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North America

Post-pandemic recovery takes off

Teardowns

Demand picks up for used serviceable materials

CFM56 Overhaul

Costs and supply for engine materials

> "By following Oklahoma's example, communities across the U.S. with a strong MRO presence can ensure that companies have the right support needed to thrive in this new post pandemic world."
>
> *Kevin Stitt, Governor of Oklahoma*

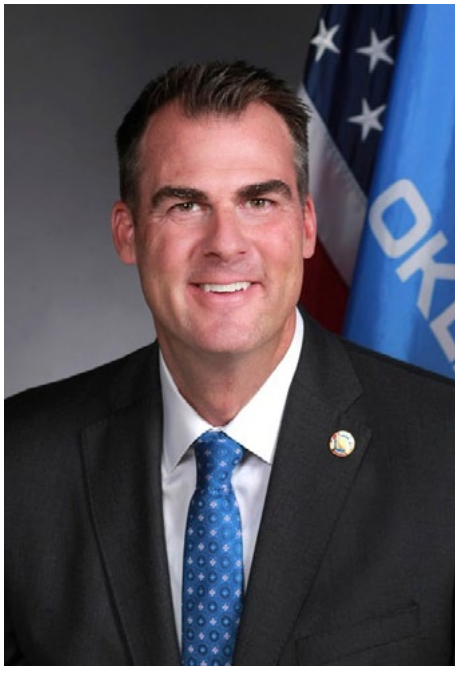
Aircraft utilisation rates jump start **North American** MRO recovery

The MRO market is seeing a rebound in the region. *Photo: American*

North America is reporting a rebound in domestic and intraregional travel but also recovery of MRO activity, but filling the skills shortfall continues to be of significant concern, as **Keith Mwanalushi** finds.

Pent-up travel demand is driving the recovery in one of the world's most mature aviation markets; North American carrier capacity is now within 14% of pre-COVID levels [OAG], and while TSA throughput numbers remain 16% down when compared to the same timeframe in 2019, load factors at almost 86% exceed 2019 levels – [Airlines4America].

In the U.S specifically, although the country and economy finally appears to be moving beyond COVID, Kevin Stitt, the Governor of Oklahoma tells *AviTrader MRO* that work needs to be done to help the global MRO industry overcome post-pandemic challenges – "These include the slow return to pre-pandemic business and tourism travel levels, global supply chain gaps that prevent the timely order of parts for aircraft repairs, and a lack of talent with sought-after technical skills," he says.



Oklahoma Governor Kevin Stitt

Governor Stitt reports that Oklahoma is on track to become the most business-friendly state in the nation. He indicates that the state offers incentives designed to help industries grow – including the Aerospace Industry Engineer Workforce Tax Credits which provides a tax credit of up to 10% to aerospace companies that hire engineers and it also allows for an annual tax credit of $5,000 to the employee – "Additionally, the state's Oklahoma Innovation Expansion Programme (OEIP) incentive is entering its second year and provides funding to Oklahoma companies with new and innovative projects that lead to diversification, market expansion or supply chain resiliency," he adds.

An industry survey in 2020 shows that

40% of MRO suppliers sourced materials directly from China, and only 60% had identified alternate sources for those materials. Oklahoma state is keen to help MROs identify more U.S suppliers and connect with local companies capable of fulfilling in-demand parts via the portal 'Connex Oklahoma.' The Oklahoma Manufacturing Alliance (OMA) developed the site, in partnership with the Oklahoma Department of Commerce, to provide critical resources to state manufacturers. Governor Stitt says the platform is also designed to incorporate the "Manufacturing Marketplace" developed by the National Association of Manufacturers, comprised of more than 165,000 manufacturers across the U.S. To date, over 500 Oklahoma-based companies use the platform to help mitigate supply chain issues, according to the Governor's office.

