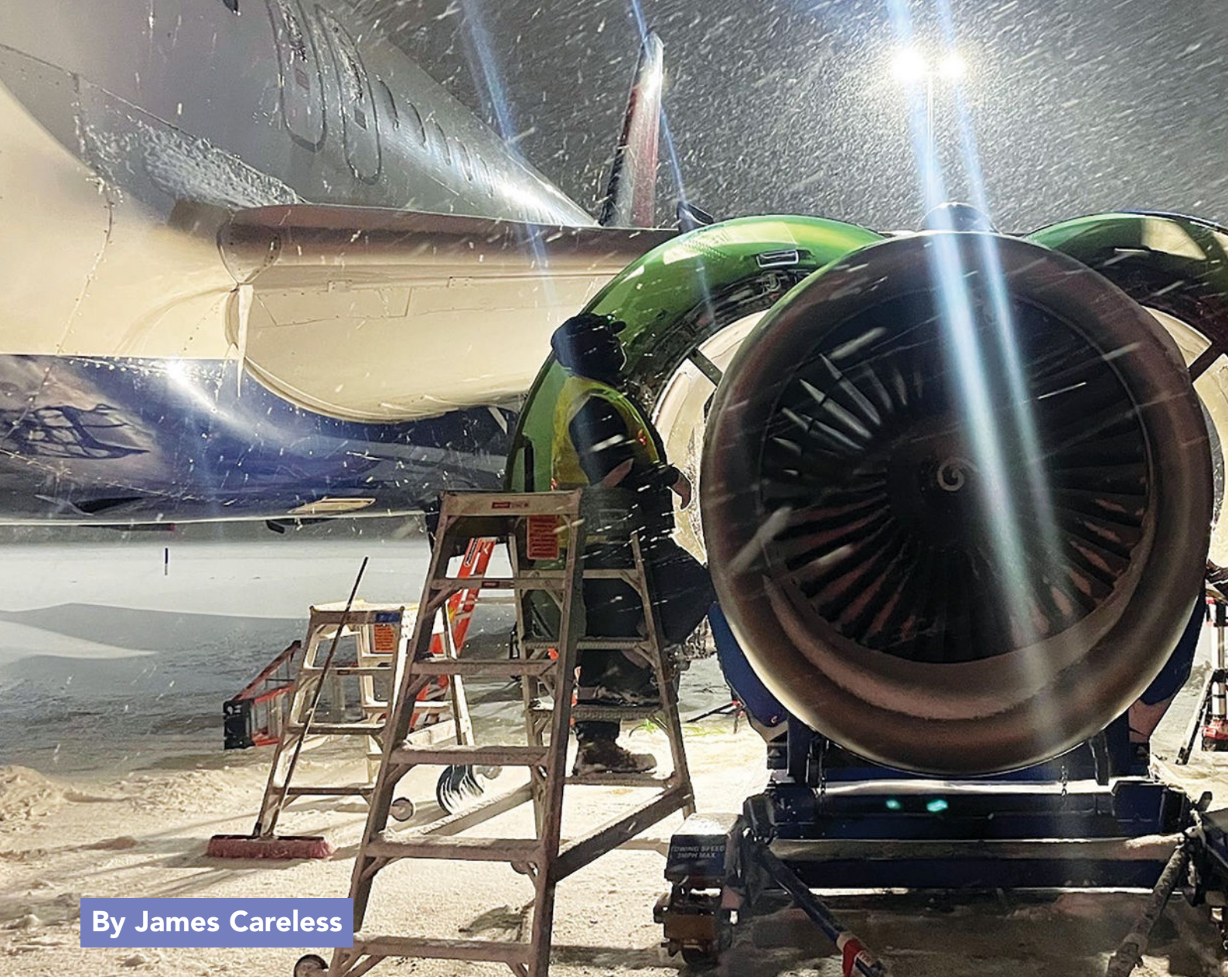


By James Careless

The Evolution of Line Maintenance

How technician shortages and new technology are reshaping aviation line maintenance.

In aviation, line maintenance (LM) is the name for the routine maintenance work and inspections performed on aircraft to keep them airworthy and ready for flight. Typically, this work is done between flights or overnight, to minimize aircraft downtime and keep them flying on schedule.

