



ASIAN AVIATION

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Cracks in the MRO supply chain

Flying demand is returning to Asia, but cracks are showing in the MRO supply chain and skilled resources are in short supply as **Michael Doran** reports.



BEFORE THE PANDEMIC Asia had cemented its place as the centre of global aviation, outstripping the more established markets in North America, Europe and the growth of the Middle East.

A side effect of Asia's rapid growth was that supply chains and resource availability, particularly in maintenance repair and overhaul (MRO), were already stretched before COVID hit.

Now that demand and capacity is returning to the region those cracks are widening, with supply chains and skilled resource availability partly to blame for Asia-Pacific's slow return to pre-COVID activity.

With borders now reopened and airlines active again it is surprising that in February the region only operated around 54 percent of its pre-pandemic capacity, carrying just 16.8 million passengers compared to 29.6 million in February 2019.

Subhas Menon, director general of the Asia Pacific Airlines Association, told Asian Aviation that airlines have not been able to put back as much capacity as the demand entails. "While the traffic is

▲ *Jetstar has been heavily affected by supply chain issues on its Boeing 787s.*

growing by five, six or seven times, capacity growth is only at the rate of double what it was in 2022."

He said there are "still some struggles on the resource side" and getting staff back takes time, although airlines are working at full speed to do that. "In the scheme of things it is not alarming, things are moving along, albeit a bit slowly but I think it will pick up pace in the coming months and after the northern summer season is fully started I think you will see that we are able to meet the demand requirements."

As a global aviation component parts supplier and repairer UK based AJW Group is at the sharp end of supply chain disruptions. The group has hubs and offices spread globally, including its operations in Singapore where business is quickly returning to pre-pandemic levels.

AJW's Head of PBH (power by the hour), David Shorter told Asian Aviation that availability of spare parts, lack of raw materials and



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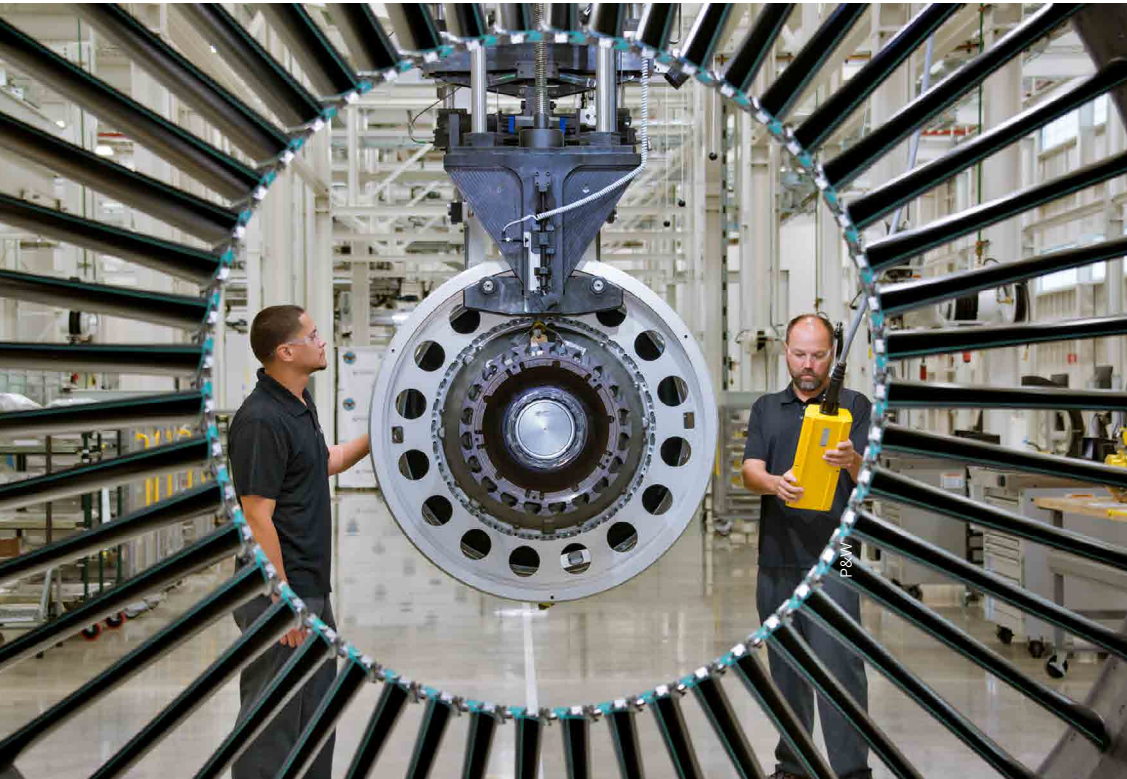
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▲ Pratt & Whitney's GTF is delivering but supply chain issues are keeping it off-wing too long.

"Our customer base in the Asia region has increased and was particularly strong in the final quarter of 2022. Looking at AJW Group stock sales from the latter part of 2022 moving into the first quarter of 2023 we have seen a 50 percent increase in the third quarter from the first, and a 100 percent increase in the fourth over the first."

DAVID SHORTER

longer lead times due to reduced manpower remain significant risks to MRO recovery.

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A particular strength in Asia is AJW's sole distributor agreement with Honeywell for Air Data Inertial Reference Units (ADIRU) used on Airbus A320/A380 and Boeing 737NG/MAX aircraft. Shorter said they are seeing significant new orders, both for sale and exchange, for these and he is optimistic about further demand from the Singapore and China operations.