The recovery in North American domestic travel and improvement in international travel has driven aircraft utilisation rates up across the board meaning that as utilisation rates recover, demand for aircraft, engine and component MRO is also strengthening. "As we continue to see recovery in other regions in addition to the North American sector, global demand for airframe and engine component material will continue to improve," anticipates Daniel Adamski, Executive Vice President of Distribution for Kellstrom Aerospace. Adamski reckons the global supply chain may face continuing challenges in addressing that demand quickly due to raw material shortages, cold start production of parts leading to lead time challenges, MRO TAT challenges due to late delivery of repair details, the shortage of skilled labour in some areas and a surge in demand for specific services relative to capacity.

Pastor Lopez, President, MRO Services Group, GA Telesis

In the North American market, Kellstrom has seen strong demand for larger regional jet material relative to other aircraft categories. "We carefully monitor the recovery demand trend with customer supplied forecast data and trend analysis with predictive analytics capability designed to ensure that we have the right mix of material on the shelf to address the demand of operators ahead of demand," Adamski states.

Since 2019, GA Telesis began placing more emphasis on the regional side of the business. "Today, we are happy to report we count the largest North American regional operators among our customers," tells Pastor Lopez, President, MRO Services Group at GA Telesis.

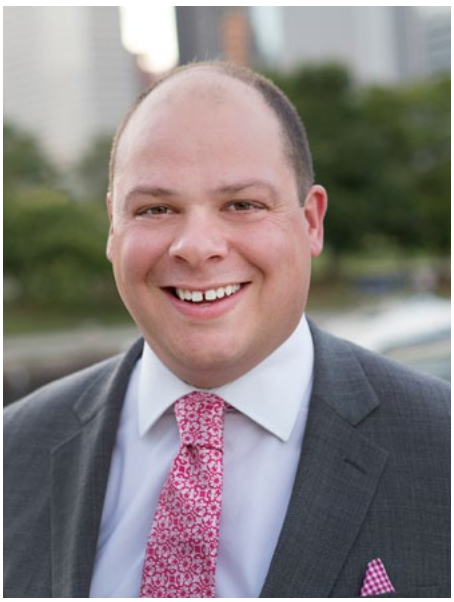
This segment accounted for 15% of GA Telesis' revenue in 2021 – "We can now support our regional customers with component, composite, and landing gear work. Our first regional customer began with gear work, and it is now sending us component and composite work," Lopez indicates.

The shortage of skilled labour in the MRO sector was an already deteriorating situation before the pandemic but Lopez, reports that the MRO group at GA Telesis did not lay off a single individual in 2020. "In fact, we hired technicians with specific skill sets to augment our team and some of the employees that left before 2020 have now returned to our group. GA Telesis also provides excellent benefits that are very attractive to the new generation of technicians. Therefore, building and maintaining a pipeline of employees is one of our key priorities."

AAR Corp has a strong presence in the North American MRO market with four domestic aircraft MRO locations and two in Canada alongside a New York component shop and a Miami landing gear and wheel and brake facility. Carl Glover, Vice President, Sales and Marketing for the Americas, states that these facilities have seen an improving position with regards to the workloads that they are seeing and the strong sentiment from operators.

In the regional context, AAR has an active presence with regional airlines with some of the largest outsourced flight hour

Daniel Adamski, Executive Vice President of Distribution for Kellstrom Aerospace



Carl Glover, AAR Vice President Sales & Marketing for the Americas.

programmes supporting regional aircraft. "We see positive trends in the regional jet space through our parts trading and OEM distribution business which are focused upon the regional jet platforms including Bombardier, Embraer and ATR aircraft," says Glover.

Recently, AAR announced a multiyear agreement with UTAS / Goodrich to support their de-ice products in this space and Glover says AAR's component repair shops are seeing an uptick in activities from regional operators who are looking for "OEM friendly" repair partners who

Taco Stouten, Head of Sales and Marketing at Spairliners.

can track and assist with performance reliability as components mature out of their OEM warranty phase.

At Spairliners, they are optimistic about the MRO recovery especially for E-jet component solutions where the North American market is the strongest. "Regional air traffic has been recovering so quickly in North America that the demand for MRO activity is almost back at the pre-COVID level," reveals Taco Stouten, Head of Sales and Marketing at Spairliners. "The big opportunity that we see in North America is to get airlines to cooperate for the MRO work on the fleet they have in common. However, the challenge could be the lack of skilled labour to fulfil the demand in a timely manner," Stouten notes.