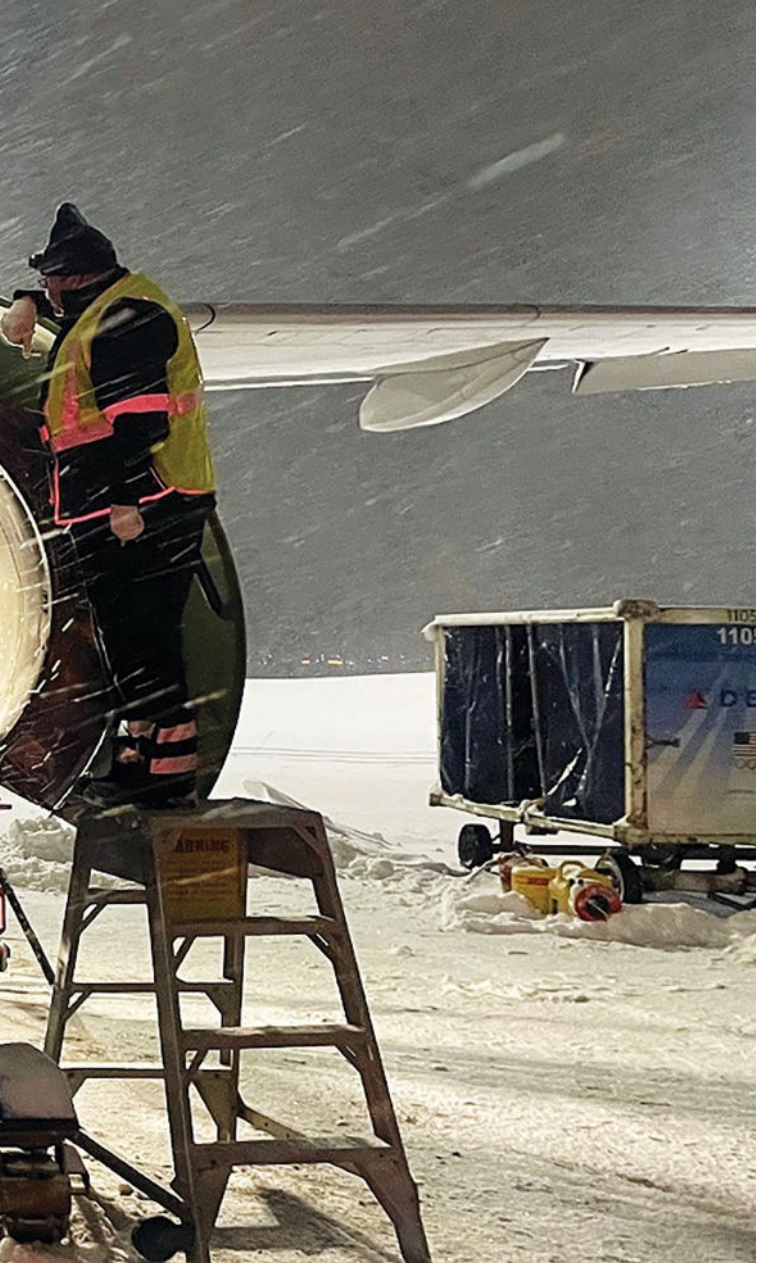
So, what is the state of line maintenance in 2026, both good and bad, and what are its prospects going forward? To find out, *Aviation Maintenance* spoke with three MRO experts:

Augustinas Pajeda is FL Technics' line maintenance control center manager. "Our LM team supports airlines with full line maintenance services, including fast, precise AOG assistance," he said. "When an aircraft goes AOG, our team moves immediately to assess the issue, diagnose the problem, and deliver a safe, efficient solution. We operate under multiple international approvals, including EASA Part-145, FAA, GCAA (UAE), Transport Canada, QCAA, and Bermuda DCA, covering a wide range of aircraft types."

Augustinas Pajeda, FL Technics

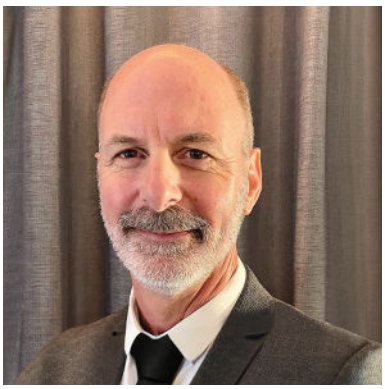
Marcel van Sitteren is maintenance manager at SR Technics Line Maintenance AG. "We deliver comprehensive line maintenance services across Switzerland's major airport hubs, supporting a diverse range of international airlines," said van Sitteren. "Our teams in Basel, Geneva and Zurich carry out transit checks, daily and weekly inspections, defect rectifications, AOG support and specialized on-wing

Marcel van Sitteren, SR Technics



engine services."

Gary Pratt is STS Line Maintenance's senior vice president and general manager. "STS Line Maintenance supports more than 80 domestic and international passenger, cargo, and charter airlines with a full range of on-wing services," he said. "This includes on-demand defect rectification, scheduled checks up to and including A checks, AOG recovery and return to service, and specialized projects like airframe modifications."



Gary Pratt, STS Line Maintenance

Here's what they told us.

Line Maintenance Shops Are Busy

According to the experts, line maintenance is experiencing strong demand as global air traffic continues to grow. As this happens, "the industry is adapting to higher aircraft utilization, rising regulatory expectations, and increasingly advanced technology, at a time when safety, reliability, and operational continuity are more critical than ever," said van Sitteren. "We also see a significant increase in demand for on-wing engine support, from engine changes to LEAP-1 RBS modifications and fuel nozzle replacements." To meet this need, SR Technics fields a dedicated mobile team able to support customers at the MRO's own stations and at the customers' home bases.

Times have certainly improved for the MRO industry since the dark days of Covid-19. "Commercial aviation has come back and now exceeded pre-pandemic levels," Pajeda told *Aviation Maintenance*. "This means that the workload has increased for line maintenance stations as well."

