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MRO

Management



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The strategic initiatives being used to
solve component supply chain challenges

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Increased shop visits, but
supply chain issues remain

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WELCOME...

With growing global fleets, the welcome return of aircraft post-pandemic and the high utilisation rates of both shiny new and trusty older aircraft, demand for engine MRO services has been steadily increasing over recent years.

But the name of the game now is cost efficiency, quick turnaround times (TATs), stringent regulatory compliance and sustainability, all reflecting the ever-evolving needs of the aviation industry.

It's not all smooth sailing, though. The engine MRO business is grappling with some serious supply chain issues, particularly around the availability and timely delivery of parts and components, as we find out in our engine MRO feature on page 44.

Delays in getting new parts, extended lead times for procurement and increased shipping costs have thrown a wrench into the works, disrupting maintenance schedules and causing delays in shop visits. These hiccups are a hangover from the pandemic, and many providers are still trying to bounce back.

On top of that, the skyrocketing costs and shortages of raw materials such as metals and composites used in engine parts are making components both scarce and pricey. And let's not forget the rising costs of labour and the need to comply with regulatory requirements – these are putting the squeeze on MRO providers trying to keep their heads above water. Plus, there's a shortage of skilled technicians and engineers,



Coordenkoff/Adobe Stock

which means significant investment in training and development is a must.

One of the biggest headaches for the MRO business, particularly the engine sector, is the lack of qualified maintenance professionals. Forecasts for the aviation sector are painting a challenging picture; over the next decade a whopping 30 per cent of current aircraft maintenance technicians are expected to retire, leaving a shortfall of between 12,000 and 18,000 technicians.

So, while the engine MRO business is buzzing with activity, it's also navigating some turbulence. But if the right strategies are implemented and there is a strong focus on training the next generation of technicians, there's every reason to be optimistic about sustained growth and future opportunities.

Craig Waters

Editor

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Hangar Talk.

News from across the industry



DIGITALISATION

AIR TAHITI NUI CHOOSES GAMIT'S DIGITAL ARCHIVE RECORDS SOLUTION

Air Tahiti Nui has awarded Gamit Ltd a 10-year contract for its Roam (Records Online Asset Management) digital archive records solution.

Air Tahiti Nui will use Roam to modernise operations and efficiently manage fleet technical documentation and monitor and manage airworthiness compliance.

Gamit says Roam will help the airline optimise manpower and support continuous improvement objectives.

Air Tahiti Nui's Yannick Mermet said: "We were looking for a user-friendly and efficient solution for our transition from paper to digital for our maintenance records archives and Roam proved to be the solution best suited to our needs."

“We were looking for a user-friendly and efficient solution

Gamit's Chris Leese Wood said: "Air Tahiti Nui's commitments to sustainability and its forward-thinking approach to new technologies make it a dream customer for Gamit and its product Roam."



AIRCRAFT PAINTING

MAAS Aviation completes its 1,000th paint job for Airbus in Hamburg

MAAS Aviation has celebrated the 1,000th aircraft (an A321 for Air Asia, pictured above) to be painted at its custom-built Airbus Finkenwerder Final Assembly Line (FAL) in Hamburg, Germany.

MAAS Aviation's partnership with Airbus in Hamburg, which dates back to 2011, has led to the employment of more than 100 people currently working at the facility, which paints exclusively for the aircraft OEM.

MAAS Aviation's Jan van Engelen said: "I am constantly amazed by the skill and dexterity of our painting technicians – from complex multi-coloured liveries, to achieving the smoothest gleaming white – they are renowned for being the best in the industry.

"Our team in Hamburg continues to set world-class standards in aircraft painting and is a great example of what can be achieved by working together."

“

I am constantly amazed by the skill and dexterity of our painting technicians



FACILITIES

Caerdav to open a third line of maintenance at St Athan base

Caerdav, an independent UK MRO, is to open a third line of maintenance at its St Athan base alongside expanding its in-house capabilities.

The firm says the new third line will support its continued growth of the business and ensure it can meet the demands of its ever-expanding client list.

Following extensive remodelling of one of the company's two hangars to house an additional Boeing 737 or Airbus A320, Caerdav claims the new third line will increase its maintenance capacity by 50 per cent.

Set to officially open later in 2024, Caerdav says slots are already being booking and the company is currently recruiting around 50 new technical staff to support the additional work.



BRIEFS

- Regional aircraft lessor TrueNoord has sold a 28-year-old ATR 72-212F (pictured above) to trading and distribution company, NTE Aviation. The company will tear down the aircraft to salvage the engines and spare parts for reuse in the USM market.

- Storm Aviation, part of FL Technics, has moved its base maintenance operations from London-Stansted to Glasgow-Prestwick Airport in a strategic move it says will improve efficiency.

- ADE Cambodia has received AMO certification from the Cambodia State Secretariat of Civil Aviation (SSCA) allowing it to provide MRO services to AirAsia Cambodia and other airlines operating at Cambodia's major airports.

- Wingform and MRO Insider have announced a partnership aimed at enhancing the efficiency and convenience of aircraft detailing and pre-purchase inspection processes for brokers, owners and operators.

- Wheel and brake MRO provider World Aero has celebrated its 25th anniversary. Founder Phil Randell said "Our success and longevity are a testament to our amazing team's commitment to safety, quality workmanship and superior customer service."

IN NUMBERS

550

There are currently over 550 engine experts employed at MTU Maintenance Canada

50%

Caerdav's new third line will increase its maintenance capacity by 50 per cent

346

The number of easyJet A320s to be equipped with a new e-techlog system



Airbus SAS 2022

COMPONENT SUPPORT

AFI KLM E&M TO PROVIDE A220 COMPONENT SUPPORT FOR CROATIA AIRLINES

Air France Industries KLM Engineering & Maintenance (AFI KLM E&M) has announced it will provide comprehensive component support for Croatia Airlines' Airbus A220 fleet.

The national air carrier of Croatia will receive a range of component support services, including repairs, access to a dedicated pool of spares and logistics support.

Croatia Airlines' Tomislav Imprić said: "This partnership ensures that we can maintain the highest standards of safety and efficiency, delivering a superior travel

experience to our passengers."

AFI KLM E&M's Marcel Kuijn said: "Our complete component support services are designed to meet the specific needs of new-generation aircraft, and we are committed to providing Croatia Airlines with the highest level of operational excellence and reliability."

“

We are committed to providing Croatia Airlines with the highest level of operational excellence



TRAINING & DEVELOPMENT

CAE launches Gulfstream-dedicated training centre for maintenance technicians

> CAE has inaugurated its first Gulfstream-dedicated aviation training centre which it claims will be key to training more pilots and maintenance technicians over the coming decades.

The new centre has a capacity for up to four full-flight simulators (FFS) and is located near Gulfstream Aerospace Corp headquarters in Savannah, Georgia, US.

The first simulator, a Gulfstream G550 FFS, began operating in January, and the second, a Gulfstream G280 FFS, will be ready for training in July.

The maintenance technician training programme, which will include state-of-the-art virtual reality, will be offered on Gulfstream G280, G650 and G500/G600 business jets.

“

The new centre has a capacity for up to four full-flight simulators and is located near Gulfstream Aerospace Corp headquarters



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“Our continued investment into innovative solutions means we are also taking another small but important step to reduce our environmental impact”

David Morgan, chief operating officer, easyJet



ENGINE MRO

MTU Maintenance Canada completes milestone shop visit

MTU Maintenance Canada has completed the 1,500th shop visit of its operational history, marking the occasion with the redelivery of a V2500-A5 engine operated by Spirit Airlines.

Founded in 1998, various commercial legacy engines as well as their military variations have visited the MRO location on the outskirts of Vancouver.

IAE's V2500 has become a centrepiece of MTU Maintenance Canada's service provisions, specifically the -A5 model, as well as its -E5 military variant, on which the location has worldwide exclusivity and works on behalf of the engine OEM.

MTU Maintenance Canada has inducted more than 300 shop visits since the V2500 programme's introduction in 2017.

There are currently over 550 engine experts employed at the Canadian facility, conducting more than 90 shop visits a year.



Lukas Wunderlich

LINE MAINTENANCE

Air Caraïbes and French Bee agree MRO deal with iGo Solutions

> iGo Solutions has signed a new contract for the line maintenance of Air Caraïbes and French Bee's A330 and A350 fleets for a period of seven years.

The contract includes servicing the aircraft on the tarmac, carrying out light maintenance activity and managing the logistics of the fleets.

Philippe Rochet from Sabena technics group said: “These aircraft will be supported by an experienced and fully committed team, with the guiding principles of flight safety, reliability and availability.”



photocodwin/Adobe Stock

DIGITALISATION

easyJet to roll out digital aircraft technical log

> Low-cost carrier easyJet is to replace traditional paper technical and cabin logs with a new e-techlog system across its 346 A320 aircraft during 2025.

The airline claims the transition will save over 300,000 sheets of paper from being printed and stored annually.

The e-techlog system from Ultramain will streamline maintenance reporting for flight and cabin crews and engineers, enhancing line maintenance productivity and reducing ground delays.

Bolstered by real-time flight and cabin crew reports, the upgrade is expected to decrease maintenance times, increase aircraft availability, and minimise passenger disruptions.

easyJet's David Morgan said: “Our continued investment into innovative solutions like the e-techlog means we'll not only find quicker solutions to defects but by cutting our paper use and the weight on the aircraft, we are also taking another small but important step to reduce our environmental impact too.”

“The transition will save over 300k sheets of paper being printed annually

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A large industrial jet engine is the central focus on the right side of the image, mounted on a complex assembly line. In the background, two workers in dark blue shirts are visible; one is seated at a workstation with multiple computer monitors, and the other is standing nearby. The factory environment is filled with yellow overhead cranes, various mechanical components, and structural beams. The lighting is bright and industrial.

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MRO ecosystem.

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AREN'T BORN.
THEY'RE
ENGINEERED.**



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Trend watch.

The latest partnerships, appointments
and innovations advancing the MRO sector



▼ AIRCRAFT DISASSEMBLY

Vallair is tearing down a 23-year-old A330 airframe for Danish spare components specialist Corax.

Previously operated by Hong Kong Airlines, Vallair claims that, when finished, over 1,500 parts will have been removed as used serviceable material.

Vallair's logistics team will process, list and crate all parts for assessment prior to repair and sale by Corax.



SWISS

▲ CUTTING EMISSIONS

Swiss International Air Lines has equipped its entire Boeing 777-300ER fleet with sharkskin technology from Lufthansa Technik and the chemical company BASF.

Applied to the fuselage and engine nacelles, the AeroShark surface film mimics the flow-optimising characteristics of shark skin, reducing drag during flight and contributing to lower fuel consumption and CO2 emissions.

▼ CERTIFICATION

Aero-Dienst has become a certified maintenance provider for the HTF7000 turbofan engine nacelle.

It now means Aero-Dienst can perform a variety of tasks such as the removal and return of thrust reversers and inlets; the inspection for nacelle defects or corrosion; the removal and replacement of defective parts; and the installation of Mapaero, an improved protective coating with anti-corrosion properties.



▲ PEOPLE NEWS

Duncan Aviation has announced that Russ Haugen (pictured) has been appointed manager of the company's MRO airframe Rapid Response Teams (RRTs).

Based out of Duncan Aviation's MRO facilities in Battle Creek, Michigan, Lincoln, Nebraska and Provo, Utah, the RRTs specialise in mobile response for airframe and engine aircraft on ground (AOG) events and inspection services.

▼ FACILITIES

Saudia Cargo is due to set up its new headquarters at Saudia Technik's MRO Village located at King Abdulaziz International Airport in Jeddah.

The five-year agreement has been signed for the cargo carrier to lease 6,000 sq m of space and is set to take effect before the end of September 2025.