> **"The big opportunity that we see in North America is to get airlines to cooperate for the MRO work on the fleet they have in common. However, the challenge could be the lack of skilled labour to fulfil the demand in a timely manner."**
>
> *Taco Stouten, Spairliners*

Stouten places emphasis on the importance of integrating the MRO supply chain and managing the related assets in the most cost-efficient way for operators to save cash. "To give you an idea, our business model can help airlines to free up 80% of the cash that is traditionally locked in their spare parts stock and considering we have built up knowledge and skills on the A380s, which is the largest passenger aircraft in the world, and one of the most complex to manage for the spare parts."

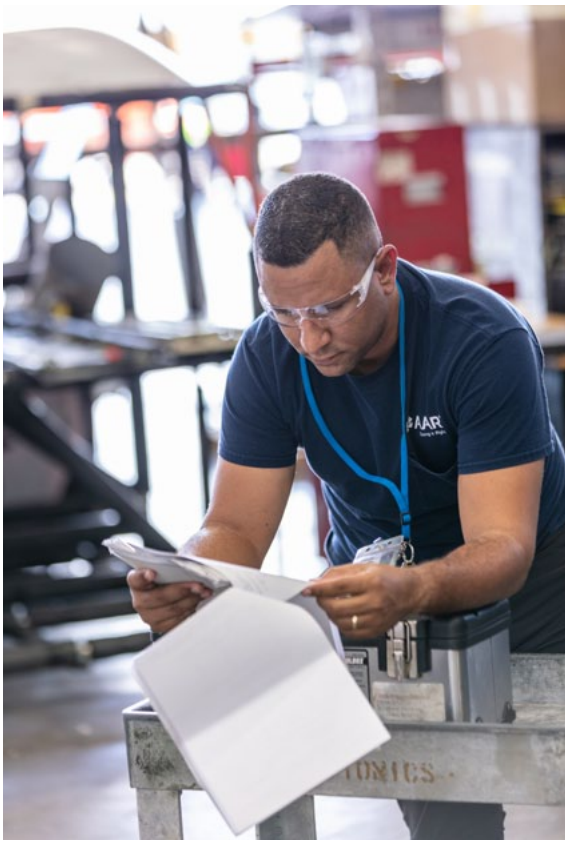
Spairliners is now in its tenth year of supporting E-Jets, following the same model in Europe, and Stouten is certain the formula has worked for the airlines, for the MROs, and for the company. "Our operators are happy that we have taken this out of their hands and out of their minds and they do not want to go back to managing their spare parts by themselves. The MROs are happy to work with a company like Spairliners, because it reduces the contact points needed for the amount of work that we bundle and can bring to them."

Dealing with the technical skills problem

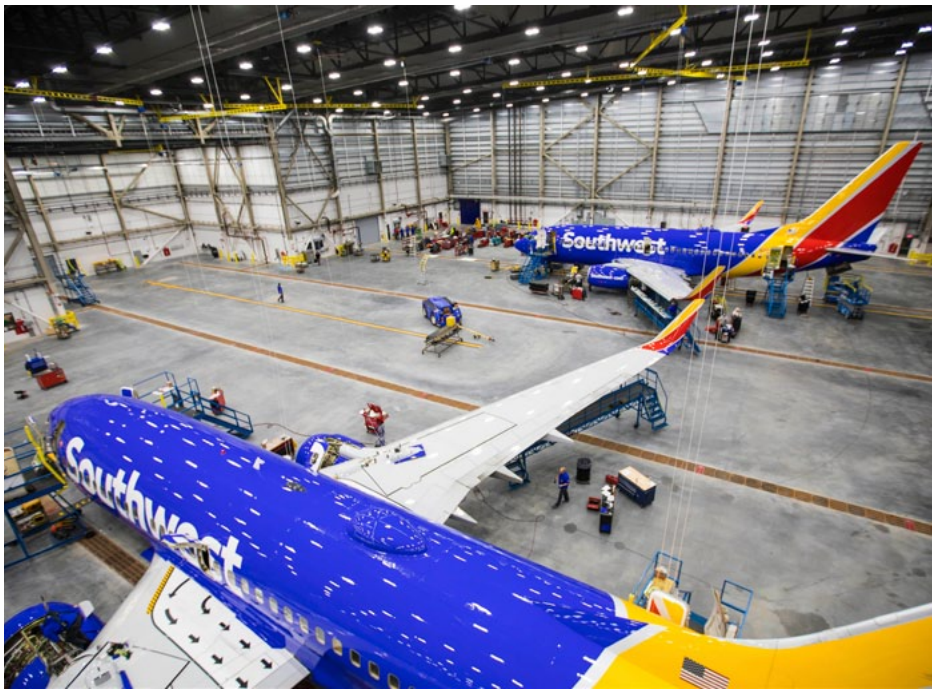
Experts at industry conferences have debated the labour shortfall issue at length in recent months and the situation is starting to be of significant concern to major MROs and approved component repairs organisations and is beginning to impact their business, driving delays in turnaround time.