At the same time that demand is going up, the fundamental nature of line maintenance has not changed. "Line maintenance technicians are still responsible for safe, compliant, efficient work that keeps the flying public moving," said Pratt. "They're essential to the health of our national transportation system, but the recognition they receive doesn't always match the responsibilities they carry or the conditions they work in."

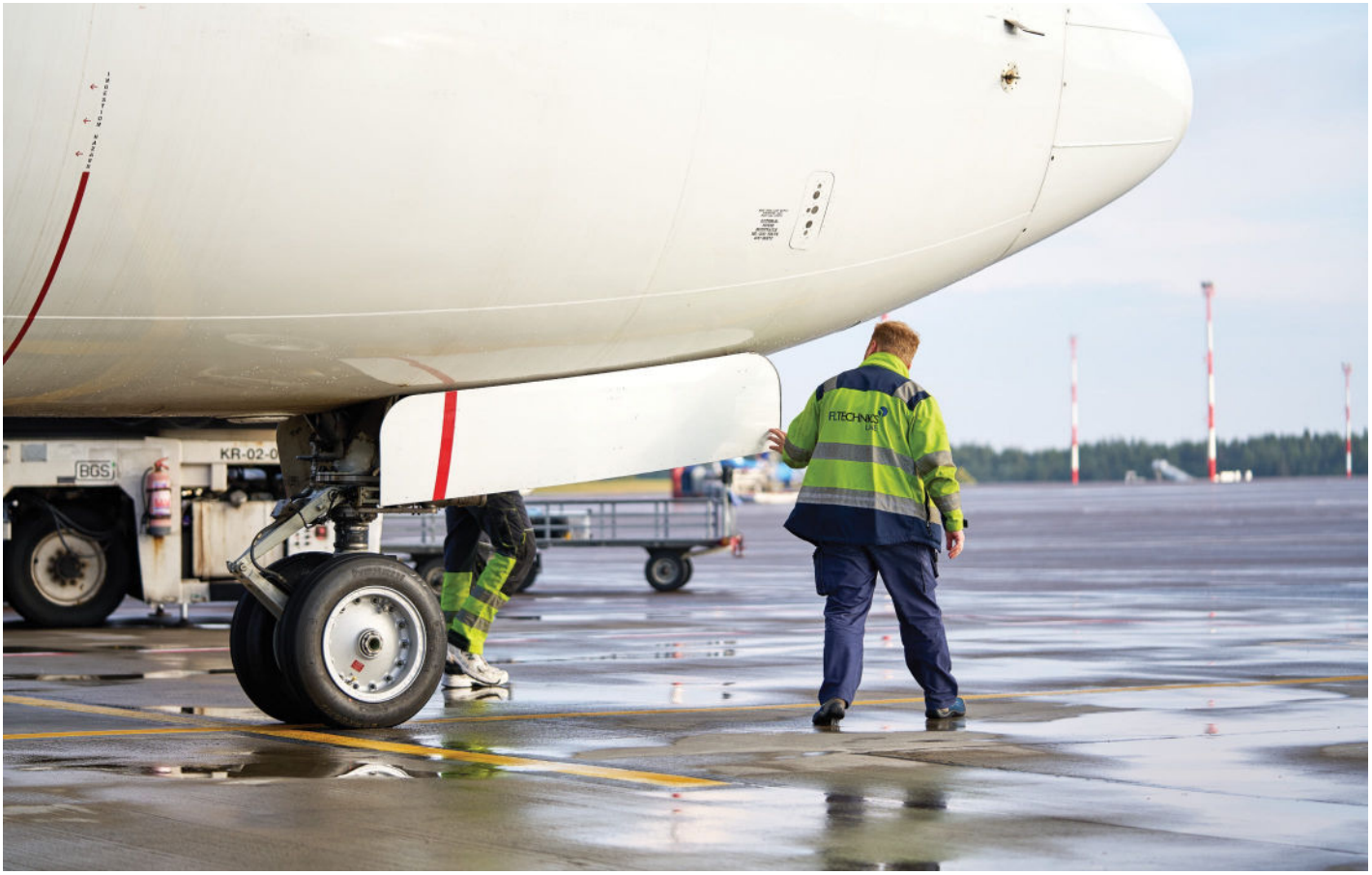
This being said, customers' expectations have changed. "Airlines are constantly adjusting fleets, routes, and resource allocation based on economic shifts and operational priorities," noted Pratt. Whenever this happens, airlines expect service providers like STS Line Maintenance to keep up. "Wherever the aircraft go, we go," he said. "That means realigning people, tooling and processes in a way that keeps pace with the operation while maintaining quality and safety."

Technician Shortages Still Biggest Issue

Aviation Maintenance magazine asked the experts which issues the line maintenance sector is facing these days. Based on their answers, an ongoing shortage of skilled technicians is still the Number One problem.

