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MRO

Management



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COMPONENT MAINTENANCE

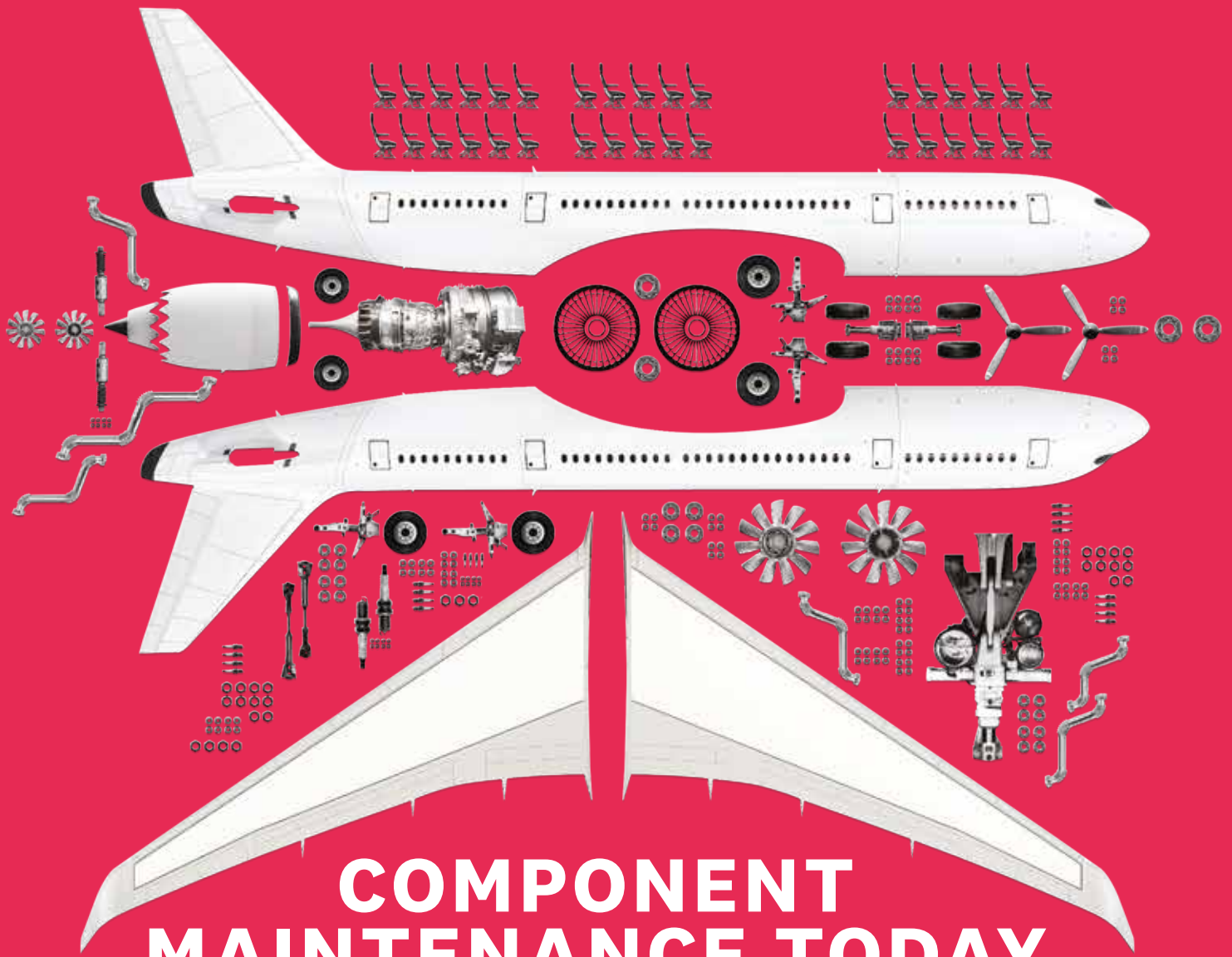
Tracking the signs of post-Covid emergence and recovery

