilitated by the trade and investment agency AICEP. Portugal's Minister of Economy, Pedro Reis, commended the investment, emphasising its significance in fostering reindustrialisation and showcasing Portugal's skilled workforce in the aeronautics sector. "This major investment reflects confidence in our infrastructure and talent," Reis stated. "It represents a bold step in strengthening strategic alliances between Portugal and Germany, paving the way for sustainable growth in Europe." The facility marks a new milestone for Lufthansa Technik, poised to contribute significantly to regional economic growth while enhancing the company's global MRO capabilities.

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## Qatar Airways expands MRO capabilities with landmark APU deal

Qatar Airways has secured a ground-breaking agreement with Honeywell, becoming the first MRO provider in the Middle East and Africa authorised to service the HGT1700 auxiliary power unit (APU) used in Airbus A350 aircraft. This milestone represents a significant step forward for Qatar Airways in the aviation maintenance sector. The HGT1700 APU, located in the tail of the Airbus A350, supplies critical electric and pneumatic power to the aircraft's systems, including its main engines. With this agreement, Qatar Airways will not only generate additional revenue but also save on maintenance costs for its own fleet. This collaboration supports Qatar's Vision 2030 strategy, promoting economic diversification and positioning the nation as a hub for aerospace innovation. Qatar Airways Group Chief Executive Officer, Engr. Badr Mohammed Al-Meer, said: "This milestone marks a transformative step for Qatar Airways, as we enter the MRO sector. Alongside servicing our



Delegates from Honeywell and Qatar Airways

© Qatar Airways

own fleet's APUs, we'll also generate new revenue streams by offering maintenance services to third parties. This partnership not only reinforces our position as an industry leader but also enhances our profitability and capacity to deliver exceptional service to our partners." A central element of the partnership is the development of a cutting-edge MRO facility, designed to service Honeywell's advanced HGT1700 APUs. This state-of-the-art site will incorporate eco-friendly and energy-efficient technology,

setting new standards for maintenance excellence. Scheduled for completion by 2028, the facility will create over 50 high-skilled jobs, fostering local talent and attracting top global engineering expertise to Qatar. In addition to becoming a Honeywell Channel Partner, Qatar Airways will accelerate its timelines to induct its first APU for maintenance by 2028. This designation allows the airline to extend its maintenance services beyond its own fleet, marking a significant expansion in its business operations.

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The way ahead

## Avianca selects Honeywell avionics and APUs for A320neo fleet

Avianca, Colombia's largest airline, has selected Honeywell to provide avionics technologies and mechanical systems for its new Airbus A320neo fleet. This decision is expected to improve operational efficiency and enhance pilot situational awareness, supporting Honeywell's focus on the future of aviation. Furthermore, Honeywell will supply 131-9A auxiliary power units (APUs) for Avianca's 138 new aircraft. These systems provide electrical power while the aircraft is on the ground, ensuring passenger comfort and operational readiness. Honeywell highlighted that the integration of its technologies would help Avianca achieve greater efficiency and equip its pilots with intuitive cockpit tools to improve flight operations. Avianca noted that the partnership with Honeywell represents a significant step forward in enhancing the safety and efficiency of its operations. The airline expressed confidence that Honeywell's systems would provide its fleet with reliable and innovative solutions to improve overall performance and the experience of both crew and passengers. Among the technologies Avianca is adopting are the Honeywell Pegasus II Flight Management System, which streamlines navigation and flight planning; the IntuVue RDR-4000 3D Weather Radar System, offering detailed weather monitoring and enabling efficient rerouting; and the SmartTraffic Collision Avoidance System, which enhances safety in high-density airspace. Additional systems include an Integrated Multi-Mode Receiver for precise navigation and the Enhanced Ground Proximity Warning System, designed to mitigate collision risks with terrain. The collaboration positions Avianca's fleet to benefit from state-of-the-art solutions aimed at efficiency, safety, and passenger satisfaction. Honeywell reiterated its commitment to providing technologies that drive operational excellence and align with the evolving demands of modern aviation.



Avianca has opted for Honeywell's advanced avionics technologies and APUs for its new Airbus A320neo fleet © Honeywell

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## ExecuJet and Satys to launch aircraft paint facility in Dubai



Satys paint facility in Toulouse, France

© ExecuJet MRO

ExecuJet MRO Services Middle East (ExecuJet), part of Dassault Aviation, has entered into a memorandum of understanding (MoU) with Satys Aerospace to collaborate on aircraft livery services. This partnership includes the establishment of a state-of-the-art aircraft paint facility at Dubai South's Al Maktoum International Airport (DWC), slated to open in the first quarter of 2025. The MoU indicates ExecuJet's intent to utilise the facility for livery projects once operational. The two

companies will also explore joint marketing opportunities to enhance their service offerings. ExecuJet MRO Services Middle East specialises in line and heavy maintenance for a diverse range of aircraft, including Dassault, Bombardier, Embraer, and Hawker models. Additionally, it provides cabin refurbishments and frequently oversees livery customisations for its clientele. Nick Weber, ExecuJet's Regional Vice President for the Middle East, and Paul Woods, Satys ASP International's Commercial Director, signed the MoU ahead of the Middle East and North Africa Business Aviation Association (MEBAA) Conference and Exhibition, being held in Dubai South from December 10–12, 2024. The new paint facility will span 2,831 m<sup>2</sup> and feature climate-controlled environments, ensuring precision and quality in aircraft painting. It will accommodate various aircraft types, ranging from business jets to larger models like the Boeing 737-10 Max and Airbus A321XLR. Designed to serve business, commercial, and VVIP aviation sectors, the facility is expected to have an annual capacity to paint up to 35 aircraft. This partnership reinforces Dubai's position as a hub for aviation innovation and excellence, addressing growing demand in the region for high-quality aircraft livery services. The development also strengthens ExecuJet and Satys' presence in the Middle East's burgeoning aviation market, ensuring advanced, efficient, and comprehensive solutions for clients.



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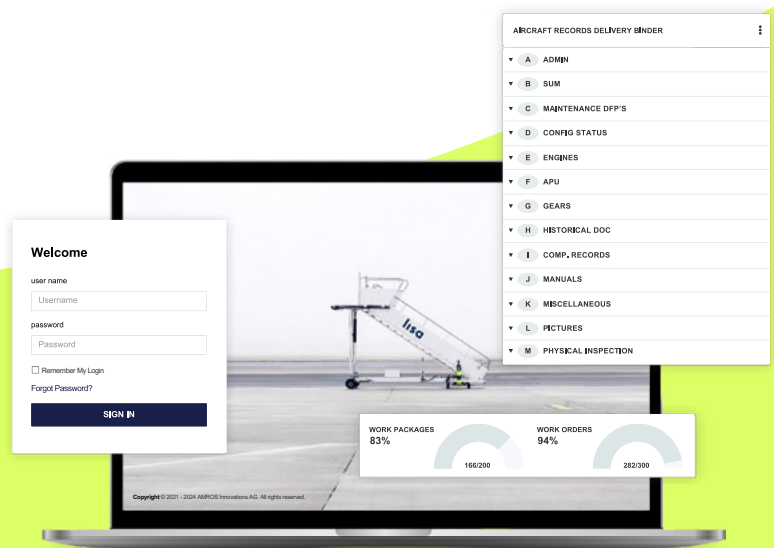
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## RAS partners with Lufthansa Technik AERO Alzey



Representatives from Lufthansa Technik AERO Alzey and Rheinland Air Service

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Rheinland Air Service (RAS), a provider of MRO services, has announced a strategic partnership with Lufthansa Technik AERO Alzey (LTAA), part of the Lufthansa Technik Group. This collaboration combines RAS's expertise in airframe and systems maintenance with LTAA's world-renowned engine maintenance

capabilities, enabling RAS to provide a comprehensive, one-stop MRO solution. Under the agreement, LTAA will deliver EASA Part 145-compliant engine services, leveraging decades of experience and the global reputation of the Lufthansa Technik Group. The partnership is particularly beneficial for

operators of regional fleets, including Embraer E-Jets and De Havilland Dash 8 aircraft. RAS will enhance its technical offerings and expand its ability to innovate, delivering value-added services to its global clientele. "We are thrilled to collaborate with Lufthansa Technik AERO Alzey, a name synonymous with quality and reliability in aviation," said Thomas Knäpper, CEO of RAS SAAR. This agreement underscores the mutual commitment of RAS and LTAA to safety, excellence, and innovation. It also sets the stage for future opportunities, as both companies explore ways to better support airlines, operators, and lessors in an evolving aviation industry. As part of the Lufthansa Technik family, LTAA brings its extensive expertise to the partnership, ensuring the highest standards in MRO services. By uniting their strengths, RAS and LTAA aim to set a new benchmark in the industry, offering unparalleled support to customers worldwide. This collaboration positions both organisations at the forefront of aviation maintenance, reinforcing their roles as trusted partners in a dynamic market.