Fred Pfister





MAINTENANCE PARTNERSHIPS

MRO provider Bird Aviation has extended its partnership with easyJet to cover a range of nose-to-tail checks.

The agreement will run for a further two years and follows a successful 2023-2024 base maintenance season between the two firms.

Bird Aviation says that the renewal reaffirms its dedication to delivering top-tier services.

FACILITIES

A ceremony has marked the start of construction on ST Engineering's third maintenance hangar at Pensacola International Airport.

The new 167,000 sq ft hangar will be equipped with two bays for servicing widebody aircraft and is expected to be fully operational in H2 of 2026.



City of Pensacola



Pratt&Whitney

PEOPLE NEWS

IAE International Aero Engines AG (IAE) has named Kelly Horan (pictured) as its new president, succeeding Kim Kinsley who has held the position since June 2003.

Earlier this year, Horan was named vice president of V2500 programmes at Pratt & Whitney; she will serve in both roles concurrently.



\$45 MILLION

FEAM Aero's 'Hangar 2.0' is a \$45 million investment for the company (from Q&A feature, p.48)



80 MILLION

Unical has over 80 million parts and supplies to thousands of customers globally (from Green Sky feature, p.50)



40,000

Ametek MRO services more than 40,000 aircraft components (from Components feature, p.28)



60

Revima has specialised in APU MRO for over 60 years (from Q&A feature, p.26)

PRECISION AVIATION: ADIRU MILESTONE AT APACS

APACS (Asia Pacific Aircraft Component Services) is proud to announce the acquisition of the Honeywell ADIRU licence, positioning the firm as the exclusive MRO shop providing ADIRU services in the Asia region. Managing director **Martin Urwyler** explains more



“
**BY OFFERING
MRO SERVICES IN
KUALA LUMPUR,
APACS PROVIDES
A STRATEGIC
ADVANTAGE,
ESPECIALLY TO
AIRLINES IN ASIA**
”

MARTIN URWYLER

managing director, APACS

APACS (formerly SR Technics Malaysia Sdn Bhd) is a leading MRO provider of aircraft components in Asia Pacific.

A joint venture between SIA Engineering Company and SR Technics Switzerland, we combine the technical expertise and high-quality standards of two of the world's leading MRO companies.

LEADING ASIA-PACIFIC MRO PROVIDER

With a vision to be the component MRO provider of choice for the region's airlines and aerospace companies, we are committed to providing exceptional services that deliver economic and experiential value for our customers.

Leveraging a deep understanding of customer needs acquired from serving one of the world's largest fleet solution providers, we offer specialised component repairs and customised solutions, ensuring cost-effectiveness and reliability.

Renowned for exceeding customer expectations, we consistently deliver high-quality services with short turnaround times and competitive pricing.

As the air transport and logistics sectors in Asia Pacific continue to expand, we stand ready to meet the evolving needs of regional customers and to maintain APACS' reputation as a trusted MRO partner, ensuring smooth aircraft operations and industry-leading support.

UNLOCKING FLIGHT PRECISION

Effective aircraft functionality relies on meticulous servicing and maintenance to prevent operational challenges jeopardising performance and safety.

The absence of proper services can lead to mechanical issues and compromised flight operations.

Every component requires regular attention to uphold operational integrity. Among these, the Air Data Inertial Reference Unit (ADIRU) stands as a cornerstone of precision within the aircraft system.

ADIRU: A GAME-CHANGER

The ADIRU system within aircraft provides essential flight information to various systems such as autopilot, flight controls and landing gears. It consists of components such as the Pre-Defined



Output System (PDOS), air data modules and sensors that calculate air data and inertial reference information, including speed, altitude and navigation data.

Technicians and pilots interact with this system through different units for data input and monitoring. The ADIRU's accurate data is essential for safe and efficient flight operations.

MRO organisations such as APACS play a pivotal role in maintaining ADIRU systems.

By offering MRO services in Kuala Lumpur, APACS provides a strategic advantage, especially to airlines in Asia. This centralisation results in easier access, quicker turnaround times and reduced downtime, significantly impacting operational costs and efficiency.

Our ADIRU capability extends to a wide range of aircraft types, including both narrowbody and widebody models such as the Airbus A320, A330 and A380, as well as Boeing aircraft including the 737NG/MAX and 787. This comprehensive coverage ensures that we can effectively support airlines operating diverse fleets.

Moreover, the ADIRUs utilise high-precision gyros, similar to those in missile manufacturing, facing a notable shortage. APACS, however, effectively navigates these challenges, ensuring reliable service provision.

Additionally, the aviation industry is heavily regulated, including strict export controls, which can complicate the procurement and maintenance of crucial components like the ADIRU.

We stand out by maintaining compliance with these regulations, ensuring seamless service without the significant challenges that can plague other providers. Our dedicated import-export expert manages shipping licences, further ensuring smooth and efficient operations.

In summary, the ADIRU system's role in modern aviation cannot be overstated,



2

**“WE ARE HONoured TO ANNOUNCE
ADVANCED ADIRU CAPABILITIES AT OUR
KUALA LUMPUR FACILITY, SIGNIFICANTLY
ENHANCING OUR SERVICE OFFERINGS”**

and MRO providers like APACS are crucial in maintaining these systems.

For airlines, especially in Asia, leveraging our centralised services in Kuala Lumpur can lead to improved operational efficiency, cost savings and compliance with international standards, positioning them for better service delivery and operational success.

Our ADIRU renovation project has progressed steadily, and we aim to finalise the renovation, achieving full operational capability by year-end.

Our ATEC7 machine has already arrived, marking a significant milestone in our project timeline. Additionally, our shop renovation is nearing completion, further enhancing our capabilities to provide top-notch services to our clients.

NOVEMBER'S TURNING POINT

In November 2024, we are set to reach a pivotal milestone as we prepare to activate our ADIRU capability,

representing a significant leap forward in our service offerings.

This advancement underscores our commitment in delivering comprehensive maintenance and overhaul solutions, raising the bar for safety, reliability and efficiency in the aviation industry.

Our plans and timeline for ADIRU activation are crafted with precision, ensuring seamless integration and optimal performance.

As a leading MRO provider, we pride ourselves on excellence in every facet of our operations; from our talented workforce to our top-tier products and streamlined processes.

We eagerly anticipate showcasing our enhanced capabilities for ADIRU to our valued customers, further cementing our reputation as a trusted industry leader. ●

1. The engineering team attends ATEC7 machine training
2. The ATEC7 machine at APACS

REPAIR, NOT REPLACE

IMT Aviation's **Chris Fagg** explains how the firm leverages its expertise to overcome MRO challenges, streamline repairs and keep aircraft flying cost-effectively



“OUR PHILOSOPHY IS TO KEEP THE COST OF AIRCRAFT OWNERSHIP DOWN AND GET THEM IN THE AIR AS QUICKLY AS POSSIBLE”

CHRIS FAGG

commercial, sales, projects
manager, IMT Aviation

MT Aviation has been established for 20 years, specialising in the repair of composite and structural components.

The objective of MROs is to encourage operators to repair rather than replace; a simple enough philosophy which has been applied in the industry for many years.

Operators want their aircraft in the air, not in the hanger awaiting replacement parts. But it seems as though OEMs have lost their focus on this fact.

INCREASED MRO SUPPORT

In recent years, operators have found the need for the MRO's support to be even more important, mainly due to the worldwide shortages of spares. This means MROs are being asked to seek new repair schemes and modifications for components that are in short supply. In many cases the OEM is reluctant to assist, causing extended turnaround times at the MRO.

Many OEMs typically quote at least 120-day lead times for replacement parts and are reluctant to take from their production lines. Replacement is usually a very expensive option.

It has always been a puzzle how OEMs know how many airframes are in service and what the reliability issues are, but rarely carry enough stock to support their worldwide fleets. Production of new airframes overrides the need to support the existing fleets.



Copyright: IMT Aviation

1

This scenario means it is imperative for MROs to be able to obtain materials and design authorisations quickly. Furthermore, materials are a big problem and MROs are faced with buying stock that has a shelf life, with a huge risk of that stock losing its shelf life before it can be utilised. MROs face a constant juggling act in these areas.

WHY EFFECTIVE PARTNERSHIPS MATTER

A partnership with the supplier to try and forecast usage is essential in getting the variable that doesn't lose either party money. There is always a delay with design because the OEMs want the operator to request the technical support.

So the MRO goes to the operator, the operator goes to the OEM, the OEM reports back to the operator and the operator reports back to the MRO. For one repair, this scenario



2

can occur multiple times, adding to the turnaround time. It would be a lot simpler if the MRO could converse directly with the OEM.

STOCK, MATERIALS AND DESIGN CHALLENGES

Another area where OEMs are slowing repairs down is the 'stock under management control' response. This usually means that the stock is being held for operators. Operators are then faced with a similar scenario to the aforementioned with the operator

“ A PARTNERSHIP WITH THE SUPPLIER TO TRY AND FORECAST USAGE IS ESSENTIAL ”

buying the spares from the OEM, the OEM sending spares to the operator, and the operator sending the spares to MRO. Once again, this increases the turnaround time. It's a strange concept, as not all operators can repair their own components. Operators just want their aircraft back in the air.

In some cases, on a scheduled removal, an operator will have already decided to repair and ship, shop, ship. The operator puts in an order with the OEM, in good time. The OEM reports back that it can only supply 25 per cent of the spares – usually, the AGS. As previously stated, hardware parts typically attract a 120-day lead time. So, the operator asks if there are any alternatives. The OEM says, “Use next higher assy.”

Recently, IMT Aviation completed an external door refurbishment

programme for an operator. One of the doors required a structural part so the operator contacted the OEM, who responded, “Please use the next higher assy”. This would be the door itself! The resulting lead time and cost would have been ridiculous. To resolve the problem and to keep the customer on track, we utilised our Part G (design) approval and our Part J (manufacture) approval, completing the door project in good time and at a very reasonable cost.

OUR COMMITMENT

At IMT Aviation, we tell our customers that we will work with them using our many years of experience, providing multiple solutions with a flexible approach.

Our philosophy is to keep the cost of aircraft ownership down and to get them in the air as quickly as possible. ●



3

1. Inside an IMT Aviation facility
2. IMT Aviation has a combined workshop area of over 80,000 sq ft
3. IMT Aviation has been established for 20 years

EMBRACING MOBILE TECHNOLOGY

Stephane Menard from M3 Solutions Technologies explores current challenges and solutions for integrating mobile technology to streamline MRO activities



“
**COLLABORATION
IS ESSENTIAL TO
MAXIMISE THE
BENEFITS OF MOBILE
TECHNOLOGY**
”

STEPHANE MENARD

chief technology officer,
M3 Solutions Technologies

The aviation sector is on the cusp of a significant transformation, propelled by the integration of mobile technology into its foundational processes.

These innovations promise to redefine operational efficiency, enhance the travel experience for passengers and streamline maintenance procedures.

However, the journey toward full adoption is laden with challenges, including technological integration hurdles and regulatory standards.

PRESENT SCENARIO

A growing number of airlines and MRO entities are adopting mobile technology to improve their operations. Technicians now utilise a variety of apps to consult manuals, log maintenance tasks in real time, and reduce dependence on paper-based systems.

This transition not only enhances operational efficiency but also substantially lowers the risk of errors and expedites the maintenance cycle.

The adoption of mobile technology in MRO activities allows for immediate access to data and communication on the shop floor, leading to faster decision-making and more efficient use of resources.

OBSTACLES IN THE SHIFT

The path to integrating mobile technology in aviation is strewn with obstacles that demand thoughtful consideration and strategic planning.

Among the prominent challenges faced by the MRO industry are the issues of legacy systems, the initial

financial outlay, employee training and adoption and compliance with regulatory authorities.