"The technician shortage is here, and it isn't going anywhere for a while," Pratt said. "Retirements are accelerating, and trade schools aren't graduating enough new talent to replace them. Third-party maintenance providers face an additional challenge because airline benefit packages are hard to match, which keeps attrition higher than anyone would like."

Line maintenance prioritizes discovering any issues and addressing them immediately, preventing small problems from becoming serious failures. It helps keep aircraft available for daily service, minimizing flight delays or cancellations. Airlines rely on quick interventions during short turnaround times. STS image.



FL Technics says it strives to deliver on-time line maintenance and rapid AOG solutions worldwide. FL Technics image.

"Even before the pandemic the aviation industry was already feeling the shortage of aviation specialists," Pajeda observed. "During the pandemic, a lot of aviation specialists were laid off due to reduced capacity in flights and operations. Some of these people found new jobs in other fields. Meanwhile, training programs for new specialists were put on hold to some extent. Today, when we have exceeded pre-pandemic levels of operations, the aforementioned factors have created an even bigger worker shortage."

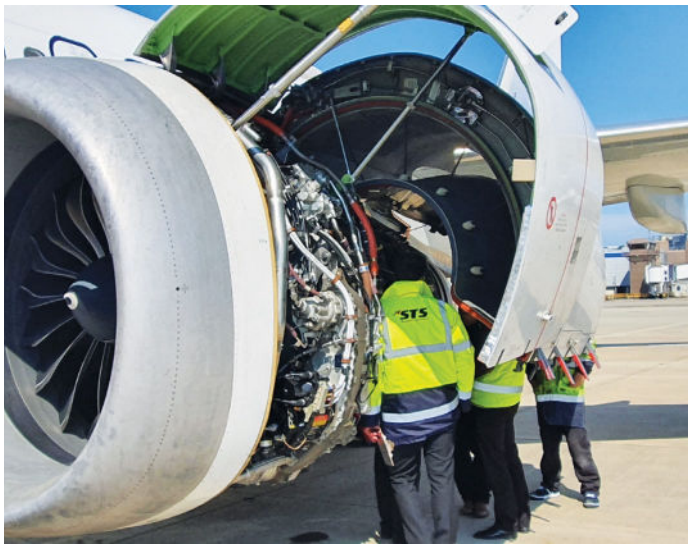
According to Pajeda, FL Technics is implementing various measures to attract new talent and is seeing success in its efforts. "Although there is a wider manpower challenge in the market, FL Technics is managing the situation well," he noted. "With the strong commitment to supporting our line maintenance specialists, we are not only able to sustain current operations but are also planning further expansion."

Retirement isn't just thinning the ranks of baby boomer technicians. There's also a growing shortage of experienced maintenance controllers. Unfortunately, since third-party technicians cannot act until they receive direction from an airline's maintenance control center, delays are inevitable. "Waiting 15 to 30 minutes to speak with a controller isn't unusual, and simple deferrals can snowball into operational delays," said Pratt.

As the boomers retire, line main maintenance providers struggle to replace them with new blood. "In fact, that's our most significant challenge, attracting licensed engineers to support our growing business," van Sitteren said. "In parallel to this problem, airlines are operating older aircraft for longer, thus increasing the complexity and scale of required maintenance. At the same time, new-generation engines and advanced aircraft systems demand continuous upskilling and rapid adaptation by maintenance organizations. Regulatory expectations are also evolving. After the implementation of SMS (safety management systems), the introduction of EASA Part-IS will be the next major safety standard shaping our industry."

There are further issues affecting the line maintenance sector. One of these issues is parts shortages, especially when it comes to wheels and brakes. "What is more, due to the issue with PW1100G engines where a big number of engines had to be returned to shops, operators have had to ground a part of their fleet and wait until the engines are released from repair," said Pajeda. "Due to this issue, some operators do not expect to return the grounded aircraft to service until 2027."

Another further issue affecting line maintenance is the airlines' tendency to alter their flight schedules on a seasonal basis, to align their traffic with passenger demands. "Seasonal flying



One challenge for line maintenance providers is scaling staff requirements to fit the peak and off-peak seasonal changes of the airlines. STS Line Maintenance image.