KEEPING A WORKHORSE FIT

Why V2500 aftermarket demand is set to continue for many years

GROWING CAPABILITIES

How AEM found strength in diversity – and is now pushing onwards



COMPONENT MAINTENANCE TODAY AND TOMORROW

Signs of emergence and recovery are now becoming evident in the component maintenance market following the Covid-19 crisis. *Chris Kjelgaard* asks three major market participants what the future might hold

The huge losses sustained by airlines everywhere throughout the first year and much of the second year of the Covid-19 crisis directly affected the component repair market globally, as carriers focused intensely on cutting costs and scaling down their operations in line with the reduced

traffic demand they experienced in 2020 and 2021. Paul Dolan, CEO of Aviation Technical Services (ATS), says the cost-cutting led airlines to deplete their component inventories instead of sending components off for repair and keeping inventory levels up. Carriers focused their aircraft MRO activities on performing less intense maintenance checks than they would have performed in more normal times. Airlines parked many older, less efficient aircraft as well as aircraft which were due for heavy checks, in some cases consigning even relatively young aircraft to permanent withdrawal rather than paying for them to be overhauled.

These airline strategies resulted in ATS seeing its inputs of aircraft components for repair fall about 60 per cent in 2020 from the previous year, according to Dolan. In 2021, its component repair inputs were down 30-40 per cent from the 2019 level, with the first stirrings of recovery in the market being seen as the numbers of new Covid-19 infections lessened in the latter half of the year. The emergence of the Omicron variant of the coronavirus virus in 2021's fourth quarter disrupted component input levels for ATS again, "but now we're seeing inputs pick up", he says. "We hope to see the run rate in the latter part of 2022 look like it did in pre-pandemic times."

Just about every airline took on debt in 2020 and 2021 in order to get through the worst of the crisis and most continued to keep their costs down as passenger traffic demand gradually returned. This has made airlines increase only gradually their flows of aircraft and component inputs for MRO, rather than doing so all at once, according to Dolan.

As a result, while "we're seeing the recovery happen... it is slower than expected", says Dolan. There is a lot

of pressure on costs which Dolan thinks will drive a degree of consolidation among MRO and parts suppliers. Additionally, he says, "I think we will see a lot of pressure around raw materials provision, because of the supply-chain disruption" which has affected many markets globally since the pandemic began.

A turbulent recovery

Louis Philippe Mallette, SVP Operations for Montréal-based component repair company AJW Technique, largely agrees with Dolan's view of current component MRO market conditions. "As we emerge from two years of turmoil, the aviation industry is bracing itself for a decade of growth that will test the industry's resilience, not only from the pandemic and associated complications of travel restrictions and supply chain challenges, but also a reduced labour force too small to support the expected growth trajectory," he says. "Add in the industry's challenge of meeting COP26 climate-change ambitions with no immediate alternative to

fossil fuels that substantially cut emissions, and it will be a turbulent decade of growth for the industry."

The turbulence is likely to begin in the near term, according to Mallette. "Domestic air travel and the associated narrowbody aircraft fleets are expected to reach pre-pandemic levels this year, with more aircraft coming out of storage or being delivered by the manufacturers," he notes.

"Covid will continue to impact the international and business travel sectors, which will take longer to recover as corporate and government policies restrict