COMPATIBILITY WITH LEGACY SYSTEMS

A significant challenge is merging new mobile solutions with existing legacy systems. Many MROs and airlines operate on outdated software that lacks compatibility with contemporary mobile applications, resulting in considerable delays and additional costs as efforts are made to overcome these technological disparities. Upgrading legacy systems for seamless integration with new mobile technologies often requires significant investment and a high level of technical expertise.

INITIAL INVESTMENT

Adopting mobile solutions necessitates a substantial upfront investment in



issanow/Adobe Stock

infrastructure, devices and software. In a sector where cost management is critical, justifying these costs is a formidable challenge. Highlighting the long-term advantages and return on investment is essential to gain the support of stakeholders. Initial expenses include the acquisition of mobile devices, the development or procurement of specialised software and the modernisation of existing systems to accommodate new technologies.

TRAINING AND ADOPTION

The successful deployment of new mobile technologies is heavily reliant on comprehensive training. Crafting detailed training programmes is both time-consuming and costly. Moreover, resistance from employees accustomed to traditional methods may complicate the transition. Addressing this resistance requires effective change management strategies and transparent communication about the benefits of the new technology.

ADHERENCE TO REGULATIONS

The aviation sector is subject to strict regulations, and any new technologies must adhere to these stringent safety and operational guidelines. Obtaining approval for new mobile technologies can be a complex and lengthy process, often involving various regulatory bodies. Ensuring compliance with regulations from entities such as the Federal Aviation Administration (FAA) or the European Union Aviation Safety Agency (EASA) is crucial for maintaining the safety and reliability of aviation operations.

Despite these challenges, strategic planning and a focus on long-term gains can help the aviation industry navigate these hurdles and fully harness the potential of mobile technology.

STRATEGIC INITIATIVES AND PLANNING

Despite notable challenges, there are proven strategies and best practices that can facilitate a successful transition to mobile technology within the MRO sector. By addressing these barriers head-on, the industry can fully exploit the benefits of mobile



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“EQUIPPING STAFF WITH THE NECESSARY SKILLS AND KNOWLEDGE TO EFFECTIVELY USE NEW MOBILE TECHNOLOGIES IS CRUCIAL”

technology, enhancing efficiency, reducing costs and improving overall operational effectiveness.

A comprehensive strategic plan is crucial. Such a plan should outline clear milestones and timelines, involving stakeholders at every level from the start. Aligning with organisational objectives allows for a smoother transition. Anticipating potential challenges and proactively developing solutions ensures a more effective implementation. A well-defined roadmap acts as a beacon, helping to identify potential hurdles and allowing for timely adjustments.

COLLABORATIVE EFFORTS

Collaboration is essential to maximise the benefits of mobile technology. Forming partnerships with technology providers and industry stakeholders offers invaluable support.

Through these partnerships, MRO organisations can access tailor-made solutions that meet their specific needs and draw on collective best practices.

Digital transformation initiatives are only successful when paired with the appropriate technology to address the objectives of the business. Consultants are instrumental in the process of selecting which partnerships to achieve these goals.

Engaging closely with technology vendors, industry associations and regulatory bodies provides access to critical insights and resources, ensuring successful implementation and adherence to industry standards.

INVESTING IN TRAINING AND CHANGE MANAGEMENT

Equipping staff with the necessary skills and knowledge to effectively use new mobile technologies is crucial. Offering continuous training and support helps mitigate resistance and cultivates a culture of innovation within the organisation.

Transparent communication about the advantages of mobile technology, combined with practical training sessions, promotes smoother adoption.

By prioritising training and change management, companies can prepare their workforce for the mobile-enabled future of MRO, driving operational excellence.

IN SUMMARY

While the aviation industry faces hurdles in adopting mobile technology, the anticipated benefits are transformative.

Strategic planning, collaborative efforts and investment in training are key to overcoming these challenges and unlocking the full potential. ●

Contracts in everything we do

Jason Dickstein warns how contracts can be the hidden daily trap in repair station work

How often do you think about contract law? Contract law is important to repair stations because everything you do is a contract. When you purchase tooling, that is a contract. When you purchase materials, that is a contract. And when you agree to repair a customer's articles, then that is a contract, too.

When things go right in a transaction, you don't really have to think about the contract. Both sides got what they expected. But when things go wrong, that is when you want to have a contract that allocates rights appropriately. When things go wrong, that is when repair stations tend to test their contract terms; and that is when you most need your contract terms to fully support your expected position.

MANAGE YOUR COMMUNICATIONS

Contracts can be oral or written. While oral contracts are enforceable, there can be problems with ascertaining the true intent of the parties and the precise parameters of their agreement. Attorneys prefer written contracts because it is easier to parse the contract language and identify the terms that apply to the arrangement.

This doesn't mean that your contract needs to be on 14-inch-long yellow paper with numbered paragraphs to be enforceable. Any writing will do. The modern trend is for courts to accept emails as written evidence of the parties' intent, so in many cases, an exchange of emails can form a contract.

It is important to manage your communications so that they yield clear descriptions of the rights and responsibilities of the parties.



“
**IN MANY CASES,
AN EXCHANGE OF
EMAILS CAN FORM
A CONTRACT**
”

JASON DICKSTEIN

president, Washington
Aviation Group

Under modern contract law, contracts are formed by an offer and acceptance. Under the law that typically applies to the sale of services both in the US and in many other countries as well, the offer and acceptance must be mirror images; this means that they must both contain the same terms.

Most jurisdictions will also allow an offer to be accepted by conduct – so if you get a repair order from a customer with their component, and then you repair it according to the terms of the repair order, then the repair order can be treated as an offer and your conduct (the performance of the requested repair) serves as the acceptance.

The best way to assure that both sides agree to the same terms is to have them both agree to the same document. In aviation repair, this may be accomplished by the repair station generating a work order or pro forma invoice that describes



the work to be performed (this is the offer, and asking the customer to sign and return the document to authorise the work (this is the acceptance). Now, both parties have agreed to the scope of work to be performed. When this is done, it is helpful to include language specifying that this document supersedes all prior communications. That way, prior inconsistent communications will be overridden. This is especially important where the scope of work changes.

Why would the scope of work change before the contract is established? Some sample reasons might be because the customer could ask for a specific repair, and the initial inspection of the component could reveal that: (a) the customer was wrong and a different repair is needed; (b) the customer's order was incomplete and another repair is also needed to achieve an airworthy condition; or (c) additional work could be indicated by an airworthiness directive or a service bulletin.

In each case the repair station needs to offer to perform the substitute/ additional work and the customer needs to accept that offer. Once the customer has authorised performance of that additional work, it makes sense to explicitly state that prior requests are superseded so there is no confusion about which offer was accepted, and by whom.

CAREFULLY REVIEW THE TERMS AND CONDITIONS

Read contract terms carefully, especially if they were drafted by your business partner and not by your own company. It may seem like wasted time to carefully review the terms and conditions

associated with your contract but remember that the purpose of the contract is to protect you when things go wrong.

The contract terms should reflect the mutually agreed standards for amicably resolving disputes, so that those disputes can be resolved according to the contract terms. If something could reasonably go wrong, and you don't like the way that the contract resolves that event, then that may be language that should be changed before you agree to those terms and conditions.

Look especially for terms that you know are contradicted by your business model. For example, it is normal today for a repair station to use DER repairs

**“
READ CONTRACT TERMS CAREFULLY,
ESPECIALLY IF THEY WERE DRAFTED BY
YOUR BUSINESS PARTNER AND NOT BY
YOUR OWN COMPANY
”**

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**MANAGING CONTRACTS IS ABOUT
MORE THAN JUST MANAGING THE
COMMUNICATIONS THAT LEAD
TO A CONTRACT**
”

and/or PMA parts in order to offer extra value for their customers, but we continue to see legacy contract terms that exclude these sorts of government-approved solutions.

With the recent supply chain issues, we have heard about repair stations begging airlines to approve PMA parts, because the OEM part is simply unavailable, and the unavailability is impacting turnaround time. Make sure you are not contracting away your rights to use DER repairs or PMA parts because in today's environment of supply chain issues risks, you need to make sure that all of your options are available – especially if the customer has a strict turnaround time expectation.

CHECK FOR CONFORMITY

Managing contracts is about more than just managing the communications that

lead to a contract. Repair stations should be examining each potential contract to ensure that the repair station is capable of supporting the contract.

Special areas of emphasis for repair stations include ensuring that the proposed work falls within the repair station's ratings and operations specifications (op specs). Ratings creep has been a problem in the past, where a repair station continues to add capabilities and those capabilities eventually outstrip the repair station's ratings and operations specifications.

This is especially insidious in cases where the repair station has an internal audit that ensures it has adequate personnel, training, data, tooling and facilities to support the work, but that internal audit fails to examine the relationship of the work to the ratings and op specs.

If the repair station fails to check for conformity to its ratings and op specs, eventually it can add something to its capabilities list that falls outside of the scope of the ratings and op specs. The repair station's capabilities have then grown beyond the scope of the repair station's legal limitations.

If you perform a pre-project audit and find that the project falls outside of your ratings and op specs (but within the technical capabilities of the facility), then you should work with your principal maintenance inspector to update the ratings and op specs to ensure they continue to support the scope of work that you intend to perform.

This should be considered an element of 'contract review' in which your personnel are judging whether an offered work scope will fall within your physical and legal limits before that offer is provided to a customer.

This sort of early contract review will also help you to plan for expected workflow, ensuring that you have adequate personnel and materials available to support your efforts. ●



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LEVERAGING MRO'S EXPERTISE WITH AI ADVANCEMENT

In the run-up to the 2024 Predictive Aircraft Maintenance Conference in Dublin, Ireland in November, *MRO Management* asked **Maxime Thebault**, manager APU Predictive Care at Revima, who will be speaking at the event, his thoughts on the landscape of predictive maintenance

In what ways do you think predictive maintenance solutions can revolutionise MRO activity?

Firstly, I believe predictive maintenance can significantly bridge the gap between traditional off-wing MRO activities and on-wing operations.

By leveraging predictive maintenance, we can combine MRO shop expertise with the airline's experience in aircraft turnaround to enhance the daily operations of our customers.

Airlines can leverage the value of specialised MROs within their supply chain to enhance safety, reduce the number of flights operating under minimum equipment list (MEL) conditions and lower costs by preventing high-cost failures.

Furthermore, MROs can benefit by improving their reactivity, being closer to airline daily operations and gaining a better understanding of their needs.

In the current post-pandemic context, characterised by heavy workloads and



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**PREDICTIVE
MAINTENANCE
CONCEPTS AND
SOLUTIONS ARE
SPREADING ACROSS
THE INDUSTRY**
”

MAXIME THEBAULT

manager – APU Predictive
Care, Revima

across the industry, and there is widespread trust in their potential. Recognition and trust in MROs as providers of predictive maintenance solutions is increasing.

MROs like Revima have capitalised on their unique knowledge base and have been developing specialised predictive maintenance solutions for years.

In addition to enhancing the historical power-by-the-hour (PBH) offerings, MROs can now provide extended support in operational environments and cover risks such as no fault found (NFF) for airlines.

As technology becomes more accessible, with recent developments such as large language models, more providers – from OEMs to MROs and technology startups – are diversifying their offerings using the currently available data.

Collaborative efforts among these stakeholders are also driving innovation, ensuring that solutions are not only advanced but also integrated seamlessly into existing operations.

What predictive maintenance solutions does Revima offer, and how can these empower your customers?

At Revima, we have specialised in APU MRO for over 60 years, and we bring this extensive shop experience and engineering value to our customers through our 'APU Predictive Care' solution.

We assist our customers in monitoring APU conditions and advising on predictive maintenance actions. To achieve this, we utilise a robust and cutting-edge digital platform for gathering aircraft data, running analytics and enhancing our engineering algorithms with machine learning modules.

spare parts challenges, a key advantage of predictive maintenance is the reduction of unexpected issues for MROs.