## VSE Corporation completes acquisition of Kellstrom Aerospace

VSE Corporation has finalised its acquisition of Kellstrom Aerospace Group (Kellstrom), a global distributor and service provider in the commercial aerospace engine aftermarket and a portfolio company of AE Industrial Partners, LP. "Today represents the next step in the VSE Aviation product and services growth strategy, with a clear opportunity to profitably grow our business and better serve our global aerospace aftermarket customers," said John Cuomo, President and CEO of VSE Corporation. "The acquisition of Kellstrom Aerospace strengthens our OEM-centric value proposition and demonstrates our commitment to growing our distribution and MRO capabilities in the growing commercial aerospace

aftermarket. Kellstrom's successful track record of supporting a diverse group of global OEM partners through its portfolio of proprietary engine-focused products and repair services, along with its technical advisory capabilities, is highly complementary to VSE Aviation's business. We are confident that the combination of our respective businesses will drive significant value to our customers and supplier partners." The acquisition was valued at approximately US\$185 million in cash and 172,414 common shares of VSE Corporation, subject to working capital adjustments. The cash component was financed using proceeds from VSE's October public offering of common stock and borrowings under its existing credit facility.

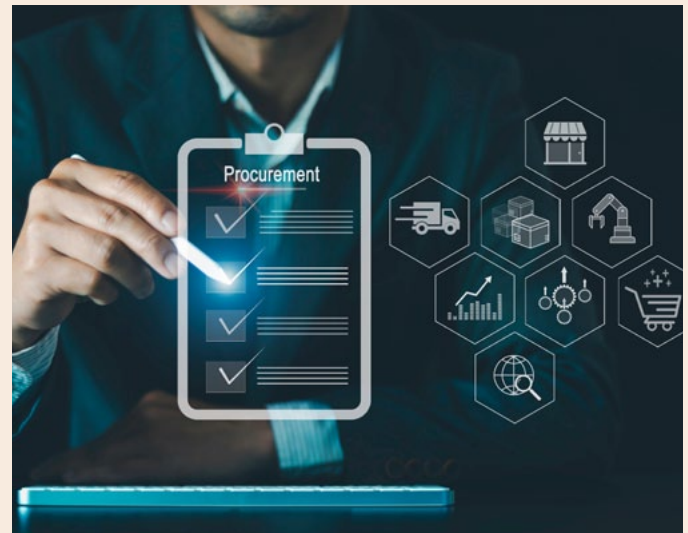
## Wafra closes acquisition of Aquila Air Capital

Engine lessor Aquila Air Capital (Aquila) has released that Wafra Inc. (Wafra), a New York-based, global alternative asset manager, has completed the acquisition of its platform from Warburg Pincus. Wafra entered into a definitive agreement to acquire a controlling interest in Aquila on October 18, 2024. Since then, Wafra has received all customary regulatory approvals to complete the transaction. "We are excited to close our acquisition of Aquila Air Capital and launch the next phase of its growth

in partnership with AI and the entire Aquila team," said Edward Tsai, Managing Director, Wafra. "The demand fundamentals for Aquila's business in particular, and aviation equipment finance more broadly, are strong. Aquila is well positioned to continue successfully serving its global customer base." ATLAS SP Partners, the warehouse finance and securitised products business majority owned by Apollo funds, provided a credit facility to support the acquisition of Aquila and fund its future growth.



In 2024, **SkySelect's** Procurement AI entered the early majority adoption phase, marking a pivotal transformation in the aircraft materials procurement landscape. Numerous customers have embraced this innovative technology, signalling a shift in how transactions for aircraft parts are conducted. The company has surpassed a significant milestone, having processed US\$5 billion worth of aircraft parts transactions since its launch. This achievement caps an impressive 12 months, during which SkySelect facilitated US\$1.5 billion in transactions. The surge was driven by the onboarding of a number of customers, including major names like **JetBlue, Avianca, Airborne Maintenance & Engineering Services, MTU Maintenance** and other prominent international airlines, maintaining discretion about their partnerships. SkySelect has tripled the number of airlines and MRO providers on its platform in 2024. Recognising the importance of a balanced ecosystem, SkySelect has collaborated with over 3,000 suppliers, offering support for routine, urgent and Aircraft on Ground (AOG) part needs. These partnerships span a wide range of part categories, covering every aspect of the aviation supply chain. To ensure seamless integration for its users, SkySelect has also expanded its roster of partners, including AvSight, Ambry Hill, Rotabull, Quantum and Corridor. The aviation industry is increasingly embracing artificial intelligence (AI), with its role rapidly evolving from novelty to necessity. The global AI market in aviation is anticipated to grow at a compound annual growth rate (CAGR) of 35.38% between 2022 and 2030.



SkySelect has processed US\$5 billion worth of aircraft parts transactions since its launch of Procurement AI © Shutterstock

Economic pressures have been a significant catalyst for this surge in technological adoption, as airlines strive to streamline operations and optimise supply chains amidst persistent economic and logistical challenges. "As airlines and MROs look ahead to 2025, operational efficiency and supply chain optimisation have become priorities," said Erkki Brakmann, CEO of SkySelect. "Procurement AI has transitioned from a convenient tool to an essential technology for thriving in today's complex environment."

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A new academic year has started at Joramco Academy

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**Joramco Academy**, the educational branch of **Joramco**, an Amman-based aircraft maintenance, repair and overhaul (MRO) facility, and part of **Dubai Aerospace Enterprise (DAE)**, has commenced its new academic year, marking the first semester at its newly inaugurated premises. The academy welcomed 50 top-performing new students embarking on a career

in aircraft maintenance engineering, alongside returning students who contribute valuable experience to the learning environment. To support its students, Joramco Academy has introduced initiatives such as early registration discounts and 25 fully funded scholarships provided by the Technical and Vocational Skills Development Commission (TVSDC). These efforts

are part of the academy's mission to attract young talent across Jordan, addressing national unemployment rates and fostering growth in the aviation sector. Chief Executive Officer Fraser Currie stated, "We are thrilled to extend a warm welcome to our new and returning students for this academic year at Joramco Academy. It marks a new beginning at our state-of-the-art academy, which is an important step in our expansion plans and vision, as we continue to drive excellence in the aviation industry." Hana Ibsais, Chief People and Performance Officer, also highlighted the significance of the new academic year: "The start of every academic year is something we are always proud of. For newcomers, it is the beginning of four years of exceptional education, while returning students will benefit from a familiar environment that fosters talent and cultivates growth. Our programme provides a golden career opportunity upon graduation, and we eagerly anticipate the students' success in the future."

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# The MRO Outlook for 2025

By David Dundas

**T**here is no question that 2024 was a challenging year on many fronts for the MRO sector of the aerospace industry. Wherever you look, it is difficult to find consistency, making it hard for all MRO operators to plan ahead with a high degree of confidence. While on the one hand it is encouraging to see Boeing hopefully putting its safety issues behind it and moving forward to uninterrupted production of all its models next year, on the other hand, not all carriers have come through the pandemic unscathed and some have either had to scale back operations to remain viable, or even filed for bankruptcy protection. Supply chain problems have not only hit both aircraft manufacturers including Airbus and Boeing, but also MRO operators who rely heavily on the availability of engines and their spare parts, leading to further uncertainty.

So, what does 2025 hold for the MRO sector? We thought the best way to find out was to seek the opinion of seven leading MRO operators to see what they feel lies ahead for them.

## Today versus tomorrow

We wanted to know what operators felt was the state of play today and what,

if anything might change in 2025. Denis Brailsford, Head of Asset Management at IBA sees engines as the key area both today and tomorrow. He comments: "Demand is outstripping capacity, especially in the engine MRO space. The newest generation engines are continuing to place strain on MRO capacity, with airlines having to ground aircraft. We forecast this to remain a problem in 2025 and 2026, with several airlines, including Wizz Air, highlighting that the issue will continue to limit their growth in 2025. This capacity strain is further increased by the continuing challenges in the supply chain, therefore increasing the overall turnaround time of aircraft and engines in for shop visits," adding that, "In summary, we forecast that MRO slot availability will continue to be limited."

At Panasonic Avionics, the company's Vice President of Panasonic Technical Services (PTS), Tom Eskola, sees the advances in technology, along with the fact that aircraft are currently staying in service longer than initially planned as having a major influence. "The MRO industry has grown significantly in the past several years and is projected to continue this trajectory due to several factors. First, aircraft are staying in service longer due to a lack of new aircraft deliveries to airlines. This drives higher repair requirements and potentially

sustaining older systems beyond their planned lifecycle. Second, airline demand is increasing due to additional capacity, more routes and higher load factors. MRO performance is scrutinised more than ever, and performance needs to be high. Third, technology is advancing fast with the introduction of AI for predictive and preventative maintenance. This new technology can introduce new capabilities and challenges for integration with older systems," he says.

Tulika Dayal, Chief Experience Officer & Co-founder of SkySelect Inc., sees five key drivers for the current state of transformation in the MRO sector: Recovery from the pandemic, adoption of digital technologies, increased demand for air travel, the navigation of supply chain challenges, and a continued focus on sustainability. As for 2025, she sees that: The strategic integration of advanced technologies will fundamentally enhance maintenance processes, driving the industry forward and that predictive maintenance is set to take the forefront, fostering a proactive maintenance culture that reduces unplanned downtime and boosts operational reliability. In addition, as sustainability becomes integral, organisations will prioritise adopting sustainable materials and energy-efficient





LEAP-1A on SAT test cell10

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practices, with technology proving to be a vital enabler. Beyond this, she believes that investing in workforce development will be essential to bridging the skills gap and attracting top talent, ensuring the industry's growth and innovation capabilities are matched by skilled professionals.