A speaker from ACC Aviation told this publication recently that the industry can mitigate this by bringing qualified people from overseas or creating incentives for new apprentices.

Stouten feels the MRO sector still needs help attracting qualified personal as several technical schools have had lower enrolment levels over the last couple of years. "There seems to be a loss of interest in aviation from the younger generation and waves of experienced skilled labour leaving the industry and this trend was of course made worse by the pandemic and its direct consequences." He feels the industry needs to do more to become more attractive again to increase the number



The challenge might be a lack of skilled labour to fulfil the demand in a timely manner. *Photo: AAR*



There are concerns of global supply chain gaps that prevent the timely order of parts for aircraft repairs.
Photo: Southwest

of certified personnel and cover the shortage of workers – "As an example, some companies are teaming up with technical schools to offer jobs right after graduation. This skills shortage, in addition to the crisis and procurement difficulties will continue to contribute to a steep price rise for MRO services."

In order to spark greater interest in aviation, AAR for instance collaborates with various educational partners, including youth centres, high schools, community colleges, private colleges, and universities near AAR's four U.S.-based aircraft repair stations in Miami, Oklahoma City, Indianapolis, and Rockford, Illinois, and the global headquarters near Chicago's O'Hare International Airport.

In October 2019, through a partnership at Western Michigan University, AAR launched the EAGLE career pathway programme, which focuses on ethics, airworthiness, greatness, leadership, and engagement (EAGLE). Glover explains: "Students selected into this programme benefit from hands-on work experience, job shadowing, and assigned mentors. This programme creates clear pathways to career advancement for college students across the country and to fill the predicted skill gaps in aviation with multi-levelled certified aircraft mechanics."

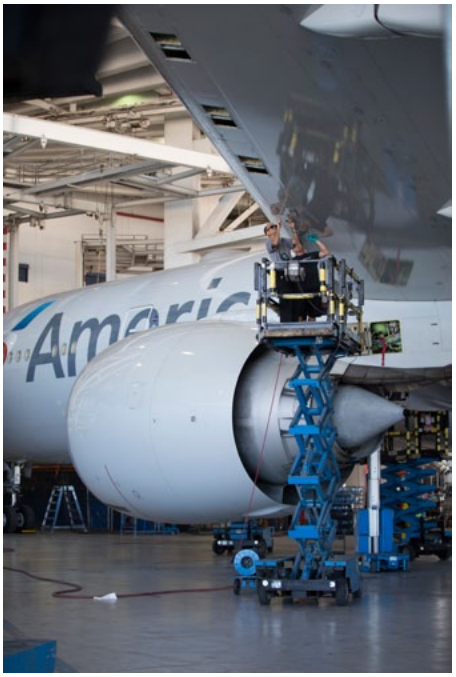
Prior to the onset of the pandemic, the average age of an FAA-licensed mechanic was 51, and 27% are over 64, according to a 2017 study by the Aviation Technician Education Council (ATEC). Recognising this trend, Governor Stitt says Oklahoma state has made strides at establishing a strong pipeline of qualified workers for aviation and MRO companies by investing heavily in education and STEM programmes to get the youth excited about careers in aviation.