Predictive maintenance allows MROs to anticipate incoming work orders rather than dealing with last-minute inductions, thereby enhancing efficiency and planning.

How would you describe the current state of predictive maintenance in the MRO market, and are there any exciting trends shaping its future?

The current state of predictive maintenance in the MRO market is very exciting. Predictive maintenance concepts and solutions are spreading





2

Our solutions development organisation, FlightWatching by Revima, enables us to be reactive to evolutions at controlled cost. We delve deeply into a specific ATA chapter to maximise our capabilities in this field.

While software and algorithms can provide remarkable insights, we believe that engineers play a crucial role in making the best decisions by combining these insights with real-life experience. Therefore, the core of our predictive maintenance service is engineering support powered by AI.

This approach ensures that we can make predictive maintenance successful for our customers, minimise associated risks and spread benefits throughout the value chain.

What are the primary hurdles the industry must overcome to propel forward with predictive aircraft maintenance?

The key issue is data. It's not just about ownership, but also making more data available at a reasonable cost. Airlines are at different stages of digitalisation. While newer aircraft gather and share data efficiently, older models that are still widely used present a challenge. Making their data available would be a significant advancement.

Additionally, data security is crucial for expanding data collection. Ensuring

1. Revima assists customers in monitoring APU conditions and advising on predictive maintenance actions. 2. Revima is specialised in APU, engine parts and landing gear for civil and military aircraft.

accurate and secure data points is essential to avoid incorrect decisions.

To fully benefit from predictive maintenance, we need accessible and secure data. Success depends on having a large quantity of high-quality, secure data for AI model training.

How do you foresee predictive maintenance in the MRO industry evolving over the next decade?

In the mid-term, the focus will be on achieving industry-wide adoption of predictive maintenance practices, making it the new norm.

As for the evolution of predictive maintenance capabilities, there are two main trajectories. Firstly, we will enhance predictive algorithms based on current data, developing use cases informed by engineering insights and expanding data collection to cover all known failure modes.

Secondly, there will be a push towards greater intelligence and automation, streamlining processes and deepening our understanding of monitored systems to transition towards prescriptive maintenance. This approach aims not only to detect failures in advance but also

to optimise component usage and extend their lifespan.

This evolution will be supported by advancements in connected aircraft and leveraging AI to uncover hidden data correlations based on component engineering knowledge.

Close coordination with MRO work packages will be crucial to integrate predictive and prescriptive maintenance inputs effectively.

This collaboration aims to optimise existing components towards a sustainable future, leveraging advancements in connected aircraft and AI. ●

PREDICTIVE AIRCRAFT MAINTENANCE 2024



On 13-14 November, MRO Management and its parent company Real Response Media will host the **Predictive Aircraft Maintenance (PAM) Conference 2024** at the Radisson Blu Royal Hotel Dublin, Ireland, bringing together senior level executives from airlines, OEMs, MRO specialists and big data experts to explore the future of predictive maintenance.

Attendees will discover how to get the best out of predictive maintenance while overcoming the greatest challenges. Case studies will highlight best practices and how companies are successfully collaborating with industry partners, while panel discussions will explore the major topics from the perspective of all stakeholders.

Thank you to our Bronze Sponsor, Revima, for supporting PAM 2024.

For more information and to find out how to register to attend, visit predictiveaircraftmaintenance.com

FROM BACKLOG TO BACK ON TRACK

Industry players are using a broad range of initiatives, including AI, to control their component supply chains. **Kevin Rozario** reports

Demand for MRO services is very healthy, but obtaining components in a timely way remains difficult. To navigate this scenario, MROs and OEMs are taking a variety of measures to stay on top of turnaround times (TATs) to retain some competitive advantage.

Giant manufacturers like Airbus stick to pre-emptive measures such as on-site support as an advisory service to answer MRO and operator questions.

Alexandre Arnau, maintenance markets and strategy leader at Airbus, says: “We continue to send expert engineering and technical teams for major projects (to) immediately address any discrepancies or challenges with documentation and kits.”

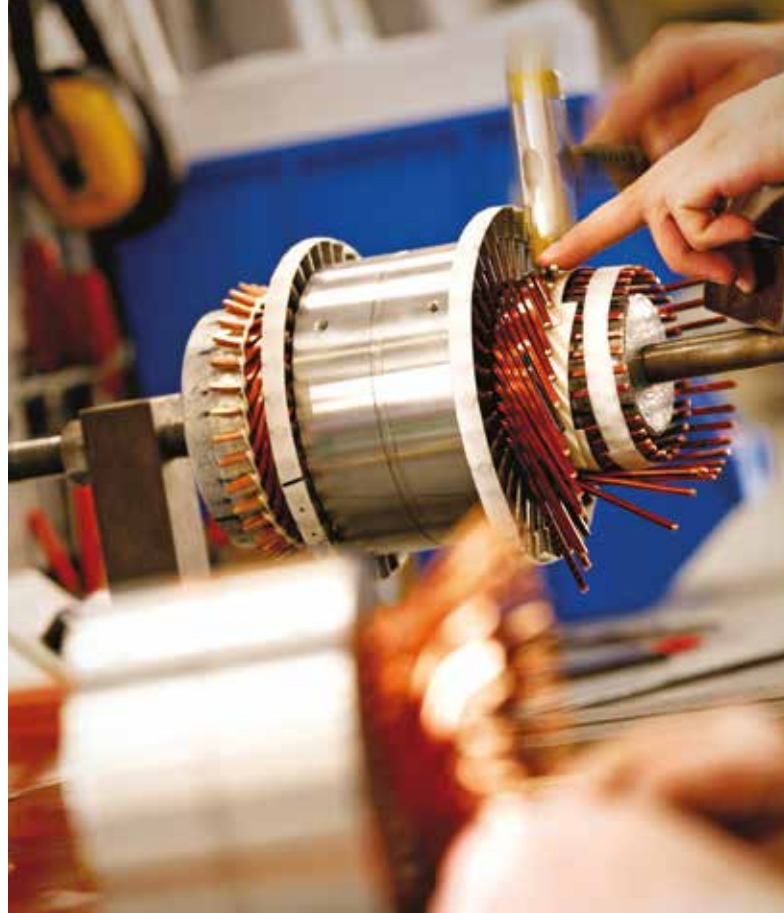
Meanwhile, GE Aviation is utilising 3D printing to manufacture certain aircraft engine components, thus reducing production time and waste, and Honeywell Aerospace has applied digital tools to improve inventory management and predict demand for spare parts.

At Ametek MRO, which has 12 locations globally and services more than 40,000 aircraft components, the tricky supply chain situation is nothing new. However, it sees a post-Covid-19 ‘new normal’ emerging.

Mike Audus, divisional vice president and business unit manager for Europe at Ametek MRO, comments: “There have always been delays, but the macro environment is resetting. The obvious challenge was the semi-conductor market (during Covid-19), and then steel manufacturing; these have both set up a ripple effect across the global supply chain.”

For example, sanctions on Russia, the biggest producer of titanium, means that getting hold of aviation components in which the metal is used has become problematic.

Adam Guthorn, managing director at consultancy Alton Aviation, says: “There continue to be issues with titanium, which is blended into a lot of metallic alloys. This has been the case since the invasion of Ukraine, a little over two years ago, and there are few signs of it getting better.”



▲ Ametek MRO component work

Being proactive can help in other situations. Ametek MRO prioritises regular discussions with clients to establish accurate forecasting and ‘flow’. “Everyone is managing inventory levels very closely and trying to get back to that just-in-time mindset,” explains Audus. “Add to that obsolescence and technology upgrades, and it then becomes all about data. It’s early days but there are some interesting uses of artificial intelligence (AI) in this area that are being explored.”

BROADENING THE SUPPLY NETWORK

Lufthansa Technik, which has more than 500 airlines as customers, is leveraging used serviceable material (USM), where possible, to mitigate delays.

“This helps us maintain high service levels while navigating supply-chain constraints,” says Raphael Mertens, head of strategy and business development in Lufthansa Technik’s aircraft component services (ACS) business.

Airbus also points to an increasing appetite for USM in the aftermarket business coming from the secondhand market and dismantled aircraft.

Arnau explains, “With companies like Tarmac Aerosave in Tarbes for Europe, or Airbus Lifecycle Services Centre in China, Airbus is actively working at providing these parts to our customers, together with its subsidiary Satair.”

Lufthansa Technik also relies on an extensive array of suppliers and partners to source materials. “This network allows us to tap into multiple sources to obtain the necessary components promptly,” says Mertens.

Meanwhile, AI is becoming integrated into the company’s Total Component Support (TCS), claimed to be the world’s largest aircraft components pool. It is an established



“The supply chain is in a better place today than it was 12 months ago but it’s still very far off where it was in 2019”

Adam Guthorn, managing director, Alton Aviation

provisioning programme for almost every component that can be removed from a commercial aircraft.

Mertens says: “We are continually refining our pooling system to support TCS. By implementing advanced AI and machine learning (ML) algorithms, we can predict demand more accurately, optimise inventory levels, and improve overall efficiency.”

TCS works in an open loop where contracted airlines immediately receive a serviceable component from Lufthansa Technik when needed. Unserviceable components are repaired, either in one of the company’s in-house facilities or subcontracted within its network.

Elsewhere, APOC Aviation is strategically purchasing aircraft for teardown to secure components to ensure a consistent supply of essential parts and mitigate delays typically associated with sourcing from external suppliers. Hardi Jamil, APOC Aviation’s vice president of component sales, comments, “By maintaining our own inventory from dismantled aircraft, we can respond more swiftly.”

NOT A BLAME GAME

Supply-side lags appear to be an accepted fact of life. “While they may not be happy with it, there’s a broad resignation from customers that things are not back to normal yet and (getting) materials and components will take longer than it did historically,” remarks Guthorn.

Lewis Prebble, president of engines expert StandardAero does not lay blame at the door of component manufacturers. He believes they were having to respond to stop-start demand signals, and not able to ramp up production easily because nobody predicted the strength and speed of the industry’s recovery. Costs, though, are another issue.

“The post-pandemic escalation in parts prices has been frustrating, both for operators and MROs alike,” he says. “Hopefully, it will be tempered as component supply catches up with demand.”

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“The post-pandemic escalation in parts prices has been frustrating, both for operators and MROs alike”

Lewis Prebble, president, StandardAero

On this point, APOC's Jamil comments: “While manufacturers have made strides in enhancing supply chain resilience, there are still areas for improvement, particularly in scaling up production capacity and diversifying supply sources to stabilise prices. I would emphasise stronger partnerships and collaborative forecasting with manufacturers to better align production schedules with anticipated demand.”

While StandardAero faces delays for certain components – which vary from engine platform to engine platform – the company has workarounds. Alex Youngs, vice president of marketing, airlines and fleets, says: “We place orders for spare parts in anticipation of shop visit demand and draw on the extensive parts repair capabilities of our in-house components repair services (CRS) team. Thirdly, we make use of USM, sourced through PTS Aviation, our dedicated asset management subsidiary, and also through third-party USM partners.”

In practical terms, component issues have led to StandardAero seeing a sharp growth in the development of repair schemes for the CFM LEAP-1A and -1B engines for example.

This includes over 225 repairs developed by its CRS team, many of which relate to the new material technologies utilised by the LEAP.

Youngs says: “With an initial wave of LEAP performance restoration shop visits (PRSVs) anticipated in the coming years we can expect to see this trend continue, supporting the needs of the global A320neo and 737 MAX operator base.”

STAFFING FOR AN EFFICIENT FUTURE

It seems that the industry has buffered itself well to make the component supply chain more manageable. At Airbus, Arnau expects it to normalise within the next two to three years. “In the meantime, the industry will look into options to increase the use of alternative manufactured/repared

parts like PMA (part manufacturer approval) or DER (designated engineering representative) repair,” he says.