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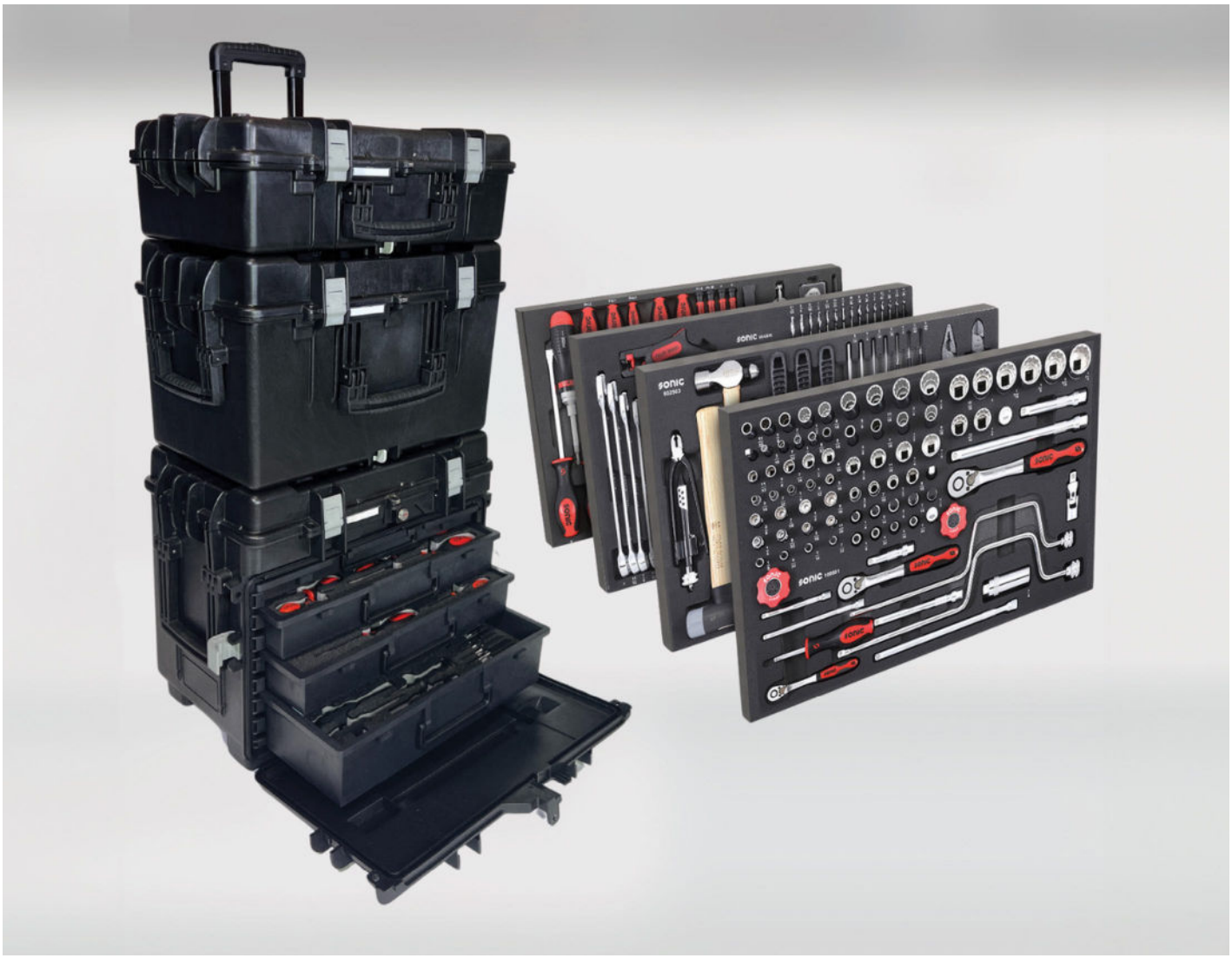