Oklahoma is home to twelve public and private universities that offer aerospace degrees, including the nation's only PhD programme that caters to unmanned aerial systems along with private technical training programmes such as the Metro Technology Centre at Will Rogers Airport and the Moore Norman Technology Centre. The Governor highlights that over the next five years, the Oklahoma CareerTech, a network of six vocational-tech schools with 59 Oklahoma locations throughout the state, expects that an additional 10,000 students will graduate with aerospace-related degrees.

"In short, by following Oklahoma's example, communities across the U.S. with a strong MRO presence can ensure that companies have the right support needed to thrive in this new post pandemic world," Governor Stitt adds.

Comments from Adamski at Kellstrom echo similar points of view that prior to the pandemic, the industry in North America suffered a shortage of skilled personnel due to a vast number of technicians reaching retiring age, while educational programmes were not able to induct enough qualified personnel to cover the vacancies. "The current post-pandemic conditions continue to be challenging and will remain challenging for the foreseeable future. The recent years of high cyclical demand in the industry have caused maintenance organisations to react by drastically adjusting personnel levels, negatively impacting the lives of their technical skilled employees," Adamski highlights.

And he advises that providing employees with the ability to build on their own potential by exposing them to new opportunities that will allow them constant growth, providing a safe working environment, a competitive salary and benefits are some of the main strategies for retaining technical personnel.



Growing aircraft ultilisation has led to a spike in MRO work.
Photo: American

AviTrader™

Embraer Component Support

Editorial Supplement
By Keith Mwanalushi

In Association With

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You Fly. We Care.

Photo: Embraer

E-Jet operators are flying varying fleet sizes in very different locations. *Photo: Shutterstock*

Spairliners amplifies Embraer support solutions post-pandemic

Thies Möller, Managing Director and Chief Executive at Spairliners talks about the broad range of component services for Embraer aircraft and the company's growing ambitions in the market.

Spairliners is an independent component aftermarket service provider specialising in the E-Jet aircraft family with a wide variety of services from ad hoc loans, exchanges and AOG services to full PBH solutions. We also provide component care for the A380, but this platform has taken a backseat since the pandemic. So, we are now in the unique position to fully focus on the Embraer E-Jet family.

> "We have been leveraging the USM market and have established a dedicated team a few years ago to manage the component procurement and trading business to realise cost savings."
>
> *Thies Möller, Spairliners*

Our E-Jet customers are operating varying fleet sizes in vastly different locations and climates across the globe and we always ensure that our solutions are fully tailored to each customers' individual needs and requirements.

As an integrator, we are a one-stop-shop offering asset management, procurement, home base stock, as well as access to our component pool to enable our customers to service their fleet with short turnaround times all around the world.

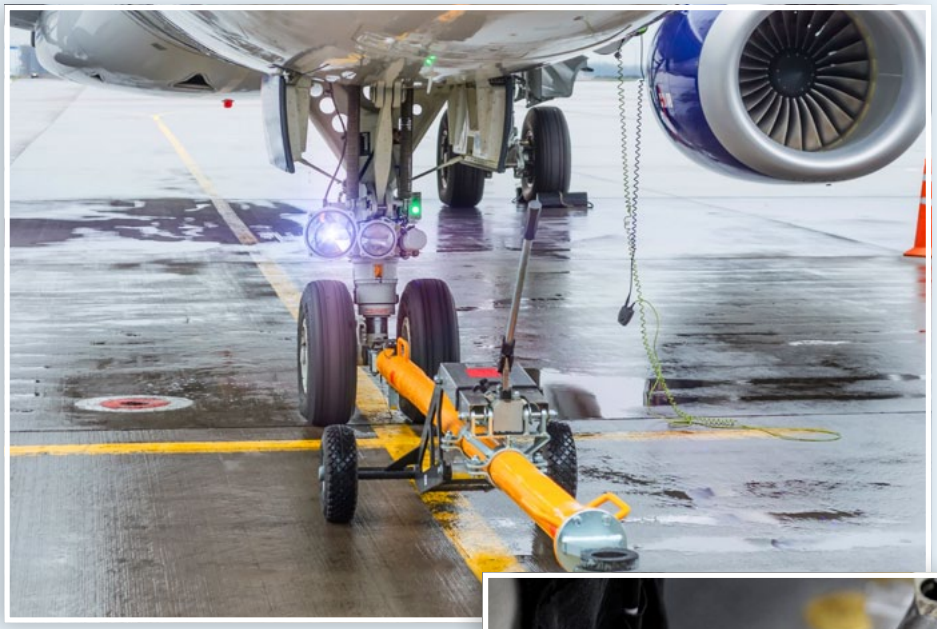
As we have seen in the past two years, cost and cash flow optimisation are still key priorities for airlines as they are slowly recovering from the COVID pandemic. We expect air traffic to be back to the level of 2019 within the next two years.