Alton Aviation's Guthorn adds, “Companies are going to PMA suppliers because they can often deliver the parts faster than the OEM original manufacturer.”

For Lufthansa Technik, strategic initiatives are in place to address staffing, replacement parts and new technology, as part of its ‘Ambition 2030’ programme. Mertens explains: “We will be intensively ramping up our in-house MRO operations over the next few years. This includes hiring significant staff in various locations to ensure we have the capacity to meet increasing demand and improve operational efficiency.”

StandardAero's Prebble acknowledges that the pandemic has had a lingering impact on the supply chain, especially the loss of skilled workers “and the closure of some third-tier suppliers”. Extremely strong demand both for new engine production and for ‘catch-up’ MRO shop visits is now a scenario it has to manage into the future.

APOC Aviation is also putting the focus on improving staffing through targeted training as well as the adoption of new technologies. Jamil comments: “With an anticipated increase in the use of automation and AI, managing replacement parts inventory and overall supply chain operations are expected to become more efficient. These tech advances are crucial for capacity planning, demand forecasting and inventory management.”

Guthorn sums it up: “The supply chain is in a better place today than it was 12 months ago but it's still very far off where it was in 2019. Because it is so interconnected, you're relying on outside suppliers who are relying on other suppliers. So, it is still riddled with weak links.

“The large well-capitalised companies are starting to get their processes back to normal, but if you're still waiting on certain suppliers who are cash-strapped, or maybe can't hire or put in a second shift, then there's a ripple effect.”

Hopefully, those ripples will ease off in the coming 24-36 months in line with Airbus' prediction. ●



▲ Amtek MRO component work

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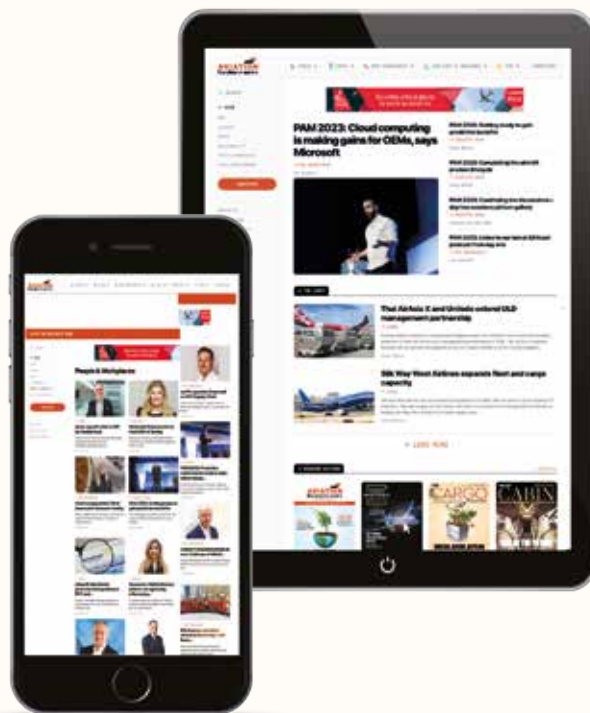
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A PATHWAY FROM CLASSROOMS TO HANGARS

Tulsa Tech's aviation maintenance students are to benefit from access to industry expertise through a new partnership with American Airlines, offering mentorship, hands-on training and guaranteed job interviews for top performers

In a significant boost to aviation education and career opportunities, Tulsa Tech's aviation maintenance technology programme has announced a transformative partnership with American Airlines.

This collaboration brings more than 3,000 industry mentors from the airline's Tulsa-based aviation maintenance technicians (AMTs) directly to the students, offering them unparalleled access to real-world expertise and mentorship.

The partnership was unveiled on 11 July, and aims to elevate the educational experience for students and create a direct pipeline to employment with one of the world's leading airlines.

A HISTORY OF COLLABORATION

While this partnership marks a new chapter in their relationship, American Airlines and Tulsa Tech have a history of working together to inspire and train future AMTs.

A notable highlight of this longstanding relationship dates back to 2011, when American Airlines donated a McDonnell Douglas MD-80 aircraft



to Tulsa Tech. This aircraft remains a vital tool for hands-on training, providing students with the kind of practical experience that is essential in aviation maintenance.

The airline's vice president of base maintenance at the time, Bill Collins, said: "We are thrilled to donate one of our MD-80 aircraft to Tulsa Tech, which will help them provide a new generation with new opportunities for world-class training and practical experience."

The donated MD-80 aircraft began flying for American Airlines on

27 August 1985. During its life, the aircraft travelled more than 36 million miles, or roughly 75 trips to the moon and back. If the aircraft had been operated continuously, without stopping, it would have flown for 3,055 days.

Additionally, American Airlines' Tulsa-based AMTs have been actively involved in mentoring Tulsa Tech's student teams, guiding them to success in the annual Aerospace Maintenance Council Competition (AMC). The competition recognises and celebrates the role of AMTs and raises awareness of the knowledge and skills required to maintain safe, airworthy aircraft worldwide.

EMPOWERING FUTURE GENERATIONS

"American is excited to officially partner with Tulsa Tech to mentor and train future generations of aviation maintenance technicians," says

"THE PARTNERSHIP PROMISES TO RESHAPE AVIATION EDUCATION AND CAREER PROSPECTS IN TULSA"

1. An American Airlines plane leaving a hangar
2. An American Airlines AMT at work

next generation of skilled workers and highlights the expanding career opportunities available throughout the aviation industry, including right here in Tulsa at American Airlines.”

American Airlines’ commitment to this partnership extends beyond mentorship and donations.

The airline employs nearly 5,000 team members at its Tech Ops – Tulsa facility, including 3,200 licensed AMTs.

Recently, the facility received \$22 million from the State of Oklahoma for enhancements, adding to a \$31.6 million engine shop capital investment and an ongoing \$350 million improvement project.

These investments are creating more than 300 new jobs at Tech Ops – Tulsa, further solidifying the economic and educational impact of this partnership on the local community.

A PATHWAY TO SUCCESS

For Tulsa Tech students, this partnership represents more than just a learning opportunity; it’s a gateway to a promising career.

Top-performing students will now have guaranteed interviews for open positions at American Airlines, bridging the gap between education and employment.

This pathway from classroom to career is a significant step forward, ensuring that students are not only job-ready but also positioned for success in the competitive aviation industry.

The partnership between Tulsa Tech and American Airlines is a landmark collaboration that promises to reshape aviation education and career prospects in Tulsa.

By combining world-class industry expertise with top-notch educational resources, this initiative is set to create a new generation of highly skilled aviation maintenance technicians, ready to take on the challenges of tomorrow’s aviation industry. ●

Greg Emerson, vice president of base maintenance for the airline.

“American’s Tech Ops – Tulsa maintenance base is the largest commercial aviation maintenance facility in the world and has been the backbone of our base maintenance program since 1946,” he continues.

“Having access to top local talent from Tulsa Tech ensures that work will continue for generations to come. We’re eager to provide a pathway from their Tulsa Tech classrooms to our hangars.”

This initiative aligns perfectly with Tulsa Tech’s mission. As the oldest and largest technology centre in Oklahoma’s CareerTech System, Tulsa Tech is dedicated to preparing students for success in the workplace.

The school offers a range of aviation-related coursework, allowing students to work towards their FAA Airframe and Powerplant licences among other certifications.

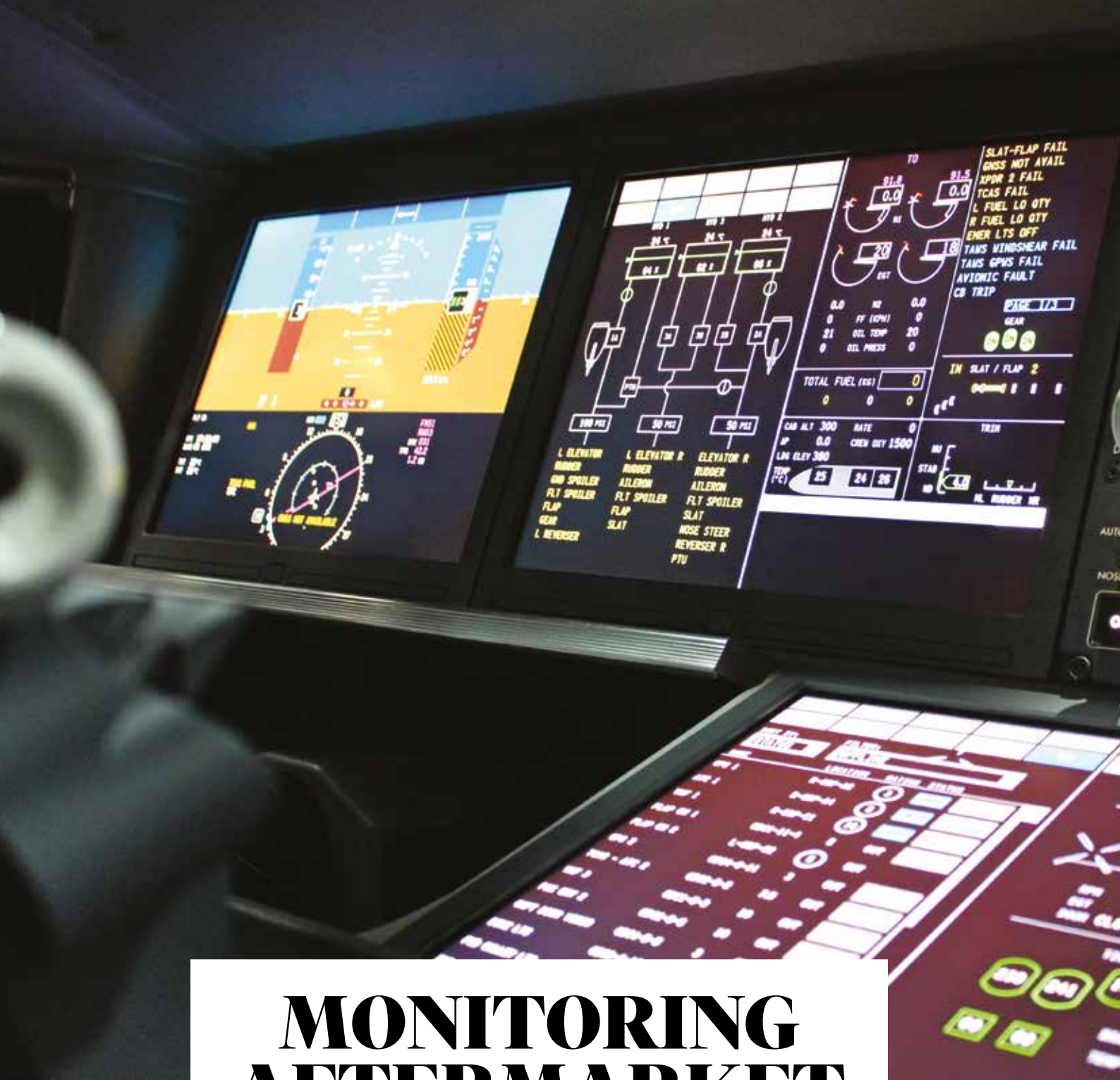
This partnership with American Airlines enhances those offerings, making the dream of a career in aviation more accessible than ever.

AN INVESTMENT IN EDUCATION AND COMMUNITY

During the partnership announcement event at Tulsa Tech’s Riverside campus, American Airlines also donated several critical aircraft parts, including an auxiliary power unit, four oxygen generators, a digital flight computer and a flow control valve. These components will provide students with up-to-date, hands-on resources to enhance their training and education.

“We extend our heartfelt gratitude for our strong partnership in workforce development and training with American Airlines,” says Dr Steve Tiger, Tulsa Tech superintendent and chief executive.