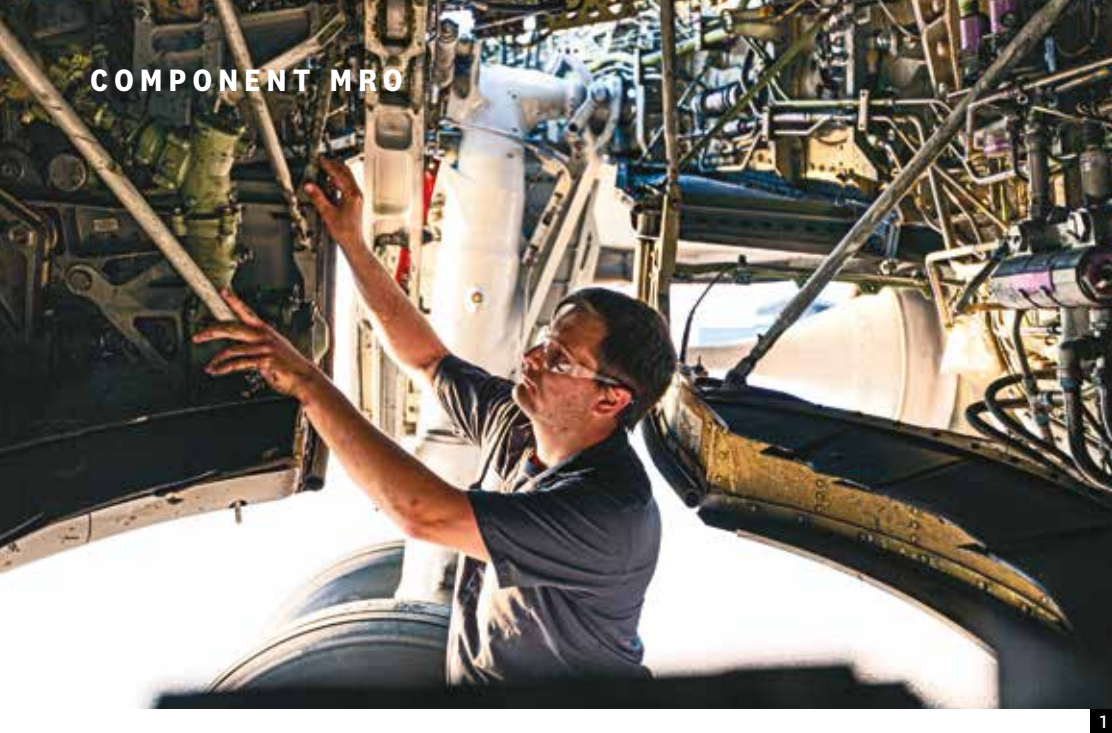
corporate travel and the wide adoption of video conferencing reduces the immediate need for face-to-face business meetings," says Mallette. "The slow business and international travel recovery will have an impact on growth and profitability of airlines and the demand for widebody aircraft. Cargo aircraft will continue to grow, both dedicated cargo aircraft and the conversion of passenger [aircraft] to freight."

Taking these factors into account, "The changes in fleet, the predicted growth and the elevated number of aircraft retired that were due to enter a period of intensive MRO expense directly impact the component maintenance market," says Mallette. "It is now forecast that by 2024 MRO demand should reach pre-pandemic levels, but at varying rates round the world.

30%



In 2021, ATS' component repair inputs were down 30-40 per cent from the 2019 level, with the first stirrings of recovery in the market being seen in the latter half of the year



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1. AAR says it is continuing to invest in new MRO technologies and in increasing repair capabilities to support customers back to a path of growth

“For instance, in China, MRO demand has already surpassed pre-pandemic figures, but Western Europe is not expected to see full recovery until 2025.”

A nuanced market

While he agrees the pandemic has affected the component repair market, Miguel Chiang, AAR's director commercial & business development, thinks the component MRO situation currently facing airlines and MRO providers is a nuanced one. “As an independent MRO provider, and from a component repair perspective, AAR Component Repair Services sees limited significant changes in airlines' strategic decisions in relation to their component maintenance support principles, as we emerge from the worst of the pandemic,” he says.

Regarding “the trade-off made by airlines to select pooling solutions or manage their own rotatable inventories, AAR believes the strategy which drives their decisions remain similar to the pre-pandemic situation, at least for the narrowbody market,” remarks Chiang. “However, some airlines, possibly due to lower traffic during the pandemic, changed to more closed-loop repairs to be more flexible financially and prevent fixed costs that could be involved with minimum flight hour thresholds which pooling providers typically impose.”