Spairliners is emerging stronger from the turbulent times and is now setting the course towards growth again. We have reinforced our sales team and are now in good position to build on our success in the EMEA region and continue our expansion into other regions.

Thies Möller, Managing Director and CEO of Spairliners.

Partnerships and innovative technologies will drive efficiencies in component MRO

Spairliners is always aiming to find the most cost-effective and efficient solutions for its customers on the market. We have been leveraging the USM market and have established a dedicated team a few years ago to manage the component procurement and trading business to realise cost savings and benefit from the higher availability.

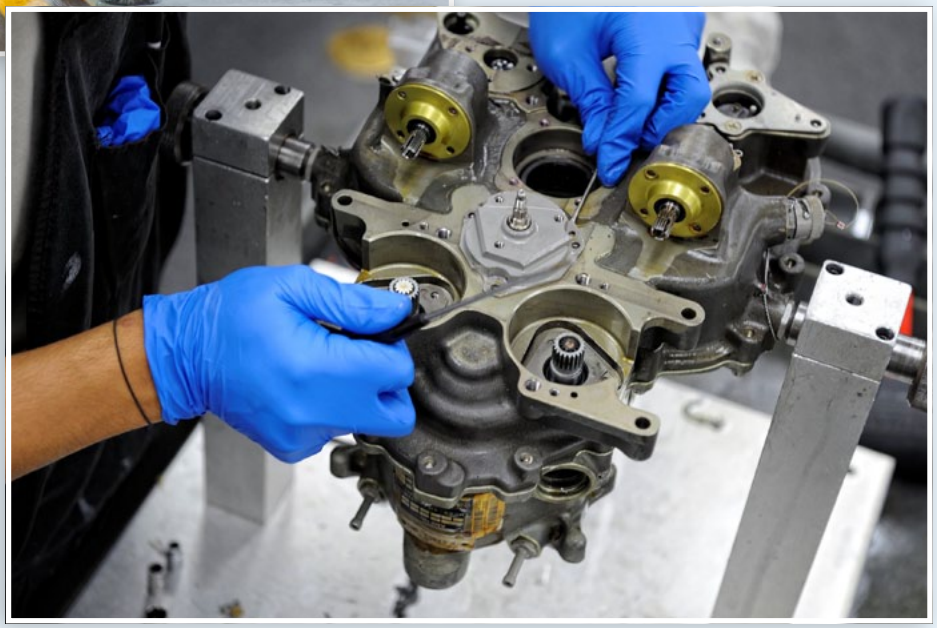


Spairliners found custom solutions for operators during the pandemic. *Photo: Shutterstock*

While our shareholders are still our first address for MRO services, expanding our network through direct relationships with supplementary service providers within the MRO ecosystem provides us with an additional level of flexibility and autonomy. Over the past few years, we have forged industry partnerships with several providers that we trust to reliably deliver to the high-quality standards we adhere to in order to ensure the timely supply of critical parts. Combined with our unique expertise in supply chain, engineering, and smart inventory management our partners' agility and experience will result in higher availability of parts, faster turnaround times, and a better service for our customers.

Furthermore, we can strategically grow our international network especially in the regions we are looking to expand to, such as the Americas. This is adding a geographical advantage to the operational benefits we are gaining through these partnerships.