“Their unwavering support and collaboration help us to train the



MONITORING AFTERMARKET MOVEMENTS

Observing trends in the commercial aviation aftermarket dictates the strategies and technology developments of the MRO industry. **Bernie Baldwin** has been learning about some of the current trends



◀ The Airbus A220 cockpit suite is an example of enhanced digital infrastructure in modern aircraft

Often viewed as a mere subset of the airline business, the size and importance of the commercial aviation MRO sector is arguably an undervalued industry in its own right. It covers so many disciplines, with changes in any one of them capable of affecting the effectiveness and profitability. It is therefore prudent to keep a close eye on the trends occurring both in the constituent parts and across the industry as a whole.

EXAMINING THE DEMAND PROFILE FOR MRO

A good place to start assessing aftermarket trends is to examine the demand profile for maintenance services around the world. Richard Brown, managing director of Naveo Consultancy, happily reports that commercial MRO is now above pre-Covid levels.

“Demand is back very strongly across the world, but supply remains a challenge and, in some areas, it is constrained, which is causing frustration for the MROs, the airlines and the OEMs,” Brown remarks. “That demand has come back is no surprise, as it is what we were forecasting. The challenge is that as an industry, for various reasons, we’ve not been able to ramp up our capacity to supply that demand to sufficient levels, which frustrates customers in areas such as longer lead times or longer turn times, as well as shortages in capacity, parts and labour.”

AJW Group’s chief commercial officer Scott Symington notes a growing demand for tailored maintenance services. “This is particularly the case within large-scale power-by-the-hour (PBH) type agreements such as those offered by AJW. This trend stems from operators’ needs for flexibility, agility and customisation to meet specific customer requirements,” he explains.

Symington adds: “In the MRO market, where the number of significant suppliers is limited, the demand for tailored solutions is especially strong. We benefit from our position as an independent company, enabling us to make swift, efficient decisions compared with larger corporate competitors with more complex decision-making processes.”

“PREDICTIVE MAINTENANCE HAS THE POTENTIAL FOR A REAL BENEFIT TO THE COMMERCIAL BOTTOM LINE OF THE AIRLINE”

Richard Brown, managing director, Naveo Consultancy

Erik Blaauwbroek, head of continuing airworthiness at Samco Aircraft Maintenance, is seeing a trend of airlines extending their contracts with MROs in an attempt to secure slots moving into the 2030s. “The MRO capacity has become supply-chain limited as aircraft are occupying available positions for longer,” he explains. “So fewer aircraft are turned around with the same MRO capacity, demanding a pro-active approach with focused capacity planning in order to mitigate inefficiencies and keep costs under control.”

COST AND AVAILABILITY OF SPARES

This naturally leads on to discussion of trends in the cost and availability of spares. “Lead times and availability still have a large impact on the ground time for maintenance checks, causing projects to be extended by 50-70 per cent of the original planned ground time,” Blaauwbroek notes. “MROs are adjusting their approach and planning to become even more flexible and anticipate (where possible) the longer lead times. Independent MROs are traditionally more capable of dealing with these challenges.”

Naveo’s Brown suggests taking the cost and availability of spares in two parts – for mature and sunset products and for new products. “The reasons for supply chain challenges might be different for each,” he elaborates.



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Brown adds: “Across the board, the cost from inflationary pressures has been passed on to customers, operators and to MROs, who are having to bear price increases – which can include mid-year price increases in catalogues – in high single or low double digits. The interesting question is, who actually pays catalogue price? Because many airlines and MROs have price agreements or longer-term deals with the OEMs and suppliers. And that can cover things such as escalation caps or volume rebates, and more.”

Brown continues: “Elsewhere, we’ve seen durability challenges with the new generation engines, and therefore we’ve seen a need to upgrade or retrofit parts. Obviously there is a supply chain challenge to provide those upgraded parts, and this has led to airlines keeping their mature and sunset aircraft in service longer. That means operators performing maintenance events on aircraft that they didn’t expect to and that has caused challenges in the availability of spares for these types.”

AJW’s Symington notes another effect from the pricing of parts. “The rising cost of materials, with catalogue list prices (CLP) increasing by approximately 12 per cent, has prompted greater regionality in MRO sourcing,” he explains.

“OEMs are sharing services globally to address capacity constraints and working closely with customers and logistics partners to identify and overcome supply chain vulnerabilities,” Symington comments. “Despite these efforts, high prices, delays and shortages of OEM parts remain a critical issue, potentially disrupting operations and increasing costs.

“AJW is taking a proactive approach by leveraging its size and scale for strategic purchasing and collaborating with suppliers to mitigate the impact of price fluctuations and shortages. By building inventory pools ahead of potential pricing reviews, we’re ensuring accessibility and distribution of inventory to our regional customers,” Symington reports.

WORKFORCE TRAINING AND DEVELOPMENT

A key area where trends definitely affect the overall MRO industry is personnel, where challenges exist both in terms of numbers and training.

Symington is quick to recall that large parts of the labour force, including skilled technicians, were lost to aviation during and post-Covid. “Consequently, the industry is ramping up sourcing and training of new staff to draw more people into the industry and increase the strained workforce that is causing shop delays,” he remarks.

“Companies are looking to offer prospective recruits more flexible working solutions, especially to people verging on retirement,” adds Symington. “By offering ‘retirees’ part-time consulting, training and teaching opportunities, the industry can ensure the technical foundation of the business is strong, while raising up emerging talent with a strong peer support, diverse training programmes, captivating culture and growing digital enablement as a drive towards sustainable success.”

Samco’s Blaauwbroek believes that in recent years, little has changed in Western Europe. “It is still difficult to attract staff with specific, specialised skills. At Samco, we undertake to train staff to acquire the specialisations we need. Close co-operation and development of skill-based training with aviation colleges maintains an influx of new entrants. The general shortfall of technical staff for the aviation industry remains a concern,” he acknowledges. “However, the initiatives towards a more sustainable aviation industry may help improve its position and attractiveness.”

Blaauwbroek adds: “EASA will need to adapt to the new future as well, allowing for more types of approvals supporting base maintenance MROs, to ensure staff can be approved with limited authorisations.”



12%

The rising cost of materials, with catalogue list prices (CLP) increasing by approximately 12%, has prompted greater regionality in MRO sourcing

1. Skywise by Airbus is one of the IT systems which provides predictive maintenance

2. Scott Symington, chief commercial officer, AJW Group

3. Samco believes smart MROs are aiming to become even more flexible in response to industry challenges

“WE ARE TRIALLING RFID TAGS FOR TRACKING AOG SHIPMENTS, WITH PLANS FOR WIDER DEPLOYMENT”

Scott Symington, chief commercial officer, AJW Group

Regarding personnel numbers, Naveo's Brown returns to the staff who decided to retire early during the pandemic. “They did, and not just that, they were allowed to. We are recruiting, but it's worth noting that one arrival does not necessarily replace the experience of somebody with 34 years of engineering or MRO experience,” he warns. “The flip side is that some new people are perhaps more willing to embrace new technologies, new training approaches and new ways of doing business. They're more willing to use the newest technologies.”

PREDICTIVE MAINTENANCE

Among those technologies in the MRO arena is predictive maintenance. Brown offers an assessment of its value. “The good news is that the latest generation aircraft contain or have the ability to capture a lot more data and measure many more parameters than the previous generation. The ability to measure system performance in real-time enables decisions that can improve the reliability of the aircraft and ultimately avoid costly unscheduled maintenance events,” he says.

“Predictive maintenance has the potential for a real benefit to the commercial bottom line of the airline. It's about turning an unplanned event into something that we can plan. If you can use digital tools to predict when failures may occur, you can plan to avoid that. Ultimately, we should go to on-condition maintenance so that you can keep going until a change is needed,” Brown posits.

While generally enthusiastic about predictive maintenance, AJW's Symington notes some practical concerns. “Predictive maintenance holds great promise for aviation, enhancing aircraft availability and reducing operational costs through data analytics and digital solutions. However, its adoption is hindered by regulatory gaps and the lack of a structured framework,” he warns. “Current aviation regulations do not support a defined predictive



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maintenance structure, creating barriers to its acceptance among stakeholders like regulators, MRO providers, suppliers and OEMs.”

Symington adds: “Airlines are keen to invest in predictive maintenance for its potential to optimise maintenance schedules and reduce disruptions. However, industry-wide readiness and collaboration are necessary for successful implementation. This involves integrating advanced data analytics, machine learning, and Internet of Things (IoT) devices into maintenance processes for accurate predictions and real-time data collection and, most importantly, collaboration within the industry.”

Samco's Blaauwbroek admits that the use of ‘big data’ is helping with MRO predictions but reports that the company “does not see a major shift in applying prediction models ourselves as we apply this on a limited scale”.

SUSTAINABILITY

There is, of course, one trend in aviation which enters almost every discussion, namely sustainability.

In the MRO sector, this manifests itself for a large part in materials and in procedures. Blaauwbroek observes that decarbonisation – achieved through advances in technology for reduced fuel consumption



such as new generation engines and aircraft – does have a direct impact on ground runs, maintenance check flights, APU runs and so on.

AJW's Symington agrees about sustainability becoming a focal point for the industry. "Compliance regulations require it both in materials and in business procedures and processes," he declares. "AJW's commitment to sustainability is evidenced by its signing of the UN Global Compact in 2023. This commitment translates into a concerted effort to reduce carbon emissions and foster a cleaner, more sustainable aviation sector through collaboration and innovation. Our procurement teams are constantly sourcing more eco-friendly materials and we're adopting sustainable practices in our MRO facilities."

Naveo's Brown notes that MRO already plays a strong role in sustainability because maintaining, reusing and repairing by default is better than putting new in. "We've been good at tearing down aircraft and recycling. Basically, everybody is thinking of sustainability," he confirms. "It even goes so far as recycling seats, carpets, monuments and bins that previously went to landfill sites. Nowadays, there's an active market on eBay to buy these things."

"This is not something that's a response to pressure groups," Brown emphasises. "This is something we as an industry have always done, because it benefits the airline. It saves money!"

AI IN MRO

A final topic in which to seek a trend is the use of artificial intelligence (AI) in commercial aviation maintenance.

While Samco's Blaauwbroek reports that the company is not yet using AI in its MRO operations, Naveo's Brown foresees growth in its adoption.

"It's probably linked to predictive maintenance," he begins. "That's likely to involve using AI models in analysing impacts of certain events, but looking at modelling performance of aircraft or maintenance activities in harsh environments, or different conditions."

"With the computing power that we have and the tools we have, we're able to leverage digital solutions such as AI to help us become more efficient in our maintenance – and safer of course, that's obviously what we want to achieve in aviation," Brown concludes.

According to AJW's Symington, recent developments reveal a significant trend towards integrating digital technologies and AI. "Predictive maintenance is becoming increasingly common, with partnerships formed to offer possible solutions to increase maintenance efficiency and accuracy," he confirms. "We are trialling RFID tags for tracking AOG shipments, with plans for wider deployment. Advanced predictive inventory modelling systems are being developed for both rotatable components and consumables, enhancing inventory accuracy and operational efficiency."

Symington adds: "At MRO facilities, such as AJW Technique in Montreal, dynamic forecasting using AI tools captures historical parts usage data to construct detailed forecasts, improving shop processing times and achieving fill rates above 90 per cent. Real-time data updates streamline supply chain management, allowing teams to focus on critical issues."