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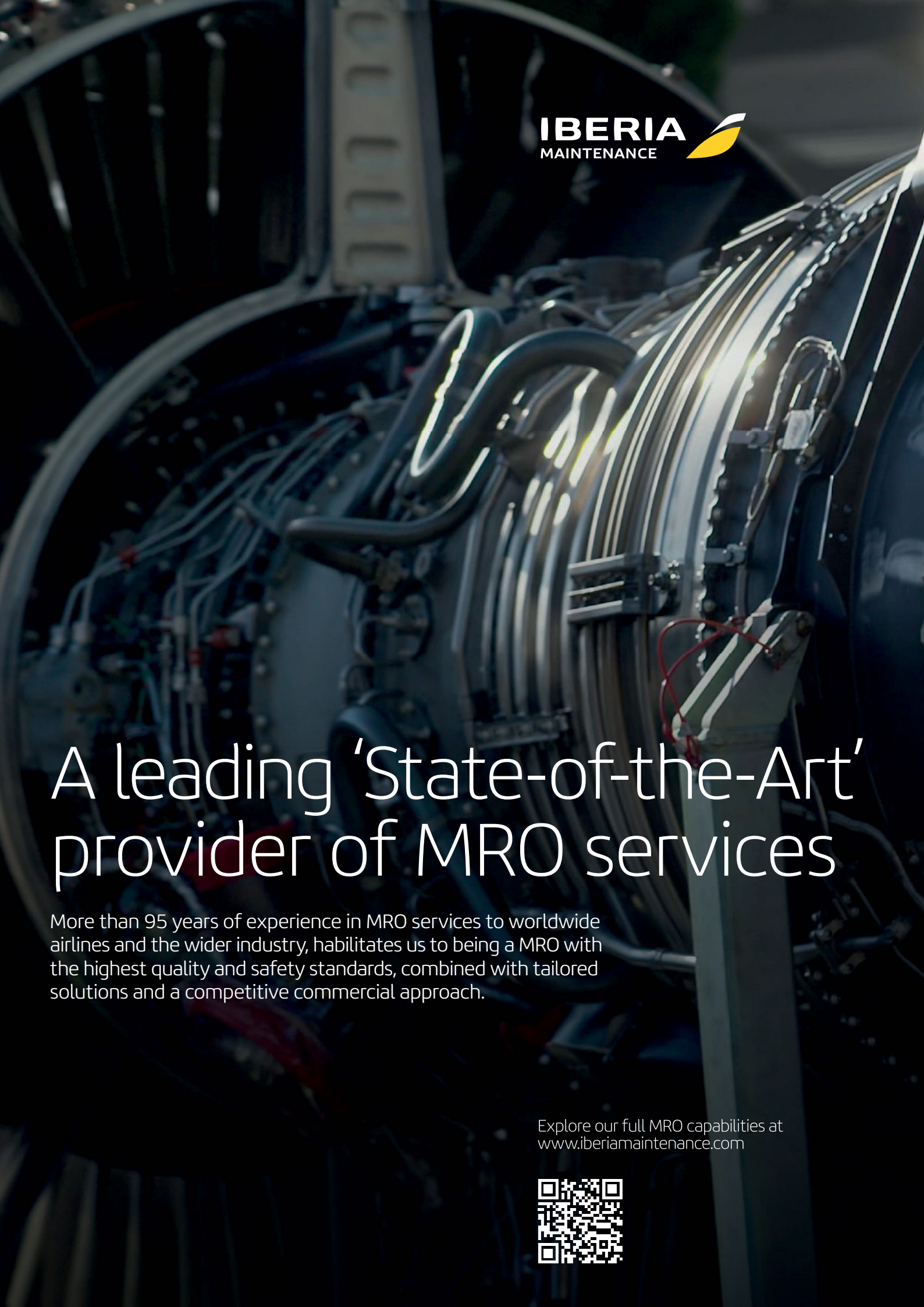
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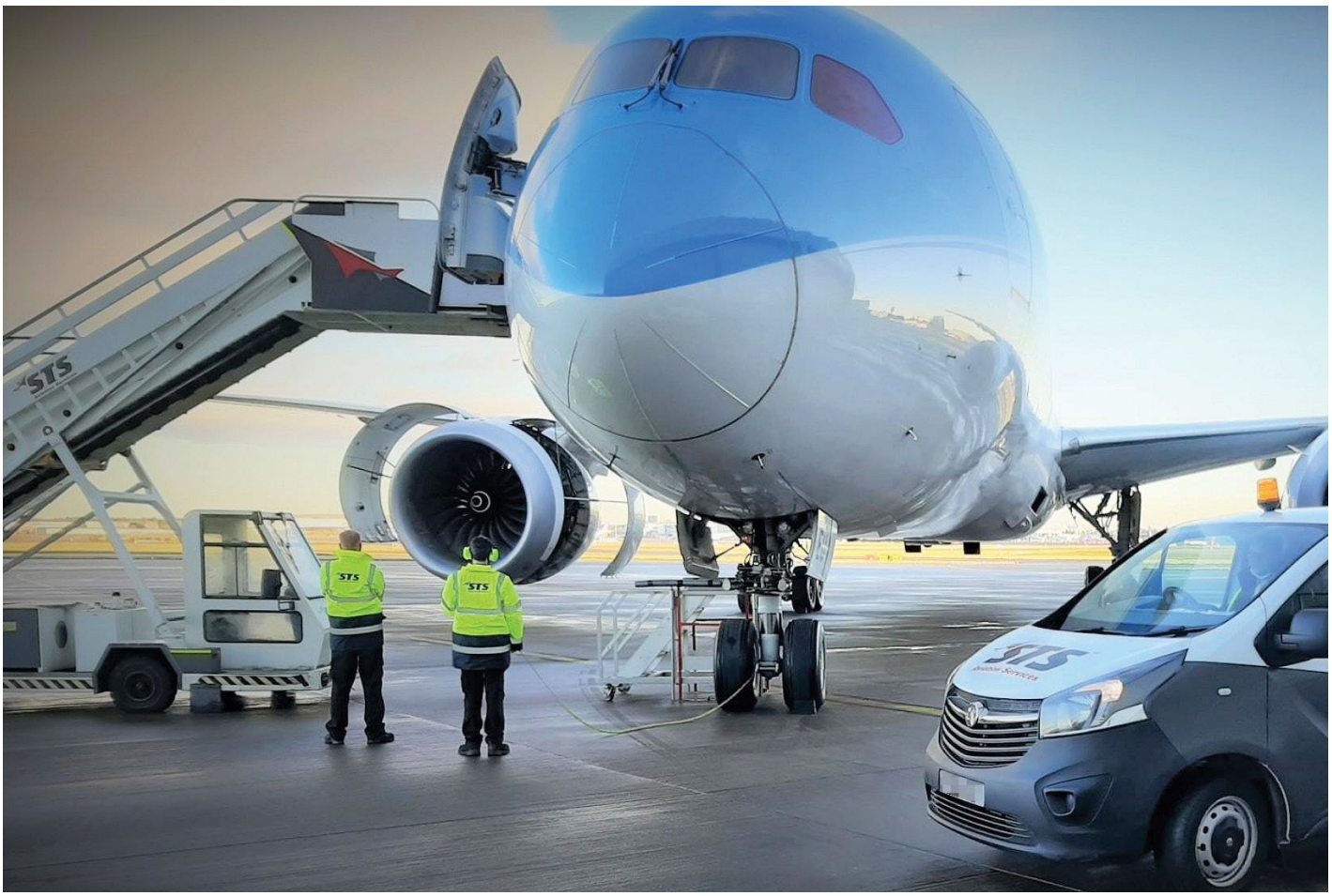

