

Keeping the world's fleets flying

aviationbusinessnews.com

JULY 2024 • VOLUME 26 • ISSUE 5

MRO

Management



BEATING THE BACKLOG

The strategic initiatives being used to solve component supply chain challenges

P.28

MANAGING CONTRACTS

For repair stations, examining documents is crucial

P.22

A WATCHFUL EYE

Monitoring aftermarket trends that will shape the future of MRO

P.34

ENGINE SERVICING

Increased shop visits, but supply chain issues remain

P.44



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.



1



2

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



3

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.

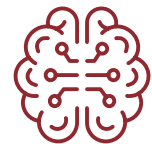
"It's probably linked to predictive maintenance," he begins. "That's likely to involve using AI models in analysing impacts of certain events, but looking at modelling performance of aircraft or maintenance activities in harsh environments, or different conditions.

"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