Lewis Prebble, President - Airlines & Fleets at StandardAero is extremely positive as he sees that "Overall, the MRO industry remains healthy, reflecting the underlying strength of the global air transport market," though he does recognise the challenges created by supply chain problems. However, that current positivity also extends through to 2025 as he comments: "For 2025, we foresee incremental improvements rather than any major changes: IATA is forecasting a 4.4% increase in air transport revenues. We expect the utilization of older generation narrowbodies to remain strong, regardless of the improving delivery volumes of the A320neo and 737 MAX families." At Ascent Aviation Services, Scott Butler, the Chief Commercial Officer is slightly more reserved regarding the current situation, but he also sees a light at the end of the tunnel where 2025 is concerned. "While there

are still several headwinds in the industry, like OEM issues & manpower shortage, I believe that for 2025, there are positive signs that will give the MRO industry more opportunity to invest and improve," he advises.

Tommy Hughes, Chief Executive Officer at VAS Aero Services is equally as positive as Lewis Prebble, seeing 2024 as a year of recovery after the pandemic, commenting that "I would describe 2024 as a "bounce back" year for MROs, having weathered the storm of the Covid-19 pandemic and subsequent supply chain disruptions. This period hasn't been without its challenges, as we still witness gaps, but the good news is we're now dealing with issues related to growth, rather than cutting back. For 2025 I believe the focus will be on increasing the MRO workforce numbers and capabilities, adopting new technologies that will allow us to support future generation aircraft and increasing our sustainability efforts."

It is perhaps fair to say that Mike Cazaz, President & CEO at Werner Aero, LLC has adopted a more pragmatic and perhaps realistic approach to the current and near-term situation, highlighting

what he feels will be continued supply chain problems, commenting that: "The MRO industry is still unstable mainly due to external issues. The supply chain problems are still having a major toll on the market, especially around engines. These supply chain issues are causing major delays in repairing engines but also some critical aircraft parts. In addition, the lack of expert personnel across the industry and regions is still a problem. The newer model engines that require unscheduled shop visits must wait many months before they can be inducted simply because the industry does not have



Lewis Prebble, President - Airlines &amp; Fleets, StandardAero

**“Overall, the MRO industry remains healthy, reflecting the underlying strength of the global air transport market.”**

*Lewis Prebble, President - Airlines & Fleets, StandardAero*





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the capacity (slots) to handle the demand. These issues existed in 2024 and will continue throughout 2025. I can't say it's a major change but for sure still a major disruption."

### What is driving growth in the MRO sector and are there any foreseen barriers?

Tom Eskola sees plenty of potential growth for Panasonic Avionics through diversification – "For example, at PTS, we've expanded from exclusively focusing on in-flight entertainment (IFE) maintenance to offering a comprehensive range of line maintenance services," adding that "This diversification has been a key growth area for us, especially since the expansion into full line maintenance began just before COVID-19." In terms of foreseen barriers, he has certain concerns: "The MRO sector relies heavily on infrastructure, skilled labour, and regulatory compliance, all of which require significant investment and careful management. Supply chain challenges

and fluctuating demand, especially during geopolitical disruptions, can also pose risks."

Depending on the company's focus where MRO services are concerned, the current growth factors and potential barriers can differ greatly. For SkySelect, Tulika Dayal sees fleet expansion, ageing fleets, technological advancements, outsourcing trends and regulatory compliance all as key factors affecting growth. In terms of barriers to growth, she feels that global supply chain disruptions, economic downturns, skill shortages, regulatory complexity and environmental regulations will be the prime culprits. Lewis Prebble is pretty much in harmony with Tulika in terms of seeing extended service lives of aircraft as a driver for MRO growth, but sees tariff wars as a potential barrier to growth, "as could any expansion to the various regional conflicts impacting various parts of the globe in 2024," he says, before adding that: "the availability of good quality USM and green time assets continues to shrink (as they are used up), thereby reducing the industry's ability to compensate for new parts

shortages. Those barrier differences are also highlighted by Scott Butler when it comes to investing in the future, pointing out that: "The sheer volume of new aircraft entering the worldwide fleet is an encouraging sign. There is, however, a shift of aircraft fleet types due to aging aircraft, so MROs may be hesitant to invest in older aircraft types without a clear future market"

An increase in air traffic and delays in the delivery of new aircraft have increased operators' reliance on MROs to keep their assets flying. Cycles and flight hours of current aircraft continue to increase, adding to their maintenance requirements, and the continuing shortage of critical parts provides an opportunity for companies like VAS Aero Services who specialise in aircraft teardown and parts re-distribution, according to Tommy Hughes. In terms of barriers, he is quite blunt: "...as an industry we must continue to overcome issues related to staffing shortages while also keeping pace with the digital transformation taking place that impacts every aspect of our business." Where





Denis Brailsford, Head of Asset Management, IBA

MRO growth is concerned, Mike Cazaz is very clear: "With more shop capacities, technology that will streamline the repair process and AI that will possibly replace the human and will drive results faster, these could mean major improvements and growth in the industry. In addition, I believe that we will see continued consolidations driven by OEMs or private equity companies which will cause new emphasis on driving growth as the investors will wish to see the returns on those investments."

Denis Brailsford raises an interesting point concerning training and skill shortages, which seem very relevant yet overshadowed by supply chain problems and aging fleets. As he points out: "Investment in the MRO sector continues with growth in both Asia and the Middle East. However, the speed at which skilled personnel can be trained still remains a primary barrier to growth. As a result, we have seen a number of states and airlines in these regions enter into Memorandums of Understanding (MOU), to provide support and training in the region, with the likes of Saudi Arabia and Air France KLM entering into a MOU for GE90 engines. We see such agreements continuing to support regions where significant growth is needed." He

**“ Investment in the MRO sector continues with growth in both Asia and the Middle East. However, the speed at which skilled personnel can be trained still remains a primary barrier to growth. ”**

*Denis Brailsford, Head of Asset Management, IBA*

concludes: "This skill shortage is not limited to developing regions. The skills shortage is set to continue in developed regions, with the Aviation Technician Education Council (ATEC) reporting that 30% of technicians in the U.S. are at or close to retirement age, with the average age of aviation technicians being 51 years old."

### **Will new materials such as composites affect demand for certain MRO services?**

Lewis Prebble is very clear cut on the engine side of things, as he explains: "We are seeing this trend in the engine segment, driven by new generation powerplants such as the CFM LEAP and P&W GTF. On the LEAP-1A and LEAP-1B, the engine utilizes composites in a range of components – from the fan blades and case to the combustor lines and domes – which require specialist repairs, and StandardAero's Component Repair Services (CRS) team is growing its range of advanced composite repair technologies to support this platform." However, and curiously, Tommy Hughes sees an upside to supply chain problems as new materials bring new challenges to the MRO sector, pointing out that: "The demand for specialised composite repair capabilities, advanced inspection techniques, and new manufacturing methods like additive manufacturing is sure to increase. At what velocity? That's something that's really being determined by the supply chain. But that does give MROs time to prepare by investing in training, equipment, and processes to handle these advanced

materials. We'll also have to increase our knowledge to incorporate composite recycling into our ongoing sustainability efforts."

Of course, MRO has a new field, that of electric aircraft, which Scott Butler suggests one should keep an eye on where the demand for avionics technicians is concerned. "While composite repairs are picking up in modern aircraft, the shift towards avionics technicians for more electrical aircraft is something to keep a pulse on. Additionally, with the aging fleets still flying in large numbers, as well as more conversion programmes ongoing, structures mechanics and NDT are in great demand," he says. Meanwhile, Denis Brailsford draws our attention to the importance of AOG composite teams as he explains: "MROs have been working with composite structures for many years and have continued to develop their capabilities as the use of composite structures has increased. Traditionally composite component overhauls would be performed by dedicated composite shops; however, more on-wing composite repair techniques are being developed to reduce the number of component removals, which is driving an increase in AOG composite teams being used."



Tommy Hughes, Chief Executive Officer, VAS Aero Services

**“ The demand for specialised composite repair capabilities, advanced inspection techniques, and new manufacturing methods like additive manufacturing is sure to increase. ”**

*Tommy Hughes, Chief Executive Officer, VAS Aero Services*



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And then, of course, you have a key direct beneficiary from the use of new materials. As Tom Eskola points out: "Maintenance budgets are finite and any work outside of flight-critical needs – such as ones related to the passenger experience – is often de-prioritised by airlines or deferred. But as manufacturers increasingly adopt materials with enhanced durability that reduce frequency of repairs, more attention and resources are devoted to the passenger experience."

### What are today's and what will be tomorrow's greatest workforce challenges?

There is a recurring theme with our responses to this question, and that is the presence of a skilled workforce and all the subsequent problems that come with creating and maintaining one.

Lewis Prebble is unequivocal when identifying the supply of skilled mechanics in both instances. "The biggest challenges relate to ensuring a reliable supply of skilled aircraft engine mechanics, and to retaining these skilled workers. To tackle the first challenge, we partner closely with local colleges to develop aircraft turbine

technician courses, which then enable us to offer students well-paid and rewarding careers upon graduation. We have also launched a 12-week on-the-job training programme at our in-house Training Academy in San Antonio, which is designed to equip individuals with the specialised skills needed to maintain and repair aircraft engines. In terms of retaining employees, we offer a highly competitive compensation package and a truly welcoming work environment, reflecting our commitment to members of 'the StandardAero family,'" he tells us.