(Chiang explains that ‘closed-loop repair’ refers to when, after a repair, the MRO facility returns the component of the exact serial number sent in by the customer. In such repairs there is no exchange of components, which happens in pooling solutions. Closed-loop repairs



let customers exercise control over the configuration of the component, for purposes of reliability tracking and other analysis, implementing reliability improvements to the specific component or specific repairs to the unit.)

During the pandemic, AAR “certainly noticed a decline in demand from airlines and operators who manage their own inventories and closed-loop repairs, as airlines managed their cash and consumed their serviceable inventories first, prior to sending unserviceable components away for repairs”, says Chiang.

With traffic rising, the requirement to bring serviceable inventory towards adequate levels is now noticeable in terms of input to the repair facility, he says. “However, airlines remain cautious in their spending, so AAR works closely with customers to define flexible business and operational solutions which add value to both parties in this path to recovery.”

The questions that need answers

Many remaining uncertainties make it difficult to forecast what the component maintenance market will look like and how it will perform a few years from now. It seems clear that the market will recover from the economic effects of the Covid crisis within a couple of years and that it will resume growing, but how much and how quickly depend on quite a few variables which can't be assessed with any degree of confidence today.

“There is a full expectation that we should see 10 per cent above the pre-pandemic level,” in terms of industry dollar-revenue size, says Dolan. At the same time, “we should see a much bigger focus on newer aircraft coming in”, as OEMs continue to ramp up production rates of single-aisle jets, which represent the MRO industry's bread and butter.

However, within that broad landscape, many important details are yet to be painted. For instance, asks Dolan, will Boeing design and build a new competitor to try to limit the runaway sales success of the A321neo? Within the MRO industry, will there be a large scale shift to composite structures repair capabilities? The growing numbers of largely composite aircraft such as the 787 and the A350 XWB suggest there will have to be such a shift at some point.

Will avionics systems, functions and capabilities change much in the foreseeable future? Will Boeing be able to increase the 737 MAX monthly production rate to 60 aircraft again, and will Airbus be able to achieve the 75-a-month A320neo family production rate it is calling for?



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Additionally, Dolan questions, “from the supply chain side, when the OEMs get back to their [previously planned] build rates, what will the real effects on the supply chain be? We have been seeing significant [amounts of] purchasing ahead, to get ahead of the market” – an activity nowadays often termed ‘just in case’ purchasing.

“We’re putting more supply on the shelf and that’s what suppliers base true demand on,” says Dolan. “But are [component repair] inputs matched to demand and is it sustainable? Is demand real? It’s noisy right now. Until we see full recovery [in the component repair market] and we know what the full mix looks like, we won’t know. Will airlines be able to hold those older aircraft in storage? If the 737 MAX doesn’t hold up and older aircraft have to come back [into service], that will drive a lot of heavy maintenance.”

By the time all these questions can be answered authoritatively, says Dolan, “I would expect we would have seen significant consolidation in the MRO industry. The component repair world will be busy, but consolidation would create opportunities for new entrants.” This uncertainty, and the potential opportunities it could create in tomorrow’s MRO markets, drove ATS’ decision to use its strong balance sheet

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Will Boeing be able to increase the 737 MAX monthly production rate to 60 aircraft again, and will Airbus be able to achieve the 75-a-month A320neo family production rate it is calling for?

during the depths of the pandemic to invest strategically in building a stable long-term workforce.

Much hasn’t changed – yet

Although the Covid-19 crisis has greatly reduced component maintenance demand in the short term, Chiang believes it has not changed core market conditions, such as supplies of used spare parts, as much as expected. “Over the past two years AAR has not seen significant increased availability of surplus components and material in the narrowbody segment, probably because airlines did not accelerate any phase-out of their narrowbody fleets due to the pandemic,” he says.