Symington ends with a fundamental message for the industry to consider. "The adage 'adapt or die' is pertinent for businesses here. The digital evolution in our industry is happening, and as far as AJW is concerned, we're all in." ●



90%

Dynamic forecasting using AI tools captures historical parts usage data to construct detailed forecasts, improving shop processing times and achieving fill rates above 90%

▲ The AJW Technique warehouse, where inventory pools help to ensure accessibility and distribution of parts



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PEACE OF MIND

EirTrade Aviation's **Jake Glover** tells us about the company's strategic approach to parts purchasing, driven by expert data analysis and strong supplier relationships



“WE RELY ON OUR STRONG CUSTOMER RELATIONSHIPS TO KEEP UP TO DATE WITH NEW OPPORTUNITIES AND PRODUCT LINES”

◀ EirTrade Aviation is an AFRA and ASA-100 accredited disassembly service provider

The traditional process of procuring spare parts for aircraft is becoming increasingly inefficient and costly. As a result, aviation asset management solutions providers are turning to technology and adopting more rigorous quality processes to streamline purchasing activities and provide peace of mind to the industry.

For EirTrade Aviation, a leading stockist and teardown specialist with over a decade of experience, the company's success is attributed to a robust purchasing strategy, diligent supplier relationships, stringent quality standards and an agile response to market trends.

PRIORITISING PARTS AND SUPPLIER RELATIONSHIPS

For Jake Glover, EirTrade Aviation's Purchasing and Sales Manager, the foundation of the company's purchasing strategy lies in harnessing the power of data.

“EirTrade Aviation has been able to gather a vast wealth of utilisation data across various airframe and engine platforms,” explains Glover. “This intelligence, combined with an expert team with expansive product knowledge, is at the heart of our purchasing strategy.”

Glover adds that the company's sales team diligently tracks end-user activity for each component which ensures the company can identify emerging trends within the used serviceable material (USM) aftermarket.

“This real-time insight allows us to pinpoint demand and constantly tailor our inventory levels to support our ever-growing global customer base.”

Maintaining and managing supplier relationships is crucial for EirTrade Aviation, which adopts a merit-based approach, favouring top-performing suppliers who consistently deliver exceptional service, quality and value.

“We're proud to have an extensive network of trusted suppliers that enable us to meet our growing demand,” says Glover. “We rigorously monitor their performance to sustain our reputation as one of the ‘go-to’ suppliers in the industry.”

Strong relationships with strategic partners and key customers have also played a huge role in EirTrade Aviation's growth explains Glover. “Repaying their trust in us through reciprocal trade has been a big part of our continued success.”

QUALITY, AGILITY AND SUSTAINABILITY EFFORTS

Quality assurance is paramount at EirTrade Aviation, which is ASA-100, IAA and AFRA approved. A dedicated technical team supports buyers by verifying the traceability of components and guarding against counterfeit parts.

“We work closely with our quality team to continuously monitor the standards of received parts and adjust our supplier base accordingly,” Glover says.

This rigorous process ensures that only the highest quality components are procured.

EirTrade Aviation's team structure embeds buyers within the sales team, granting them a competitive advantage in identifying trends from a first-hand overview of customer activity.

“We rely on our strong customer relationships to keep up to date with new opportunities and product lines,” says Glover. This integrated approach allows EirTrade Aviation to stay agile and responsive to market demands, continuously refining their buy-list and capitalising on emerging opportunities.

Under constant scrutiny for their environmental and sustainability practices, the aviation industry faces challenges in all areas. EirTrade

Aviation recognises that sourcing parts from aircraft teardowns is often criticised and, as an AFRA and ASA-100 accredited disassembly service provider, the company takes environmental concerns seriously.

Glover says: “We ensure that each aircraft and engine disassembly project delivers maximum efficiency and quality for our customers while taking necessary precautions to ensure that the process is environmentally friendly and does not have any negative impact on the local eco-system.

“As such we have the knowledge and experience required to ensure that our vendors are living up to the same standards when we are procuring from them.”

BALANCING DEMAND AND INVENTORY LEVELS

It is no secret that the aviation industry has faced significant challenges due to supply chain disruptions and extended lead times for component parts, but Glover explains that over the past 12 months, EirTrade has seen a notable surge in demand for engine quick engine change (QEC) material.

“Since the start of 2024, our asset acquisition team has successfully acquired 11 engines for teardown to support increased demand for parts, which has helped support increased demand for parts. We liaise closely with the assets team to help backfill high-usage parts and assist with product lines which aren’t in the pipeline, ensuring a fully comprehensive inventory of QEC parts across the board.



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1. EirTrade Aviation buyers utilise daily transaction reports to closely monitor stock levels 2. EirTrade Aviation is a trusted stockist and teardown specialist

Balancing inventory levels is a constant challenge for EirTrade Aviation, but the company monitors utilisation rates based on historical data to predict stock levels.

Glover says: “To calculate the right inventory levels, it’s crucial to identify the underlying causes of demand fluctuations. Is the surge in demand due to an unusual spike in end-user needs? Or is it a more chronic issue, such as a parts shortage from the original equipment manufacturer (OEM)?

“Our team of experienced professionals takes a holistic approach to consider all relevant factors and optimise stock levels. By combining data-driven analysis with expert judgment, we ensure that our inventory levels are aligned with market demands and minimise the risk of overstocking or understocking.”

But Glover recognises that overstocking can lead to reduced reliability of components and tie up valuable capital. So, to mitigate this risk, EirTrade Aviation’s buyers utilise daily transaction reports to monitor stock levels closely. He adds: “We track the performance of each workshop through key performance indicators, enabling us to identify areas for improvement and ensure the best possible reliability performance.”

Glover adds: “We only purchase material with a full component warranty, which reduces company exposure and gives our customers the peace of mind they deserve.” ●



About Jake Glover...

A seasoned professional with over 10 years of expertise in the parts trading sector, Glover has consistently demonstrated his proficiency through collaborations with airlines and major MROs.

Glover’s journey began at Aerotron where he was a sales assistant, followed by advancement through a series of roles, including AOG sales executive, key account manager and sales supervisor.

In 2022, Glover transitioned to EirTrade Aviation as a sales manager but has recently shifted his focus towards a more procurement-centric role, leveraging his extensive product knowledge to help continue the company’s expansion as a pivotal supplier within the industry.

▲ Jake Glover, purchasing and sales manager, EirTrade Aviation

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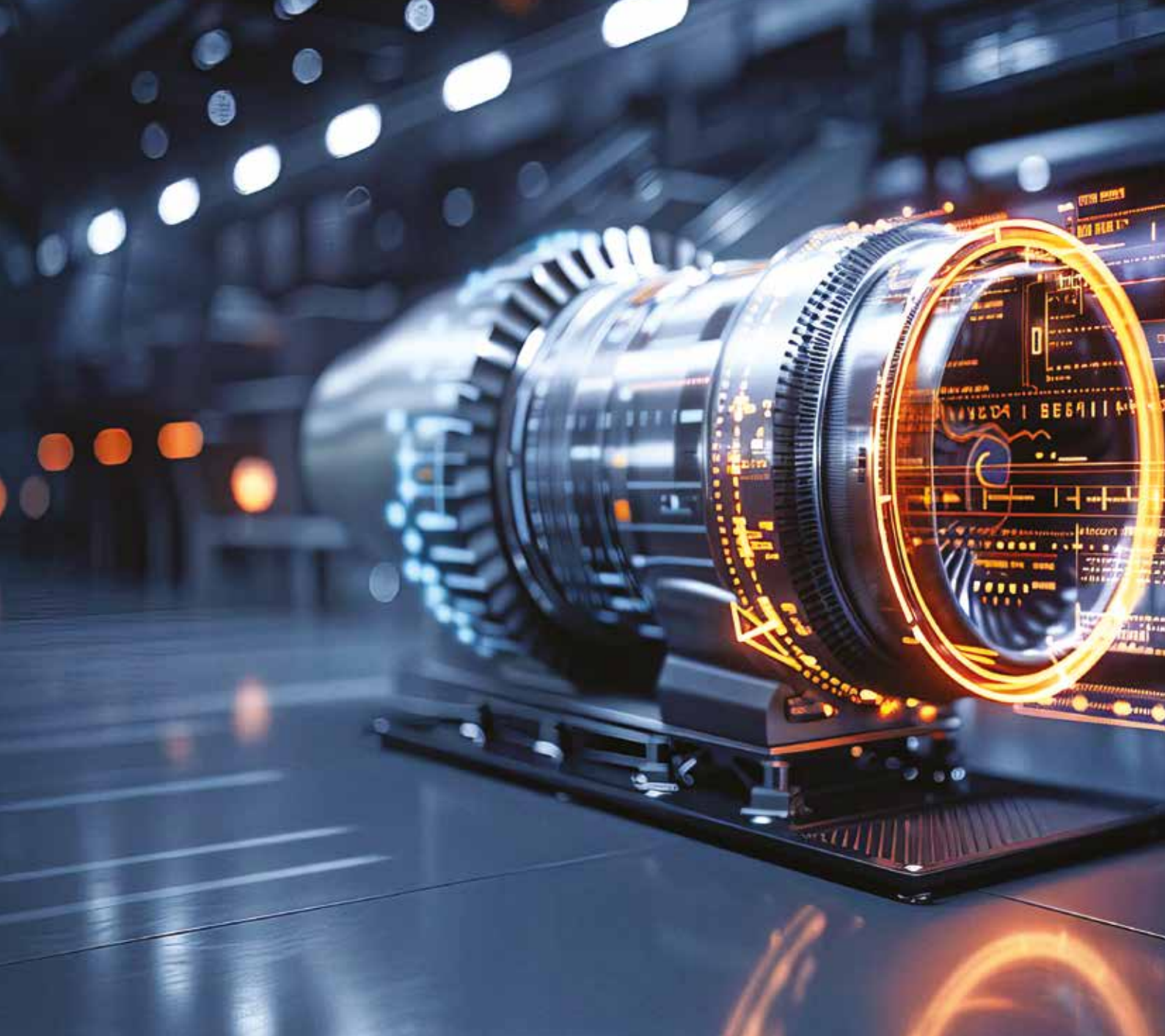
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TACKLING DEMAND & SUPPLY CHAIN HURDLES

Engine servicing is a very distinctive branch of the aviation MRO segment, requiring highly specialised skills and characterised by high demand. **Mario Pierobon** finds out about recent shop visit activity, the supply chain issues that are currently being experienced, and the challenges and opportunities being faced

◀ There are huge opportunities for harnessing digitalisation in the sector

“IN 2024, SHOP VISITS ARE GOING ACCORDING TO EXPECTATIONS AND OUR FORECAST IS TO KEEP GROWING”

Eylo González Merino, engine shop director at Iberia Maintenance

SHOP ACTIVITY

With aging fleets and increased aircraft usage post-pandemic, shop visit activity is increasing, and the engine MRO business is doing well, affirms Martin Urwyler, managing director of Asia Pacific Aircraft Component Services (APACS). “Recent years have seen significant changes,” he explains, “including technological advancements, a shift towards predictive maintenance, and economic pressures influencing maintenance practices.”

According to Abdol Moabery, founder and chief executive of GA Telesis, the demand for engine MRO services has increased driven by the growing global fleet size, the return of aircraft to service post-pandemic, and the high utilisation rates of both new-generation and older aircraft. He says “Our Gates engine MRO business is experiencing a robust performance in terms of shop visit activity.”

As it concerns the development of customer requirements, the focus is on cost efficiency, quick turnaround times (TATs), stringent regulatory compliance and sustainability, reflecting the evolving needs of the aviation industry.

Moabery adds: “The high demand for CFM56 and PW4000 line replaceable

units (LRUs) highlights the critical role these engines play in commercial aviation, necessitating continuous and effective MRO activities.

“We specialise in LRU repairs for CFM56 and PW4000 engines, and we can strongly experience that there is a peak in demand for LRUs for these engine types.”

Thanks to investment in the new generation of engines, the adaptation of facilities and obtaining capabilities to ensure a sustainable business increase, Iberia Maintenance has seen significant growth during the past few years.

Eylo González Merino, engine shop director at Iberia Maintenance, says, “In 2024, shop visits are going according to expectations and our forecast is to keep growing as the results of the previous year, where we closed achieving a double-digit growth compared with 2022.”