Tommy Hughes is very much in agreement with Lewis Prebble when it comes to a shortage of skilled MRO technicians. However, he also goes on to identify the effect of new technologies where the future is concerned, stating that: "...the industry faces a technical challenge as we adopt new technologies such as 3D manufacturing of replacement parts, AI, robotics and other advances that require new skills and training. Investment in the workforce will be a key for many MROs in 2025." Still on the topic of an experienced workforce, Mike Cazaz brings up the problem of the 'revolving door' where employment is concerned. He explains

that "The lack of experienced workforce like engineers is a major challenge to the industry but also the "revolving door" condition that the industry has been experiencing for the last four years. We are seeing experienced personnel moving from one company to another causing disruptions to MRO companies but also an inflationary condition in the employment market. I don't see a major change in this area in 2025 as the indications are that this situation might take at least another two years to rectify."

Rather than simply identifying the workforce problem, Scott Butler looks at a way of dealing with the shortage of skilled engineers and mechanics, advising that: "Creating a viable talent pipeline is nothing new in the MRO industry. While increasing rates are helping the industry recruit, there is still a limited pool to choose from. More and more MROs are building their own pipelines through educational partnerships and even creating their own certification programs to help bridge the talent gap." On the same theme, Tom Eskola tells us that: "Panasonic Avionics also curates an apprenticeship programme for our Panasonic Technical Services team and offers a blend of classroom and hands-on training in aircraft maintenance. The programme emphasises diversity, equity, and inclusion, inviting candidates from various backgrounds. Apprentices can gain practical experience at Panasonic's maintenance facilities and work toward earning aircraft maintenance certifications. The initiative aims to create a sustainable, diverse workforce and meet our future needs while supporting gender diversity in the field."



Mike Cazaz, President &amp; CEO, Werner Aero, LLC

**“The lack of experienced workforce like engineers is a major challenge to the industry but also the “revolving door” condition that the industry has been experiencing for the last four years.”**

*Mike Cazaz, President & CEO, Werner Aero, LLC*



**“Independent MRO providers that consistently deliver innovative, high-quality, and cost-effective services will not only stand out in the market but also seize substantial growth opportunities in the years ahead.”**

*Tulika Dayal, Chief Experience Officer & Co-founder, SkySelect, Inc.*

Tulika Dayal draws our attention to a current skills gap, an aging workforce, and the challenges of attracting and retaining talented mechanics and engineers. As far as 2025 is concerned, she highlights the following: “Digital and Technical Skills: As digital technologies increasingly transform MRO operations, there is a critical need for technicians and engineers with expertise in digital skills, such as data analytics and automation. These competencies will drive innovation and efficiency in the rapidly evolving aviation sector,” before adding “Sustainability: The increasing emphasis on sustainability may lead to a demand for workers with expertise in sustainable practices.”

### Prospects for independent MRO providers compared to in-house airline operations

The future of MRO in the aviation sector is poised to embrace a blend of in-house and outsourced services. Airlines are increasingly recognising the benefits of outsourcing specific maintenance tasks to specialised MRO providers while preserving their core competencies and essential functions internally. As SkySelect’s Tulika Dayal puts it: “Independent MRO providers that consistently deliver innovative, high-quality, and cost-effective services will not only stand out in the market but also seize substantial growth opportunities in the years ahead.” On the other side of the coin, Lewis Prebble at StandardAero points out that: “The prospects for independent MRO providers remain as strong as ever, while in-house airline MRO shops naturally benefit from a captive market, independent MRO providers do not represent competition to any of our customers, thereby enabling us to market our services more widely. For us, it is an advantage to be wholly dedicated to the engine repair market – we are focused on our core business, rather than at the whim of airline investment cycles. We make long-term investments and have built strong enduring relationships with all the key OEMs

across many different platforms.”

Over at VAS Aero Services, Tommy Hughes feels that there is room for both in-house MRO providers as well as in-house airline operations. As he explains: “There’s no doubt that in-house maintenance capabilities offer large airline operators some economies of scale and quality control, especially those fleets flying just one or two platforms. But smaller airlines, or those operators with international routes, may be better served by outsourcing their maintenance and repair to qualified, independent MRO providers who can provide a range of specialty services more cost effectively.” However, at Werner Aero Mike Cazaz sees things slightly differently, especially with regard to in-house MRO providers. “Airlines are still dealing with operational problems, and I don’t see them increasing their MRO capacities beyond their own fleet. Independent MROs are probably going to see additional consolidations in the market as more and more P.E. companies are coming into the market for new acquisitions and consolidations,” he advises.

At IBA Denis Brailsford feels that as airlines grow and evolve, traditionally the natural step would be to develop in-house MRO capabilities. In-house capabilities provide benefits such as reduced costs, reduced turnaround times and the possibility to sell the service. This, however, comes at a cost of investing in tooling, materials and a skilled workforce to support such an operation. As a result, many airlines tend to maintain line maintenance capabilities with limited base maintenance approvals. With major heavy checks and engine overhauls being outsourced, we do not consider there to be any major shift in this approach in the short term.” He points out that: “One major change we are seeing in the engine market is a shift with both CFM and PW limiting their PBH (power by the hour) offerings on the LEAP and GTF engines. This will drive further competition in the market as operators have more flexibility on the MRO they select.”

Tom Eskola at Panasonic Aviation feels



Tulika Dayal, Chief Experience Officer & Co-founder, SkySelect, Inc.

that the prospects for independent MRO providers like PTS are robust, particularly as airlines increasingly outsource non-core operations to streamline costs and focus on their core business. Independent providers offer flexibility, scalability, and specialised expertise that in-house airline operations often cannot match without significant investment. He points out that: “Unlike traditional airline in-house operations, PTS has expanded its services beyond in-flight entertainment and connectivity maintenance to full aircraft line maintenance coverage. The range of services includes Transit Checks, ETOPS Checks, Daily Checks and Weekly Checks,” before adding: “The strategic advantage for independent MRO providers is in their ability to adapt quickly to airline demands while leveraging global networks of expertise and resources. For PTS, its established line maintenance infrastructure, coupled with the ability to expand rapidly, offers a compelling value proposition.”

### What lessons has the industry learned from recent disruptions?

Aside from the confirmation of the inherent reliance of the MRO industry, three of the biggest lessons learned could well be the need to protect supply chains (as best the industry can, given the more powerful influence of the OEMs); the need to ensure that the expertise and experience held by long-serving employees is sufficiently recognised and harnessed, for example through mentorships, and the need to appreciate how quickly demand can bounce



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back following a major disruption. "In terms of shaping the industry, the key dynamics to strive for are flexibility, adaptability and scalability, in terms of being able to weather such disruptions and then efficiently return to full output," says Lewis Prebble. Meanwhile, Tommy Hughes is more focused on the future than the present, commenting that: "Going forward, MRO providers are likely to invest in more diversified and robust supply chains. There is already a shift toward near-shoring or building more localised supply chains to reduce dependency on global suppliers. Stocking critical parts and materials and forming closer partnerships with suppliers will be important strategies to mitigate future disruptions. MROs may also focus on data-driven forecasting and predictive maintenance to better anticipate future needs and ensure the availability of those needed parts before they become critical."

In terms of creating some form of resilience for the future against similar disruptions, Scott Butler puts it very succinctly, perhaps intimating that it is better to be proactive as opposed to reactive: "Never stop investing. Short-term disruptions tend to cause knee-jerk reactions to shed investments into new capabilities and talent pipelines. This causes

real damage down the road with the inability to ramp up fast enough to meet demand."

Denis Brailsford is also equally concise in his assessment of the situation: "The industry is still coping with disruptions from both technical issues and the shortage of spares, especially in the engine MRO sector. The parts supply disruptions have shown the industry's reliance on 'Just in Time' part supply to avoid expensive components sitting on the shelf. Such a philosophy does not provide resilience when disruption to the supply chain occurs," he comments.

The industry recognised that diversification of revenue streams is essential for business continuity. Manufacturers have realised the stabilising role of aftermarket services, which proved less vulnerable to market fluctuations than new product sales. Tom Eskola points out that PTS was able to manage its balance sheet and maintain contributions to the company's bottom line in times of lower demand, then was able to quickly resume business activity and buoy company revenue. He explains further: "As found within other industries, those with a foundation for digital transformation were poised for success through recent disruptions, and investing in predictive maintenance proved valuable in maintaining operational continuity. With our global

network of line maintenance and repair stations, our proven success in scalability and breadth helped our customer airlines to not only continue flying where and when they needed but to maintain their passenger experience despite extreme challenges."

Tulika Dayal feels that the aviation industry has learned several valuable lessons to adapt to unexpected events like pandemics and geopolitical tensions swiftly. These lessons will help enhance its resilience in the future through four principal strategies: digital transformation, supply chain resilience, financial resilience and agile workforce management, for example "Airlines and MROs are adopting flexible staffing models to optimize labour costs and respond to varying workloads. Additionally, they have improved operational efficiency and reduced overhead costs by leveraging remote work and virtual collaboration tools," she explains.