“Instead, they probably expect traffic projections to pick up and are holding on to their fleets to bounce back when demand requires. Large shifts towards younger fleets – which tend to require less maintenance initially – do not happen overnight either, and as travel restrictions ease off we expect MRO demand to return.”

But the recovery in component repair demand from the nadir of 2020 to the new heights hoped for in a few years’ time won’t be a simple process, according to Chiang. “Although an increase [in repair demand] is noticeable in the past few months, the pace of this return and its consistency is as yet uncertain and is uneven geographically and across market segments. On the supply chain side, we see challenges in provisioning to cope with the demand increase, as well as significant OEM price escalations due to the cost of raw materials, labour and energy,” he says.

However, not a great deal has changed to date purely in terms of the composition of the component maintenance market, according to Chiang. “In terms of the landscape of component repair providers, our observation is that the pandemic has not led to a major decline in component MRO capacity or further consolidations in the landscape.” Not yet, that is – but things will change, according to Chiang.



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1. AJW Technique expects there to be huge advancements in digital products that will streamline legacy processes
2. The component MRO market will need to stay flexible to meet the challenges of the future
3. The pace of the repair demand return and its consistency is as yet uncertain and is uneven geographically and across market segments

“To that extent, the mix of component MRO overcapacity, combined with an increasing cost base due to material escalations and supply chain provisioning challenges, as well as airlines which need to continue to control their spending tightly because their financial resources have been under pressure during the pandemic, may eventually lead to balance shifts in the market dynamics for component repairs in the medium-term future,” he adds.

“We should see a much bigger focus on newer aircraft coming in”

Chiang says AAR is continuing to invest in new MRO technologies and increasing repair capabilities “when they make sense business-wise to support customers back to the path of growth as added values are expected from the market, with the inevitable increase of pricing levels for component MRO”.

However, “the continued desire of OEMs to exercise tighter [intellectual property] control of the fragmented MRO aftermarket remains a concern”, he notes.

Technological solutions

The uncertainty and turbulence the MRO market is likely to experience in the next few years has implications for component maintenance companies, according to Mallette. “It is clear the need to be reactive, adaptable and flexible to meet our customers’ changing needs will remain for the foreseeable future,” he says. So too will “offering cost-effective solutions to help operators keep their costs under control as they manage their pandemic induced debts”.

For that reason, AJW Technique is “committed to ensure our digital advances continue to grow alongside the recovery to maximise technicians’ component touch-time with productivity trackers, turnaround time gaming systems, performance management dashboards, piece parts provisioning models and dynamic pricing algorithms”, says Mallette. “We have also tested asset location tracking using RFID and Bluetooth technology as a proof of concept. This allows technicians to have a full view of high-value assets at their fingertips, facilitating traceability and workflow management. Beyond RFID technology, we have also invested in hands-free systems and collaborated on predictive maintenance discoveries.”

AJW Technique thinks “there will continue to be huge advancements in digital products that will streamline legacy processes known to the aviation industry for decades”, says Mallette. These will include “more mainstream solutions for predictive maintenance, remote auditing from aviation authorities, and streamlined requests-for-proposal processes which are in most cases subcontracted to consulting partners to manage due to their high analytical and administrative nature.”

Additionally, says Mallette, “we predict that more aviation businesses, MROs, OEMs, airlines and brokers alike will come together to develop more digital products that fix core industry issues, as opposed to creating siloed solutions that solve bits of their four walls. Most parts sales businesses have gone fully digital as well. Last year we launched a series of online platforms such as ‘AJW eventory’, our online inventory store, which automates parts trading but also flows work into AJW Technique by securing repairs of as-removed parts.”

So, like every other area of the aerospace industry and activity in the emerging post-Covid world, the component MRO market will need to stay flexible in terms of competitive posture, be quick to adopt new technologies and processes, and be ready to take advantage of any business opportunities that potential consolidation moves within the sector might create in the next few years. These are certainly very interesting times for the component maintenance business. 



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