Lastly, we see that DER and PMA solutions are becoming more attractive recently and gain importance in times of financial strain. They help to strike the right balance between delivering high quality parts and service and lower costs for our customers. Together with some of our partners who have been implementing DER and PMA solutions successfully for years, we are overcoming some of the caveats surrounding these solutions to offer our customers the same, sometimes even better quality at improved cost.



New technologies will drive efficiencies in component MRO. *Photo: Spairliners*

Flight hour programmes and supporting airlines as they rebuild their flying schedules

Power by the hour (PBH) programmes provide a sense of security and full ownership of cost, which allow the operators to make reliable and predictable calculations for their operations. Airlines still prefer these programmes because they require much less in-house management. So, the airlines can focus their time and energy on what matters most, flying their passengers! In addition, our services are scalable and flexible to move with the fleet and network development of the airlines.

During the height of the COVID pandemic, most operators grounded their entire fleet and could not reach the minimum flight hours that are the baseline for any PBH contract and an integral part for the cost calculation. This turned the "safe haven" of a predictable PBH agreement into a burden for the operators because they would be obliged to pay for component support and repairs at a flat rate, even though they did not fly.

While Spairliners was also severely suffering as a company due to the pandemic, we did realise that the only way to get through the crisis was to share the pain of our customers. We made it our priority to work with our customers to find custom solutions for them to fit their current situation instead of insisting on their contractual obligations. Ultimately, we were able to find agreements that were taking the actual flight and maintenance activity more into consideration for the period of very low activity for a limited time. We received incredibly positive

feedback from our customers who really appreciated that we accommodated their needs and found a common ground to overcome this turbulent period.

Forecasting parts supply demand

To start with, there are life limited parts that will need to be replaced after a certain amount of time or number of flight hours. The forecasting for those items is fairly simple and straight forward. For anything else, we use our Spairliners Asset Control Enterprise (SPACE) solution to optimise our inventory in real time while increasing service level, component availability, and simultaneously reducing costs.

We developed this tool in collaboration with our technology partner LOKAD, they are experts in data analytics. SPACE combines probabilistic forecasting with engineering recommendations and provides tailored investment decisions suitable for specific component assets. Our methodology takes a wide range of possible supply chain scenarios into account to deliver a holistic assessment of parts supply and demand. We are using this approach to size our own inventory pools across the globe and to determine the optimal home base stock for our customers. Considering that we have been relying on data analysis for our asset optimisation for a while, we are now also assessing the possibilities of predictive maintenance and we strongly believe this will be another game changer in our industry. Predictive maintenance will have a significant impact on how we manage component support in the future.

Growth opportunities in the Americas

The Americas, and North America in particular, is by far the largest E-Jet market. No other region has a greater active E-Jet fleet, and we are now focusing on the E-Jet family as our main aircraft type. We expect to achieve our goals for growth on this platform.