### Where are we likely to see greatest MRO growth in 2025?

This is perhaps the US\$64,000 question, though taking into account inflation, maybe that should now be the US\$6.4 million question! In answer, Tommy Hughes senses that MRO growth will be global, likely led by the Asia-Pacific region which is experiencing fleet expansion and rising demand for regional services. The Middle East should also see strong growth due to its strategic location and expanding airline hubs. North America will continue to be a main driver of growth as both passenger and cargo traffic accelerate. He then adds that: "Thanks to a global growth strategy that we implemented several years ago, VAS is well positioned to



Scott Butler, Chief Commercial Officer,  
Ascent Aviation Services

**“Never stop investing. Short-term disruptions tend to cause knee-jerk reactions to shed investments into new capabilities and talent pipelines.”**

*Scott Butler, Chief Commercial Officer, Ascent Aviation Services*



**“As airlines continue to add capacity and routes, we are there to support their growth and ensure the highest possible uptime and passenger experience possible.”**

*Tom Eskola, Vice President Panasonic Technical Services, Panasonic Avionics*



Tom Eskola, Vice President Panasonic Technical Services, Panasonic Avionics

benefit from increased MRO activity in all these regions, as well as Latin America and Europe where we anticipate more moderate but steady growth next year.” Mike Cazaz is of a similar opinion regarding Asia, stating that: “Probably Asia. As this market is predicted to have the highest growth going forward. We are already seeing some investments from OEMs in areas such as China, Singapore and NZ.”

On the other hand, Scott Butler is looking closer to home with an optimistic air. “We are very bullish on the North & South American market. Several operators are nearshoring their maintenance for operational control, and the increasing OEM deliveries are leading to large fleet change which will benefit secondary and tertiary markets as well as passenger-to-freighter conversions,” he tells us. While Tom Eskola sees an uptick in generated business, he does not feel there is a specific area PTS wants to specifically focus on, explaining that “PTS participates in a variety of trade shows, regulatory (Part145), and industry events in Asia, Europe, the Middle East and Americas regions. We have also recently started attending the IATP event to strengthen our relationships with airlines and review our service offering to ensure we maintain a competitive suite of services across IFE, cabin, connectivity,

material management and ground handling programs. As airlines continue to add capacity and routes, we are there to support their growth and ensure the highest possible uptime and passenger experience possible. Airlines buy MRO services from companies that deliver the highest performance, and we have spent the last 20 years creating an organisation that delivers on that goal.”

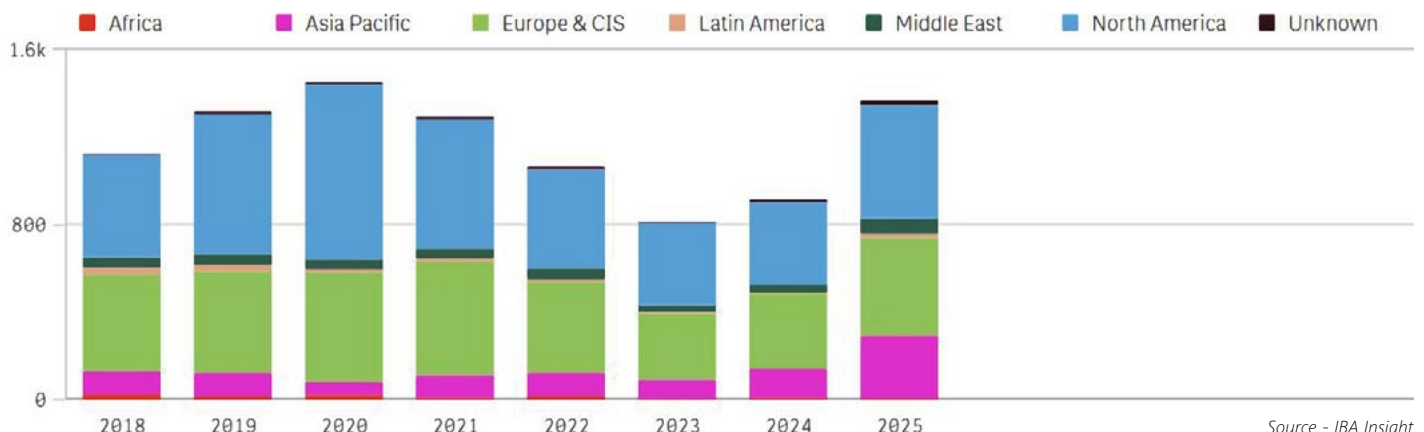
Tulika Dayal provides a comprehensive overview of where she feels there will be the greatest MRO growth during 2025, pointing out that key factors driving that growth will include fleet expansions, aging fleets, technical advancements and government initiatives. In the Middle East she highlights the UAE and especially Dubai as having positioned itself as a potential aviation hub. China is also on her radar, as she says that: “As one of the fastest-growing economies in the world, China is experiencing a surge in air traffic demand alongside an expanding fleet.” India, Brazil and Africa are also on her list.

Denis Brailsford at IBA is another who feels that the Middle East will see good, continued growth, As he explains: “The growth in the MRO sector is going to continue in the Middle East, with new aircraft types entering such as the 787 with Riyadh Air and the A350 with Emirates. It is common for state-backed operators

to develop MRO capabilities especially as they attempt to diversify GDP away from oil production. Such initiatives such as the Saudi Public Investment Fund (PIF) Vision 2030 bring great opportunities for MRO growth in the region.

According to IBA Insight, the leading aviation intelligence platform, there is a large increase in potential lease ends in the Asia Pacific region, increasing MRO demand there. While it is expected a number of leases will be extended because of the well-documented delays in new aircraft deliveries and new engine reliability, it is considered there will be increased demand for lease-end support in both aircraft maintenance and engine MROs. This increased demand has been predicted by the industry and major investment has been made in new facilities like Safran’s new CFM LEAP overhaul facility in Hyderabad which is set to open in 2025.”

**Lease End Dates by Operator Region & No. of Aircraft**



Source - IBA Insight



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# Should MROs Outsource Expendable and Consumable Materials?

By David Dundas

One of the greatest challenges facing any MRO operator is inventory management. In terms of size and scale, few maintenance sectors of any business will ever have the need to maintain an inventory with so many parts and, more to the point, so many expensive parts. In the aerospace industry where commercial aircraft downtime is to be avoided at all costs, those carriers who turn to MROs to help them keep their planes in the sky are passing a baton with which comes enormous responsibility. MRO contracts are not just worth a lot of money, but they guarantee jobs for many hundreds of employees, and if an MRO business fails to meet its client's expectations, the contract can either be cancelled or not renewed. Those expectations come not only in the form of 100% reliability, but also cost effectiveness. In other words, to be awarded or retain an MRO contract, not only must you be able to provide the services required, but you also have to do so at an extremely attractive price.

The result for MROs is finding that perfect balance where the service offered

is pretty well guaranteed 100% reliable, yet the price is also extremely attractive. Consequently, MROs are always looking for ways not only to improve technical operations, but also reduce operating costs. Consequently, inventory has always been in the crosshairs, and today how that inventory is managed and provided can be key to the survival of any MRO. So, the burning question is: Is it better to maintain your own inventory in house, or outsource parts of it, especially lower-cost, high turnover expendable and consumable materials? To get the answer, we turned to three leading MRO providers to get their slant on this challenging topic.

## Why outsourcing expendables and consumables is becoming a trend in the MRO industry

The outsourcing of expendables and consumables in the MRO industry would appear to be gaining traction through its ability to streamline operations and reduce costs. Airlines and MRO providers are under increasing and constant pressure to enhance efficiency and focus

on core competencies. By partnering with specialized suppliers, they can offload the complexity of managing a vast inventory of low-cost, high-turnover items while benefitting from the expertise and infrastructure of dedicated providers. This approach aligns seems to align well with the industry's shift toward lean inventory practices and just-in-time supply models, which outsourcing can support effectively. According to Daniel Tautges, Sr. Vice President Sales and Marketing, Component Control: "Component Control is seeing a trend with our consumable and expendable distributors in managing lower cost high turn-over materials in a just-in-time basis, leveraging remote inventory management. Remote inventory management allows our Distribution customers to forward stock materials at their customers facilities in a 2-bin, Kanban, process that allows end-users to pull stock as needed but not incur the cost of warehousing the materials. The distributor supplier is responsible for maintaining the stock and invoices their customer when the material is used. This process frees up cash flow, ensures material supply, and effectively outsources the



Erkki Brakmann, CEO and Co-founder SkySelect, Inc.

material management of expendables and consumables. Quantum ERP facilitates the entire outsourcing process, leveraging the Quantum RMI module, invoicing, and integrated accounting.

At SkySelect, Inc., company CEO and Co-founder Erkki Brakmann sees the situation very clearly when he points out that "Airlines and MROs are not in the inventory management business but in the hospitality/customer service business." He then adds that "... it makes sense to focus on the core to be the best at it. Expendables and consumables can make up 90-95% of the total purchasing volume but only 25-50% of the spend. So far, the only way to deal with it has been by employing people, and then the question is, where do we employ these people? Doing it in-house requires working capital, it can be cheaper, and you have better control, but it comes with a lot of overhead and processes to manage. Outsourcing is usually more expensive, but it leaves you free to focus on the core business." He then goes on to point out that with the development of AI, this introduces a third option. "AI can intelligently automate the procurement of expendables and consumables to a large degree. This not only keeps the process in-house and under control and reduces overhead but also unlocks a strong savings potential by finding better opportunities and reducing the need for working capital," he says.