SUPPLY CHAIN

The engine MRO business is currently experiencing significant supply chain issues which are particularly affecting the availability and timely delivery of parts and components, according to Urwyler.

“While there is strong demand, the supply chain for CFM56 LRUs is

relatively stable but still faces occasional delays and shortages due to global disruptions,” he explains. “The PW4000 supply chain is encountering more pronounced issues, with frequent delays and shortages of critical parts. This is exacerbated by higher demand for these components.”

Delays in delivering new parts and components have strained the supply chain, points out Moabery. “Extended lead times for parts procurement have become a significant challenge, affecting maintenance schedules and causing delays in shop visits,” he says. “This is as a result of the Covid-19 pandemic and the fact that many providers have simply not recovered.”

Moabery added: “Also, the shortages and increased costs of raw materials used in engine parts, such as metals and composites, are impacting the availability and pricing of components. Finally, challenges in global logistics, including transportation delays and increased shipping costs, have further exacerbated supply chain issues.”

According to González Merino, supply chain issues are still relevant, but at a lower level compared with previous years. “In our facilities in La Muñoza next to Madrid-Barajas airport, we have



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a highly skilled department specialised in developing new capabilities to repair engine parts in-house,” she says. “This allows us to greatly speed up and adjust to the TATs offered to the customer, as well as to solve inconveniences derived from supply shortages and make us less dependent on the outside.”

OPPORTUNITIES AND CHALLENGES

According to Urwyler, the influx of used serviceable material (USM) from increased teardown activities of both CFM56 and PW4000 engines has made it less viable to sustain high-cost repair models.

“However, there is a significant opportunity to partner with engine teardown companies to repair and refurbish USM,” he says. “This can help MRO providers offer cost-effective solutions and meet the growing demand for affordable engine maintenance options.

“Overall, the MRO business must adapt by shifting focus from high-cost repairs to leveraging the benefits of USM through strategic partnerships and innovative repair solutions.”

Cost pressures and workforce shortages are two main challenges over the next five years in the engine MRO business, affirms Moabery. “This is because the rising costs of labour, parts and compliance with regulatory requirements are putting pressure on MRO providers to maintain profitability; and, secondly, because there is a shortage of skilled technicians and engineers causing a major challenge, necessitating significant investment in training and development.”

Indeed, one of the main challenges faced by the MRO business and therefore affecting the engine business is the shortage of qualified professionals and forecasts for the aviation sector exacerbate this problem, as explained by González Merino. “Over the next 10 years, the global fleet is expected to increase by 28 per cent, while

30 per cent of aircraft maintenance technicians are expected to retire, resulting in a shortfall of between 12,000 and 18,000 technicians,” she explains. “It is therefore vital to increase the sector’s visibility and promote vocational training, the branch from which most of these professionals come.”

The best attitude to face difficulties is to understand the challenge and define a plan to deal with it, according to González Merino. “In the Iberia Engine Shop there is a clear path of growth, so we defined a recruitment and training plan, and this has allowed us to increase the technical staff with a steady rhythm while keeping the quality standards,” she says. “At the same time, there are several agreements in place with different training centres for apprentices that complement our internal customised training.”

Another opportunity lies in the digitalisation of the sector, observes González Merino. She says: “This will allow professionals to focus on tasks that add value to the company, such as parts analysis, repairs or any task that consists of ‘touching’ the engine, leaving the more administrative tasks to digital tools.”

1. A shortage of skilled technicians continues to cause challenges
2. AN APACS technician working with the Test Stand Lubrication Unit



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FORWARD. UPWARD. ONWARD.

Wayne Sisson, chief operating officer at FEAM Aero, tells us that dedication to both quality service and community development means that a bright future is ahead for the company

Why was it important for FEAM Aero to expand its footprint at Cincinnati/Northern Kentucky International Airport (CVG)?

Our new 'Hangar 2.0' really underscores FEAM Aero's dedication to innovation and excellence in aircraft maintenance.

It is a three-bay widebody hangar capable of housing up to B767 aircraft, set across approximately 150,000 sq ft and is a huge \$45 million investment for the company.

One of the coolest things about the new hangar is that it's all wired up for AI technology, which is really exciting for us as it will help us improve workforce efficiency and safety monitoring.

We have several engineers that work at height, so the new technology adds another level of safety to their environment.

There's also lots of room for back-shop and storeroom space, in addition to 5,000 sq ft of administrative offices.



“
**RETAINING SKILLED
MECHANICS IS SO
IMPORTANT, BUT SO
IS ATTRACTING THE
NEXT GENERATION**
”

WAYNE SISSON

chief operating officer,
FEAM Aero

Hangar 2.0 complements our existing 103,000 sq ft base maintenance hangar inaugurated at CVG in January 2020. Together, these two facilities form the backbone of FEAM Aero's maintenance activity.

Being located at CVG has proved geographically strategic for us. Amazon Prime Air's principal hub is at Cincinnati/Northern Kentucky International Airport, right outside our hangar doors. They have a huge fleet of aircraft, and we're responsible for maintaining about 80 per cent them. Everyone likes Amazon's smiley boxes, and we're playing a part in making sure they deliver them on time.

CVG is our largest location, with approximately 350 technicians there currently. We're confident we will easily increase this to employ 650 technicians once we've fully filled the hangar with new work as our business grows.

How does the hangar contribute to growth of the local economy?

It is no secret that there's a significant shortage of maintenance technicians across the industry, and we want to play a part in changing that, but first and foremost focusing on local talent.

Partnering with Epic Flight Academy, FEAM Aero's vision is to help the community of Cincinnati move into high paying aircraft maintenance jobs and rewarding aviation careers. We believe that because we are close to their homes, we're less likely to lose them for the same opportunities in other states. We want to help Ohio and Kentucky grow, so providing underserved communities with opportunities is very important to us.

We are going to focus on attracting women into the field, as we know that is an untapped resource, and we're putting a tremendous effort into hiring military veterans. Veterans have valuable experience together with a special attitude towards safety, quality and discipline, and those qualities are perfect for aircraft maintenance technicians.

How is FEAM Aero's collaboration with Epic Flight Academy contributing to your objectives?

Epic Flight Academy is headquartered in New Smyrna Beach, Florida, with seven facilities across the US, and focuses on the training of pilots and mechanics.



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“ OUR NEW ‘HANGAR 2.0’ REALLY UNDERSCORES FEAM AERO’S DEDICATION TO INNOVATION AND EXCELLENCE IN AIRCRAFT MAINTENANCE ”

We’ve partnered with the academy in a not-for-profit venture that is about developing the local community, creating local jobs and, hopefully, having a positive impact on attrition.

Our partnership began in 2022 when we introduced the first programme of its kind in which FEAM Aero offers financial assistance during aircraft mechanic training. The programme invites the academy’s mechanic students to apply for tuition reimbursement and employment with FEAM Aero upon completion of the programme.

We’re very proud to be offering this and empowering individuals from all backgrounds to pursue rewarding careers in aviation maintenance.

What do you think are some of the challenges that exist in the industry when it comes to recruitment and training?

The maintenance technician shortage is troublesome for all, even the airlines. Retaining skilled mechanics is so important, but so is attracting the next generation.

The pressure is on the industry to train, and we’ve recognised this, hence the partnership with Epic Flight Academy.

FEAM Aero focuses on the quality of our work to make sure airlines can fly safely. We have all seen the news reports about what happens when something goes wrong, or if proper attention was not given during maintenance activity. A lack of skilled workforce can increase the risk of accidents, so the emphasis must always be on training – training new recruits or the ongoing training of those already skilled.

Our commitment to safety and training extends to partnering with GlennCo Aviation Maintenance Training. The chief executive, Glenn Schalk, is probably one of the best engineers I’ve ever worked with – we met when we both worked at British Airways. Glenn is helping us with our training activities which in turn is helping us to stand out from the crowd.

Do you think it is fair to say that ‘Hangar 2.0’ marks a new chapter for the company?

Absolutely. When we rebranded from FEAM to FEAM Aero, we wanted to stand out and demonstrate we’re going forward as a company, and the new hangar validates all of that.

Hangar 2.0 not only marks a new chapter in our growth at CVG airport, but showcases that we’re ready to get into new lines of work, things we don’t focus on today. That could be anything from mod lines to heavy maintenance, C-checks and perhaps other ‘boutique’ opportunities to serve our customers and their varying requirements.

There has been a lot of interest in the new hangar which we’re thrilled about and I think cements FEAM Aero’s upwards trajectory as a leader in aircraft maintenance.

Our new orange colour scheme and branding is striking, and really emphasises that FEAM Aero has a bright future ahead. 🟡

1. The new hangar is capable of housing up to B767 aircraft
2. Hangar 2.0 is a three-bay widebody hangar set across approximately 150,000 sq ft

Waste not, want not

Unical's Chad Kartchner highlights the role of waste management in minimising environmental impact and maximising material recovery in aircraft EOL processes

Sustainability is gaining increasing focus within the commercial aviation industry, and that includes more specifically within the MRO sector.

Environmental regulations, such as ICAO's Carbon Offsetting and Reduction Scheme for International Aviation and the EPA's Clean Air Act, drive MRO providers to adopt more sustainable practices to minimise environmental impact and promote long-term sustainability.

Aviation companies have set targets to achieve net zero by 2050. As airlines and original equipment manufacturers (OEMs) implement action plans to meet these goals, their practices are flowing down the supply chain, including to parts supply companies.

While a primary focus of the industry is fuel efficiency, there are other areas where airlines and MRO providers can work to improve sustainability. Everyone in the supply chain can take measures

▼ Unical has an aircraft teardown facility and repair station located adjacent to its parts warehouse



“
UNICAL HAS A BUSINESS MODEL THAT, BY NATURE, HELPS TO REDUCE, REUSE AND RECYCLE PARTS THAT MIGHT OTHERWISE BE SENT TO LANDFILLS
”

CHAD KARTCHNER

vice president of marketing and sales, Unical

in their own areas to reduce aviation's overall environmental impact.

When it comes to end-of-life (EOL) processes, MRO providers, such as Unical Aviation, can implement waste management programmes, which include recycling and reusing parts and materials whenever possible.

As a used serviceable material (USM) provider, Unical has a business model that, by nature, helps to reduce, reuse and recycle parts that might otherwise be sent to landfills. Not only does this reduce waste, but it also reduces the need for new materials and extends the life of large assets.

This approach also allows aircraft companies to prove to their customers how eco-friendly and creative they can be with upcycling while maintaining proper safety protocols.

Larger providers, like Unical, may have more opportunity to be able to reuse parts that a small supplier may discard or not have the capacity for.

Unical has over 80 million parts and supplies parts for thousands of customers globally, creating more opportunities to find value-added use cases for a wide variety of parts. The reuse and recycling of parts must, of course, be balanced against the improved efficiency of newer aircraft but, overall, using serviceable material is an opportunity for aircraft companies to demonstrate to their community how they positively contribute to their local environment.

Vertical integration can also help reduce waste in many ways. Unical is a vertically integrated parts distributor, meaning it also has an aircraft teardown facility and a repair station located adjacent to its parts warehouse.

Unical's vertically integrated repair station has environmental benefits; for instance, a repair shop located adjacent to the warehouse allows Unical to reduce emissions from shipping parts to and from a third-party repair facility.

Vertical integration has enabled sustainability improvements in other industries, empowering companies to reduce waste created by intermediaries.

As aircraft companies strive to attract potential customers and partners, they should consider sustainability initiatives and practices that can be seamlessly integrated into their operations.

MRO providers should incorporate sustainability practices into their operations sooner rather than later instead of waiting until it becomes a mandate from either customers or regulatory bodies.

The importance of sustainability will only continue to grow, and companies must adapt and evolve with their customers to avoid being left behind. ●



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