STS Line Maintenance supports 80 domestic and international passenger, cargo and charter airlines with a full range of on-wing services including on-demand defect rectification, scheduled checks up to and including A-checks, AOG recovery and return to service, and specialized projects like airframe modifications. STS image.

patterns add another layer of complexity," Pratt told *Aviation Maintenance*. "As airlines optimize for profit, their schedules swing harder from peak to off peak. This forces providers to scale staffing up and down throughout the year. It creates uncertainty for technicians and puts financial pressure on maintenance operations. Hold on to everyone through the slow season and you're likely looking at an annual loss. Reduce headcount and you're scrambling when demand spikes."

Digitization to the Rescue

Faced with the challenges discussed above, airlines and their line maintenance providers are turning to digital technology to make their operations run smoothly and get more done using fewer people.

"The digital tools that matter most are the ones that make information easier to access and eliminate unnecessary steps," said Pratt. "Digital task cards, mobile tech pubs, and real-time communication tools have been the standouts.

"Airlines are on a trend to implement paperless documentation," Pajeda added. "For instance, they are moving from paper-based logbooks to electronic logbooks, which are accessed via tablets that are placed on board of the aircraft. This reduces the amount of paper used to record maintenance activities and reduces the time to fill all the documentation when a maintenance task is performed. Additionally, the technician is able to access the necessary maintenance documentation on a tablet without needing to return to the office and check it on a desktop computer. As a result, the time for defect rectification is reduced, which reduces the overall flight delays."

To push the aviation industry further along the road to digitization, STS Line Maintenance is promoting the broader adoption of MRO management platforms like AireXpert, which can streamline the full line maintenance cycle from start to finish. "With AireXpert, technicians can verify an AMM reference instantly, collaborate with MCC without leaving the aircraft, and complete documentation on the spot," said Pratt. "When you remove dead time, everything moves faster. Troubleshooting improves. Return to service improves. And you can measure the difference not in theory, but in minutes saved and delays avoided."

Artificial intelligence (AI) is making its way into line maintenance, serving as a tool that speeds up the detection and analysis of problems found by in-flight data management systems. "What is more, EASA has released an AI Roadmap, which describes the plan and steps that need to be taken to implement AI in aviation," Pajeda said. "I expect that AI will be initially implemented in areas that require dealing with big amounts of data like maintenance documentation, part/component control, and production planning. Eventually, we may see AI-based solutions that might help reduce the manpower needed to carry out certain tasks, which would help mitigate the specialists shortage in aviation."

All told, digitization is delivering measurable benefits to the line maintenance sector. "Digital workflows are reducing paperwork, speeding up troubleshooting, and improving communication between operations, engineering, and logistics," said van Sitteren "These tools contribute directly to fewer delays, higher productivity, and more consistent training. However, the lack of common standards and full interoperability between different digital systems remains a challenge. Integrating and sharing large volumes of operational data more effectively will be an important step for the industry in the coming years."

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The Future of Line Maintenance

What does the future of line maintenance look like, given the current balance of issues and innovations? Again, here's what the experts had to say.

"The future of our business will combine skilled human expertise with intelligent technology," van Sitteren replied. "Predictive maintenance and digital tools will become standard, training will increasingly rely on immersive and modern methods, and integrated data systems will streamline operations."

"I would like to say 'robots', but we are far from that at the current stage of evolution," said Pajeda. "I believe the AI implementation will help to reduce maintenance time even further; however, we will not be able to replace maintenance technicians or pilots in the near future, for sure. As a first step, I think we will have AI systems that will help to manage areas where it is required to work with big amounts of data. Later on, we might see more and more automated processes, where a person's oversight will be required to make sure that an AI system is compliant and is working according to the necessary standards. As a result, people in the aviation field will need to improve their knowledge in the IT field to be able to work with these systems."

Pratt took a big picture view of this question. "Commercial aviation supports more than ten million jobs and contributes roughly $1.45 trillion to the U.S. economy," he said. "With that kind of demand, the future of line maintenance is growth. If the U.S. modernizes its air traffic control system, flight volumes will rise even higher, and the need for qualified maintenance personnel will only increase."

If these predictions prove to be correct, "the industry has to prepare now," said Pratt. "As aircraft become more complex, new technicians will need real-world experience to bridge the gap between the A&P curriculum and the realities of modern fleets. That will require structured on-the-job training, strong mentorship, and leaders who understand that the baseline curriculum isn't enough on its own. As well, compensation has to be part of the conversation. If wages for aircraft maintenance technicians don't keep pace with other skilled trades, the industry risks losing the next generation of mechanical talent."