Outsourcing expendables and consumables has become a strategic move in the MRO industry as it offers both practical and long-term advantages. Kerry Obiala, Vice President, OEM Distribution, STS Component Solutions

**“ Expendables and consumables can make up 90-95% of the total purchasing volume but only 25-50% of the spend. ”**

*Erkki Brakmann, CEO and Co-founder SkySelect, Inc.*

explains further: "At STS Component Solutions, we've found that partnering with specialised suppliers helps reduce costs, streamlines procurement processes, and improves inventory management through just-in-time systems. This allows us to focus on delivering exceptional service while leveraging our partners' expertise, robust supply chains, and scalability. As the industry evolves, outsourcing keeps us agile, efficient, and well-positioned to navigate a competitive and growing market."

### How does outsourcing impact cost management for airlines and MRO providers?

Here the answer is not the same for everyone, but at the end of the day, choices made are primarily cost driven. As Erkki Brakmann succinctly puts it: "By outsourcing, companies can minimise expenses related to storing and managing extensive inventories, such as tying up valuable working capital. Specialised vendors, with their economies of scale and established supplier relationships, can often secure better pricing, leveraging their proprietary technologies, such as AI, and passing these savings on to their clients." Outsourcing expendables and consumables now appears to be an effective way for airlines and MRO providers to manage costs, optimise inventory, and enhance cash flow. This is backed up by Kerry Obiala who tells us that: "At STS Component Solutions, we've seen how this approach boosts efficiency, strengthens supply chain stability, and taps into supplier expertise. By offering long-term financial predictability and flexibility, outsourcing helps us support our partners while ensuring the industry remains efficient and forward-looking."

In general terms, outsourcing significantly improves cost management by reducing the need for airlines and MRO providers to invest in large storage facilities, logistics, and procurement teams. Suppliers are often able to offer economies of scale which results in

reduced unit costs for consumables and expendables. Daniel Tautges fills in the picture in more detail. "... predictable pricing models such as fixed-fee agreements or consumption-based billing allow MROs to plan budgets more effectively. These arrangements minimise inventory holding costs and reduce the risk of obsolescence, particularly for low-usage items. Component Control's Quantum ERP provides the digital infrastructure to manage supplier to end-user material management. Typically, in consumables, fixed-price agreements are negotiated and tracked via Quantum's Price-line capability. Further, as stock is pulled from the end-user Quantum automatically reports the consumption and demand to Quantum's advanced purchasing capability to trigger economic reordering against the entire demand footprint. This provides the supplier with a view of all of their customers demand so that they can plan and buy in high quantities at lower prices, with committed supply. MROs and airlines get the benefit of the suppliers efficiencies."

### How does outsourcing improve or complicate inventory management and supply chain efficiency?

Outsourcing expendables and consumables clearly presents risks such as supply chain disruptions, quality concerns, cost fluctuations, and reduced flexibility. However, these challenges can be easily overcome, as Kerry Obiala explains: "To mitigate these challenges, STS Component Solutions prioritises strong contractual agreements, rigorous supplier evaluations, and continuous oversight. This proactive approach ensures we deliver reliable, cost-effective solutions while minimising risks for our partners." Of course, outsourcing can improve inventory management by delegating replenishment and logistics to experienced third parties, which helps ensure parts are available when needed. This reduces stockouts and the associated operational delays. However, Daniel Tautges



**“... if not managed correctly, outsourcing can introduce complexities such as dependency on supplier performance, extended lead times, or integration challenges with existing inventory management systems.”**

*Daniel Tautges, Sr. Vice President Sales and Marketing,  
Component Control*

advises that caution should be exercised here, suggesting that: “... if not managed correctly, outsourcing can introduce complexities such as dependency on supplier performance, extended lead times, or integration challenges with existing inventory management systems. Companies using robust software solutions, such as Quantum Control’s aviation ERP system, can effectively mitigate these challenges by ensuring real-time data exchange, automated workflows, and comprehensive supply chain visibility.”

Erkki Brakmann sees that not only can outsourcing improve inventory management, but it can also result in greater operational efficiency and reduced overheads. He further explains: “Outsourcing eliminates the need for internal teams to handle sourcing and procurement, which reduces administrative burdens and allows teams to focus on maintaining equipment, optimizing workflows, and focusing on strategic partnerships. Reliable suppliers ensure that consumables and expendables are readily available, reducing downtime caused by stockouts. Outsourcing partners often maintain stocks of frequently used items, enabling faster replenishment and minimizing lead times.”

### **What are the potential risks associated with outsourcing expendables and consumables?**

Here, all three of our contributors would seem to share the same concerns. For Daniel Tautges, he feels that the primary risks include: “... supply chain disruptions, quality control issues, and potential loss of direct oversight. Dependence on external suppliers can leave MROs vulnerable to delays caused by supplier shortages, geopolitical factors, or natural disasters. There’s also the risk of inconsistent quality if rigorous standards and inspections aren’t upheld. Finally, data sharing and integration gaps may result

in inefficiencies or misaligned inventory levels if communication protocols are not clearly defined.” While Erkki Brakmann is quick to identify higher cost as a risk, he also adds that: “the main risk of being dependent on one party is losing the market touch and supply chain insights. For example, if one wants to optimise the planning, purchasing, or understanding of the market price of parts, a lack of data can make this very difficult.” He also adds a note of caution. “If, at one point, the airline or MRO would like to insource the process again, they’d need to start from scratch.”

Kerry Obiala also points out that expendables and consumables can come with risks like supply disruptions, quality concerns, rising costs, and reduced flexibility. Rather than leaving it there though, she advises that: “To address these challenges, STS Component Solutions focuses on creating strong contracts, carefully evaluating our suppliers, and maintaining effective oversight throughout the process. This proactive approach ensures we deliver reliable, cost-effective solutions while minimizing potential issues for our partners.”

### **How do MRO companies mitigate risks such as supply chain disruptions or quality control issues?**

At SkySelect, Inc., Erkki Brakmann adopts a very positive approach to mitigating such risks. As he explains: “Partnering with external firms often comes with warranties, certifications, and compliance guarantees that help reduce the risks associated with low-quality materials. These partners also take on the responsibility of managing stockouts and navigating complex regulatory changes, which eases the administrative burden on procurement teams. Additionally, many outsourcing partners offer data-driven insights through AI and algorithms,



Daniel Tautges, Sr. Vice President Sales and Marketing,  
Component Control

enabling companies to make informed decisions, optimise resource consumption, and minimise waste.” Daniel Tautges at Component Control elaborates further on risk mitigation, advising that: “... MRO companies prioritise working with trusted, vetted suppliers with a proven track record of reliability and quality. Many utilise comprehensive ERP systems, like Quantum Control, to monitor supplier performance, enforce compliance with quality standards, and manage contingency planning. Dual-sourcing strategies and maintaining safety stock for critical items are also common practices. Additionally, clear contractual agreements and robust data-sharing protocols help address potential challenges proactively.”

Kerry Obiala sums it up in a nutshell – “At STS Component Solutions, we address risks through close collaboration with our partners. By fostering strong relationships, maintaining a strict focus on quality, and utilizing advanced tracking technology, we ensure seamless operations. Additionally, we implement robust contingency plans to provide the reliability and flexibility our customers need to thrive in a fast-changing industry.”

### **What pricing models do suppliers typically offer, and how do they influence MRO decisions?**

Clearly there cannot be a ‘one price fits all’ model here, so once again pricing models vary considerably. According to Daniel Tautges: “Common pricing models include subscription-based services,

consumption-based billing, and volume discount agreements. Suppliers may also offer vendor-managed inventory (VMI) programs, where the supplier retains ownership of inventory until it's consumed. These models influence MRO decisions by providing flexibility and predictability in costs, enabling providers to align procurement strategies with operational demands. The choice of model often depends on the scale of operations and the specific requirements of the airline or MRO provider." Kerry Obiala points out that suppliers often offer diverse pricing models to meet various needs, including fixed pricing for budget predictability, cost-plus for transparency, and volume discounts for reduced unit costs. She then goes on to explain that: "At STS Component Solutions, we work closely with our customers to determine the best pricing model that balances cost, flexibility, and risk, ensuring they achieve maximum value while maintaining agility in a dynamic market."

### What role does data sharing between MROs and suppliers play in ensuring seamless operations?

Here Erkki Brakmann looks to a strong collaborative arrangement between the MRO and its suppliers in order to maximise the potential of advanced analytics to enhance inventory management. As he explains: "By sharing inventory data, organisations can achieve greater resource utilisation and forecasting accuracy. Additional valuable data-driven insights, such as market trends, supplier performance, and inventory



Kerry Obiala, Vice President, OEM Distribution, STS Component Solutions

optimisation opportunities, can be obtained, empowering organisations to make more informed decisions. These insights also provide strong support for contract negotiations and identify other opportunities, giving your business a competitive edge and instilling confidence in your dealings."

Kerry Obiala is very much of the same opinion when it comes to collaboration and data sharing. She is very clear that: "Data sharing between suppliers and MROs is vital for operational efficiency. At STS Component Solutions, we use shared data to enhance demand forecasting, optimize procurement processes, and ensure consistent quality compliance. This collaborative approach enables us to deliver superior results for our customers while driving efficiency across the supply chain." Daniel Tautges is also adamant that data sharing is critical to the success of outsourcing partnerships. As he puts it: "It enables real-time visibility into inventory levels, consumption patterns, and supplier performance, ensuring seamless coordination and timely replenishment. ERP systems like Quantum Control provide the foundation for this collaboration by offering integrated platforms where MROs and suppliers can exchange data securely and efficiently. Enhanced data sharing reduces errors, prevents delays, and fosters a more responsive supply chain."