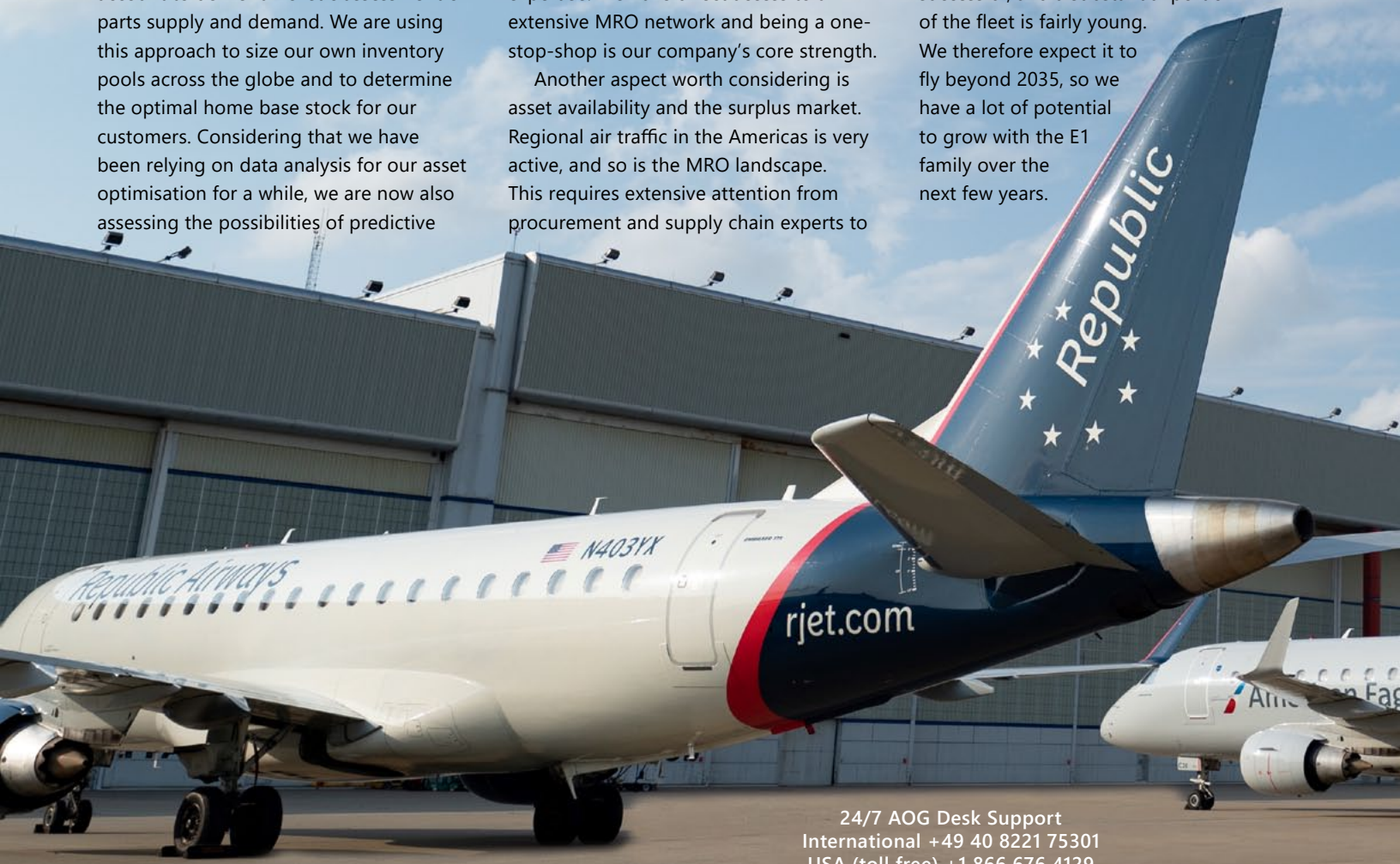
We see that many E-Jet operators in the Americas are handling their component support themselves on a stand-alone basis. We also see that there are many MRO suppliers in the region, making it potentially more difficult for the operators to identify the best suppliers for every single component. This is where Spairliners comes in to close the gap as an expert in integrated component care and to make the life of operators easier through our expertise. We have direct access to an extensive MRO network and being a one-stop-shop is our company's core strength.

Another aspect worth considering is asset availability and the surplus market. Regional air traffic in the Americas is very active, and so is the MRO landscape. This requires extensive attention from procurement and supply chain experts to balance inventory on shelf and operators' cash flow, as already stated. Outsourcing this part of the airline's operation to a dedicated integrator such as Spairliners can result in significant benefits for operators. It will reduce inventory, reduce stress levels at the airline, and it will free up cash as well as manpower so that the operator can focus on flying.

Any plans to extend support solutions to the new E2s?

The short answer is not now. There is too limited commonality between the E1 and the E2 and building up capabilities to support this aircraft type would require a significant investment. We are continuously monitoring the development but as of now, the market is not attractive enough for Spairliners to take this step. The recent announcement by Embraer to pause the development of the E175-E2 – the most popular E-Jet size - for at least the next three years is further proof that we were right to not take this decision yet.

The E1 family is still incredibly successful, and a substantial portion of the fleet is fairly young. We therefore expect it to fly beyond 2035, so we have a lot of potential to grow with the E1 family over the next few years.



Many E-Jet operators in the Americas are handling their own component support.
Photo: Embraer

Spairliners

You Fly.
We Care.

E-Jet Component Support