Gary Pratt then summed up the big picture challenge facing not just line maintenance, but the entire aviation industry. "We maintain the safest transportation system in the world," he said. "Staying there takes investment. Meanwhile, the horizon is getting more crowded. EVTOL aircraft and air taxis are approaching commercial viability, which will lead to new regulations, new maintenance requirements, and new expectations. When they do, line maintenance will be at the center of keeping those systems safe and reliable. So, the work in our sector is only going to get bigger going forward, not smaller."

Ultimately, the experts agree that the future success of line maintenance hinges on a critical dual strategy. It requires this sector to aggressively adopt AI and digital platforms to maximize efficiency, while simultaneously making a profound and immediate investment in human capital. The future of safe, efficient global air travel depends on successfully integrating the power of the digital revolution with the irreplaceable expertise of the people who keep the world flying. AVM

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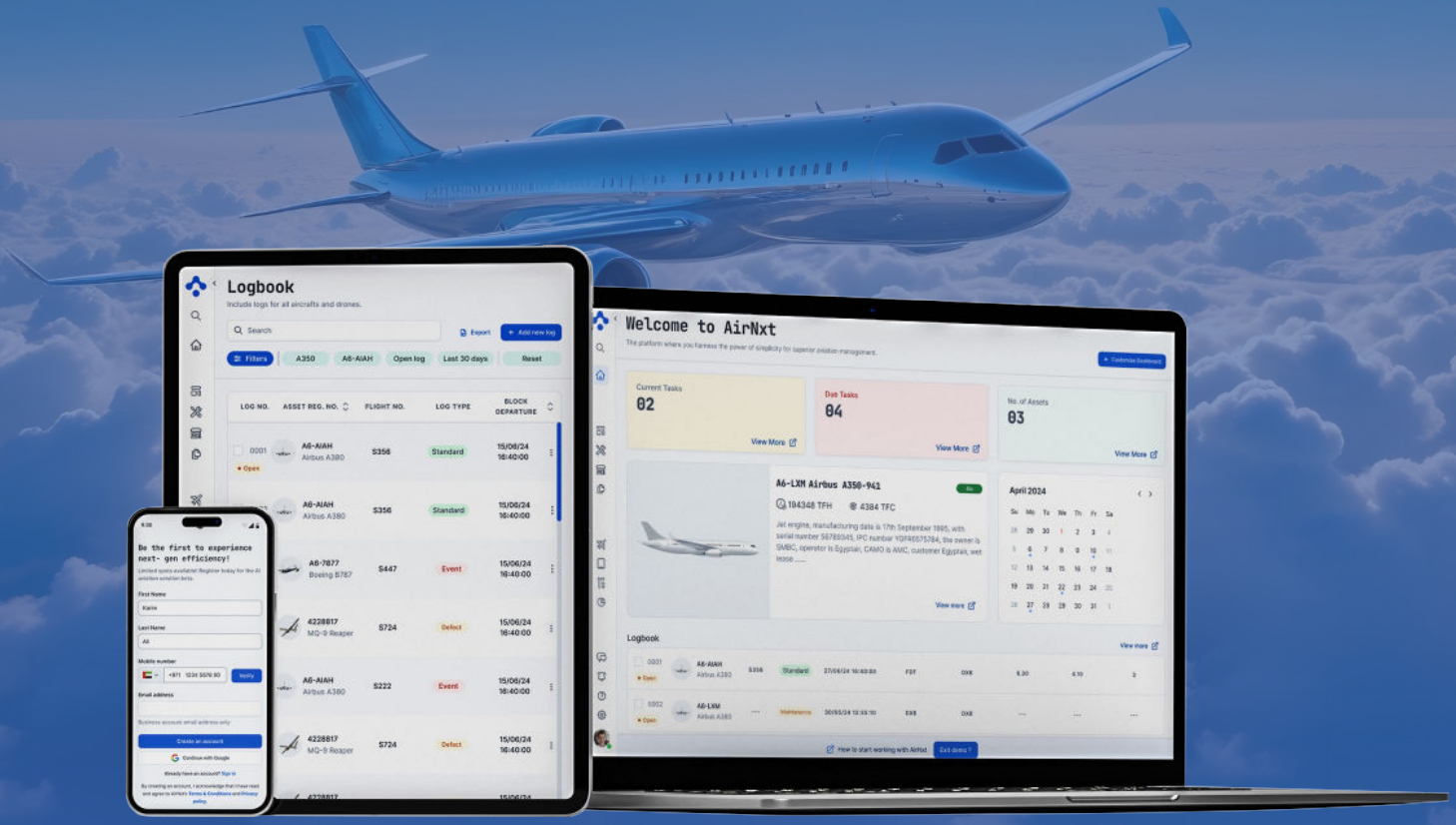

Aviation maintenance moves fast - yet the software meant to support it rarely does. Legacy systems require lengthy rollouts, extensive training, and numerous workarounds. The result is familiar to every engineer, technician, and CAMO manager: scattered records, mismatched data, and hours lost chasing paperwork that should have been accurate the first time.

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