### How is the outsourcing of expendables and consumables expected to evolve in the next decade?

Here, Daniel Tautges believes that over the next decade, the outsourcing of expendables and consumables is anticipated to become increasingly sophisticated, driven by advancements in artificial intelligence (AI) and data analytics. He explains in further detail that AI-powered tools: "will play a pivotal role in this evolution by enabling more accurate and dynamic pricing strategies. These tools analyse extensive datasets,

including market trends and customer behaviours, to provide precise pricing decisions that enhance profitability and efficiency. Additionally, the integration of AI in supply chain management will facilitate predictive analytics, allowing MRO providers to anticipate demand fluctuations and optimize inventory levels accordingly. This proactive approach will reduce stockouts and overstock situations, leading to more efficient operations. Furthermore, AI-driven insights will enable suppliers and MROs to collaborate more effectively, ensuring that the supply of expendables and consumables aligns seamlessly with maintenance schedules and operational needs. As the industry continues to embrace digital transformation, the adoption of AI and advanced analytics in outsourcing strategies will be crucial for maintaining competitiveness and meeting the evolving demands of the aviation sector."

Erkki Brakmann also points to the influence of AI on the evolution of outsourcing. He feels that: "As organisations continue to outsource various operations to concentrate on business-critical functions, this trend is likely to extend into the procurement space, particularly regarding expendables and consumables. Specifically, technology, especially AI, will be leveraged to create leaner and more efficient processes and significantly reduce organizational overhead. This will also make organizations more agile and able to adapt to changing market conditions impacting the supply chain and air travel demand."

To end on a positive note, Kerry Obiala comments: "Looking ahead, we anticipate that outsourcing expendables and consumables will increasingly focus on automation, deeper collaboration, sustainability, and global expansion." She goes on to explain that she sees these advancements helping the MRO industry lower costs, improve operational efficiency, and reduce environmental impact—all while fostering innovation and staying competitive in a rapidly evolving market.

**“By fostering strong relationships, maintaining a strict focus on quality, and utilising advanced tracking technology, we ensure seamless operations.”**

*Kerry Obiala, Vice President, OEM Distribution, STS Component Solutions*



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# Ongoing Question

## Specialisation vs Multi-Skilled Aircraft Mechanics

By David Dundas

The people entrusted with this responsibility, aircraft mechanics, play a pivotal role in ensuring every flight meets strict operational standards. As the aviation industry evolves, the debate between specialisation and multi-skilled mechanics has become increasingly relevant. Each approach offers unique benefits and challenges, impacting efficiency, cost, training, and safety.

### The Role of Aircraft Mechanics

Aircraft mechanics are responsible for inspecting, repairing, and maintaining aircraft to ensure airworthiness. Their work spans various systems, including avionics, engines, hydraulics, and structural components. Traditionally, mechanics have either specialised in a particular system or adopted a broader, multi-skilled approach.

### Understanding Specialisation

Specialisation involves focusing on a specific area of aircraft maintenance, such as avionics, engines, or airframe systems.

Specialists undergo rigorous training in their chosen discipline, gaining deep expertise and familiarity with specific systems.

### Benefits of Specialisation

**Expertise and Precision:** Specialists develop advanced knowledge and skills, enabling them to diagnose and resolve complex issues with greater accuracy.

**Quality Assurance:** With a concentrated focus, specialists often achieve higher standards of maintenance and repair, reducing the likelihood of errors.

**Advanced Troubleshooting:** Specialists can efficiently address unique challenges in their domain, often providing solutions that generalists might overlook.

**Compliance with Regulations:** Regulatory bodies, such as the EASA and the FAA, often mandate specialised certifications for certain tasks, making specialists indispensable for these roles.

### Challenges of Specialisation

**Limited Flexibility:** Specialists are less

adaptable in situations requiring diverse skills, potentially leading to inefficiencies in smaller teams or remote locations.

**Higher Costs:** Specialised training and certification can be expensive, increasing costs for both mechanics and employers.

**Dependence on Team Collaboration:** Specialists rely heavily on other experts to address systems outside their expertise, necessitating strong teamwork.

### Embracing Multi-Skilled Mechanics

Multi-skilled mechanics, often referred to as generalists, are trained across various aircraft systems. They possess a broad understanding of maintenance procedures and can perform a wide range of tasks.

### Benefits of Multi-Skilled Mechanics

**Operational Flexibility:** Multi-skilled mechanics can adapt to diverse maintenance needs, making them valuable in dynamic or resource-constrained environments.

**Cost Efficiency:** Airlines and maintenance organisations can reduce staffing requirements by employing mechanics capable of handling multiple systems.

“With a concentrated focus, specialists often achieve higher standards of maintenance and repair, reducing the likelihood of errors.”



**Streamlined Maintenance:** Generalists can address various issues during a single inspection, reducing downtime and enhancing efficiency.

**Broader Career Opportunities:** Multi-skilled mechanics are well-positioned for roles requiring versatility, increasing their employability.

### Challenges of Multi-Skilled Mechanics

**Jack of All Trades:** While they possess broad knowledge, multi-skilled mechanics may lack the depth of expertise required for intricate or high-stakes repairs.

**Training Complexity:** Training programmes for generalists can be extensive and challenging, requiring mechanics to master multiple disciplines.

**Regulatory Limitations:** Certain maintenance tasks may require specialised certifications, limiting the scope of work generalists can legally perform.

### Industry Trends and Technological Impact

The aviation industry is undergoing significant changes, driven by advancements in technology, evolving regulations, and shifting operational needs. These trends influence the demand for both specialisation and multi-skilled mechanics:

**Technological Advancements:** Modern aircraft feature highly integrated systems that blur the lines between traditional specialisations. Multi-skilled mechanics with cross-disciplinary knowledge are increasingly valuable in maintaining these systems.

**Data-Driven Maintenance:** Predictive analytics and digital twins enable proactive maintenance, requiring mechanics to understand data analysis alongside traditional skills. This trend favours multi-skilled professionals.

**Regulatory Changes:** Aviation authorities continue to refine certification requirements, influencing the balance between specialists and generalists. EASA's and FAA's evolving frameworks often reflect the need for a mix of expertise.

**Labour Market Dynamics:** A global shortage of skilled aviation professionals underscores the need for multi-skilled mechanics who can fill diverse roles efficiently.



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### Striking the Balance

For airlines and maintenance organisations, the choice between specialisation and multi-skilled mechanics often depends on their specific operational needs:

**Large Operations:** Major airlines with extensive fleets may benefit from specialists who can address complex issues with precision, supported by a collaborative team environment.

**Smaller Operators:** Regional carriers or remote maintenance facilities often prefer multi-skilled mechanics capable of handling a wide range of tasks independently.

**Hybrid Approaches:** Some organisations adopt a blended model, employing both specialists and generalists to achieve operational flexibility and depth of expertise.

### Training and Career Development

For mechanics, career development often involves balancing the benefits of specialisation with the versatility of multi-skilling. Training programmes should:

**Incorporate Core Competencies:** All mechanics should receive foundational

training in safety, compliance, and essential maintenance procedures.

**Provide Specialisation Opportunities:** Advanced certifications allow mechanics to deepen their expertise in areas like avionics, engines, or composites.

**Promote Continuous Learning:** As technology evolves, ongoing education ensures mechanics remain proficient in emerging systems and methodologies.

**Encourage Cross-Disciplinary Skills:** Training in multiple domains enhances adaptability and prepares mechanics for a broader range of challenges.

### Conclusion

The debate between specialisation and multi-skilled mechanics reflects the complexity of modern aviation maintenance. Both approaches have merits, and their effectiveness depends on context and organisational goals. While specialists ensure precision and compliance in high-stakes scenarios, multi-skilled mechanics offer the flexibility needed in dynamic environments. By fostering collaboration and embracing hybrid models, the aviation industry can harness the strengths of both approaches to enhance safety, efficiency, and resilience in an ever-evolving landscape.

“Airlines and maintenance organisations can reduce staffing requirements by employing mechanics capable of handling multiple systems.”

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# Certification and Regulation

## Understanding EASA and FAA Maintenance Standards

By David Dundas

The European Union Aviation Safety Agency (EASA) and the Federal Aviation Administration (FAA) are two leading regulatory bodies that oversee aircraft maintenance practices in their respective jurisdictions. While they share a common goal of enhancing safety and reliability, their approaches and frameworks differ in certain respects. Understanding these standards is essential for airlines, maintenance providers, and aviation professionals operating across borders.

### EASA Maintenance Standards

EASA, based in Cologne, Germany, oversees aviation safety across the European Union and several other partner countries. Its maintenance regulations are outlined in the European Aviation Safety Agency Part-M and Part-145 frameworks.

Part-M: This section governs continuing airworthiness, including the responsibilities of owners and operators to ensure proper upkeep of their aircraft. It mandates detailed records of maintenance, inspections, and any modifications or repairs.

Part-145: This regulation addresses maintenance organisations, defining the requirements for certification, personnel qualifications, facilities, tools, and documentation. EASA Part-145 certified organisations can perform maintenance on aircraft registered in EASA member states.

EASA maintenance standards emphasise harmonisation across member states, ensuring consistency and mutual recognition of certifications. It also encourages innovation, integrating modern technologies like predictive maintenance into its frameworks.

### FAA Maintenance Standards

The FAA, headquartered in Washington,

“While EASA and FAA certifications are highly regarded globally, they are not automatically interchangeable.”

D.C., governs aviation safety in the United States. Maintenance practices under the FAA are regulated primarily by Title 14 of the Code of Federal Regulations (CFR), specifically Parts 43 and 145.

Part 43: This part outlines the performance rules for maintenance, preventive maintenance, rebuilding, and alterations. It specifies who can perform maintenance and the standards they must follow.

Part 145: Similar to EASA's Part-145, this regulation governs repair stations. It details certification requirements, personnel qualifications, and operational procedures for organisations maintaining aircraft registered in the United States.

The FAA places significant emphasis on compliance audits and inspections to maintain high safety standards. Its approach is often described as prescriptive, focusing on detailed procedural adherence.

### Key Differences Between EASA and FAA Standards

Scope and Coverage: EASA regulations harmonise maintenance standards across multiple countries, while the FAA's jurisdiction is limited to the United States. This difference means EASA's standards must account for varying national requirements, fostering collaboration among member states.

Regulatory Philosophy: EASA is seen as more flexible and adaptable, particularly in integrating new technologies. The FAA, by contrast, is known for its detailed and prescriptive regulations, ensuring

consistency but sometimes limiting rapid adaptation.

Certification Recognition: While EASA and FAA certifications are highly regarded globally, they are not automatically interchangeable. Maintenance providers often pursue dual certifications to serve a broader client base.

### Global Collaboration

Despite their differences, the EASA and the FAA collaborate extensively to align their standards wherever possible. Bilateral agreements, such as the EU-U.S. Safety Agreement, facilitate mutual recognition of certifications and streamline maintenance operations for aircraft flying between the regions.

### Challenges and Opportunities

Navigating EASA and FAA maintenance standards can be challenging for organisations operating globally. Compliance with both sets of regulations often requires dual certifications, additional training, and robust quality assurance systems. However, these challenges also present opportunities to standardise practices, improve safety, and leverage advanced maintenance technologies.

### Conclusion

EASA and FAA maintenance standards are cornerstones of global aviation safety. While their frameworks differ in approach and scope, their shared commitment to safety underscores their importance in the aviation industry. For airlines and maintenance providers, understanding and adhering to these standards is not just a regulatory necessity but also a foundation for operational excellence and passenger trust.

“Navigating EASA and FAA maintenance standards can be challenging for organisations operating globally.”



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# Unavoidable but Manageable

## How Aircraft Maintenance Delays Impact Airline Operations and Passenger Experience

By David Dundas

Aircraft maintenance is a crucial aspect of aviation safety, ensuring that every flight meets stringent operational and regulatory standards. However, when maintenance schedules are delayed, the effects ripple across airline operations and passenger experience, leading to financial, logistical, and reputational challenges.

### Operational Impacts

Delays in maintenance can disrupt an airline's meticulously planned schedule. Aircraft are often scheduled tightly to maximise utilisation, and any unplanned downtime due to delayed maintenance can result in a cascade of disruptions. Flights may be cancelled, delayed, or rescheduled, affecting crew assignments and airport logistics. In extreme cases, this can result in grounded fleets, leading to significant operational inefficiencies.

Furthermore, delayed maintenance increases the risk of operational incidents, such as technical faults during flights. These events can result in unscheduled landings or cancellations, which are not only costly but also detrimental to safety and regulatory compliance. Airlines are under constant scrutiny from aviation authorities, and maintenance delays can attract

penalties or damage compliance records.

### Financial Consequences

The financial implications of maintenance delays are considerable. Airlines incur direct costs such as compensation to passengers under regulations like EU261 or equivalent rules in other regions. Indirect costs include lost revenue from grounded aircraft and reduced future bookings due to diminished passenger trust.

Additionally, maintenance delays often force airlines to lease replacement aircraft at short notice. This comes at a premium cost and disrupts fleet standardisation efforts, increasing fuel, training, and operational expenses. Long-term reputational damage can also hurt profitability, as passengers increasingly value reliability when choosing carriers.

### Passenger Experience

Passengers are among the most

visibly affected by maintenance delays. Cancellations and long delays disrupt travel plans, often leading to missed connections, accommodation challenges, or lost time. While most airlines strive to provide updates and assistance, such disruptions can leave passengers feeling frustrated and dissatisfied, particularly if communication is poor or compensation is insufficient.

Repeated delays or cancellations can erode passenger loyalty. Surveys consistently show that reliability is one of the most critical factors influencing passengers' airline choices. Negative experiences may prompt travellers to opt for competing airlines, especially in highly competitive markets.

### Mitigating the Impact

To minimise the effects of maintenance delays, airlines are increasingly adopting predictive maintenance technologies. By leveraging data analytics and sensors, carriers can anticipate and address potential issues before they escalate, thereby reducing unplanned downtime. Collaboration with maintenance, repair, and overhaul (MRO) providers to streamline processes also helps ensure faster turnaround times.

Communication is another key element. Proactively informing passengers about delays, explaining their causes, and offering timely compensation or rebooking options can significantly mitigate dissatisfaction. Investing in robust customer service training and digital tools can help airlines better manage disruptions.

### Conclusion

Aircraft maintenance delays pose a dual challenge for airlines: balancing the need for safety with operational efficiency and customer satisfaction. While maintenance delays cannot always be avoided, proactive strategies and clear communication can significantly reduce their impact. In an industry where trust and reliability are paramount, addressing these challenges effectively is essential to maintaining competitive advantage and passenger loyalty.

“Such disruptions can leave passengers feeling frustrated and dissatisfied, particularly if communication is poor.”

# PEOPLE

## »»»» → *on the move*



Michael Whitaker

In only his second year of a planned five-year term, the Chief of the Federal Aviation Administration (FAA) **Michael Whitaker** has announced he will be stepping down from his role on January 20, 2025, the day of the inauguration of Donald Trump as President of the United States of America. Whitaker has been heavily involved with overseeing the FAA's response to safety issues at Boeing following a door panel which was

missing four key bolts blew off on an Alaska Airlines 737 MAX 9 jet back in January this year. The FAA has also confirmed that Deputy Administrator **Katie Thomson** will step down on January 10, meaning that Mark House, the agency's assistant administrator for finance and management, will become the agency's senior acting official during the presidential transition.



Florian van Vugt

Specialist regional aircraft lessor TrueNoord has appointed aviation finance expert **Florian van Vugt** to the newly created role of Corporate Finance Manager. Based in TrueNoord's Amsterdam office, Van Vugt will oversee debt structuring and refinancing activities while spearheading initiatives to diversify the company's funding base. His responsibilities also include fostering long-term relationships

with financial stakeholders such as banks, institutional investors, capital market participants, and rating agencies. Van Vugt highlighted TrueNoord's innovative vision and ambitious expansion plans as key factors in his decision to join the company. "Even before joining the team, TrueNoord made a strong impression on me as a dynamic and progressive business. Its fleet of turboprops and regional jets are essential for maintaining connectivity on thinner routes to remote communities or in challenging geographies. These aircraft also play a pivotal role in the broader network strategies of several long-haul carriers, making them indispensable to the aviation industry." With extensive experience in aviation finance and strategy consulting across Europe and Asia, Van Vugt brings a deep understanding of the sector's financial and strategic dynamics. He expressed enthusiasm for his new role, stating, "I'm pleased to be joining TrueNoord at such a monumental time, with the team recently having acquired its 100th aircraft. I look

forward to working closely with my colleagues to evaluate debt terms in relation to acquisitions, sales, and lease transactions, bringing a dual focus on financial rigour and strategic foresight to the team." This appointment reflects TrueNoord's commitment to strengthening its financial capabilities as it continues to grow its fleet and expand its presence in the regional aviation market.



James Meyler (l) and John O'Donoghue (r)

ORIX Corporation has announced significant management changes and organisational reforms following its recent Board Meeting, set to take effect on January 1, 2025. Among the key changes is the promotion of **James Meyler** to Group Executive, ORIX Corporation, Japan. This new role will be in addition to his current position as Chief Executive Officer of the ORIX Aviation Group. Meyler, who has over 25 years of experience in the aviation sector, was appointed CEO of ORIX Aviation Systems (ORIX Aviation) in 2018 and has served as a Board Director of Avolon since February 2022. ORIX Aviation also announced that **John O'Donoghue** will take up the role of General Counsel on April 1, 2025. Commenting on the appointment, Meyler said: "We are delighted to welcome John to his new role as General Counsel, ORIX Aviation. John has been a key member of our management team since he joined our company, and I am looking forward to working closely with him over the coming months and years ahead". O'Donoghue has held various positions within ORIX Aviation's Legal Department since joining the company in 2018. He was promoted to Assistant General Counsel in July 2022 and previously worked at Arthur Cox Solicitors. A graduate of University College Dublin, O'Donoghue brings extensive legal expertise to his new role. Additionally, ORIX Aviation announced the promotion of Alexander Losy to Assistant General Counsel. These changes signal ORIX Corporation's continued focus on strengthening its leadership team and organisational capabilities as it moves into 2025.