Running a global business relies on efficient logistics and that has challenged AJW, pushing the group to find new ways to deal with the current environment. Parts shortages and the transatlantic logistics routes mean that AJW needs an EU/UK and North American strategy, rather than predominantly EU/UK as previously.

"Transatlantic routes are no longer as consistent or efficient as before and that's forcing us in some cases to look at third-party supply rather than, or alongside OEM supply. We drive a sophisticated pooling strategy with inventory placed around the globe, allowing easy access and distribution to PBH and exchange pool customers," Shorter said.

Logistic uncertainties mean some deliveries are taking slightly longer to fulfill, but AJW is using more predictable and consistent airfreight routes to ensure that delivery happens.

Businesses all along the supply chain have had to be agile and adapt to whatever is thrown their way and that's no different at AJW. Shorter tells AAV that increased use of digitalisation has led the group to re-craft how it operates.

"AJW continues its digital transformation journey, developing strategies to improve operational efficiency within our business which are proving to be successful in maximising our customer service delivery. As industry leaders we are adapting to the changes that need to be made to strengthen and grow our business," Shorter said.

The introduction of new generation engines has driven most of the performance and efficiency gains in commercial aviation over the last decade. Each of the engine OEMs have developed game-changing new products that have met or exceeded the targets they promised.

While new engine technology has delivered gains it is not that long ago that Airbus was parking gliders in Toulouse because serviceable engines were not available. Entry into service issues with Pratt & Whitney's GTF, Rolls-Royce's Trent 1000 and CFM's LEAP grounded aircraft and left others undelivered.

Fast forward to today and engine issues are again surfacing, both in terms of endurance and supply chain disruptions. A common thread is that the engines are not on the wing for long enough and when they are off-wing parts and labour are unavailable.

In Asia-Pacific the clearest example of this is in India, where the

issue has caught the attention of the Directorate General of Civil Aviation (DGCA). The regulator first got involved in engine issues in 2017, when early versions of the P&W GTF (geared turbofan) engines led to grounding aircraft.

In April the DGCA stepped in again due to GTF issues, which are causing major operational problems to two carriers, IndiGo and Go First. Between them, IndiGo and Go First have around 60 Airbus A320 airplanes out of service due to engine unavailability, causing significant operational issues for both.

In November 2022, P&W President Shane Eddy and Commercial Engine Division president Rick Deurloo visited India and said the engine issues would be addressed by March this year. Putting engine reliability to one side, the problem boils down to a lack of replacement engines, MRO capacity and spare parts.

GTF engines are coming off-wing much earlier than planned, with various reports suggesting some are being removed after 7,000 hours instead of the projected 12,000 hours. The grounded aircraft represent 10% of India's commercial fleet with the flow-on operational impacts driving the DGCA's involvement.

A P&W spokesperson said it is actively working to mitigate the situation by improving supply chain performance and the availability of parts needed at their maintenance facilities. "We expect industry-wide supply chain issues to ease later this year which will support increased output of new and overhauled engines. In the interim we are providing direct logistical support to our suppliers as well as developing solutions to improve engine durability in hot and harsh operating environments."

India and the Middle East do present some tougher operating conditions and P&W is not the first OEM to highlight those impacts on engine performance. However that's certainly not the case in northern Europe, where Air Baltic had one engine off-wing for more than a year waiting for spare parts and MRO availability.

The supply chain shortages forced Air Baltic to wet lease four A320s to manage the upcoming summer season, and then adding four more when the delay for spare engines again ballooned out.

Air Baltic has a fleet of around 40 Airbus A220s and pre-COVID, a maintenance event would see the engine return to service in around 60-90 days. Today that same event sees an engine off-wing for closer to one year, which CEO Martin Gauss said is due to "insufficient parts and insufficient labour."

The other key factor is the drive by Airbus and Boeing to speed up production of their latest generation aircraft, which translates into a conflict of where new engines should go. Do they go to OEMs to deliver new aircraft or should they be used to get grounded aircraft back into operation?

The slower and more gradual recovery in Asia-Pacific has masked some of the supply chain issues that have affected airline performance in Europe and the USA over the last 12 months.

However, an example of how quickly that can change happened last year when Qantas Group airline Jetstar went into meltdown due to supply chain disruptions. Jetstar found itself in a situation in September where six of its 11 Boeing 787 Dreamliners were grounded in one 24-hour period.

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In a run of bad luck Jetstar's 787s suffered damage from bird and lightning strikes, while another was out of action from damage caused by debris on a runway. These events coincided with other 787s already out of service for planned maintenance.

The direct impact was that Jetstar's cancellations hit double figures and hundreds of passengers were left stranded in ports including Honolulu, Singapore and Bali. Again, the issue was not so much what happened but rather how long it took to get the aircraft back into service.

The runway damage happened to a flight leaving Bangkok for Melbourne when debris hit the aircraft and a 10-metre wing flap had to be replaced. With the usual supply and logistics chains unavailable the flap had to travel by road across the US to Los Angeles and wait until a suitable size aircraft was available for the transfer to Australia.

Jetstar chief operating officer Matt Franzi said that the airline is now managing its spare parts program differently as a result of limited freighter space and global supply chain challenges. "We are holding more spares, ordering parts weeks earlier and making sure we have

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▲ To increase production Airbus is setting up a second final A320 assembly line in China.

as many freight options as possible. We are also working with manufacturers and suppliers on new spare parts markets as a result of global sanctions impacting supplies from Russia."

Lightning strikes on aircraft are nothing out of the ordinary with most aircraft encountering at least one to two (on average) every year. In May last year a Jetstar 787 was hit with an especially powerful lightning bolt that left the fuselage with scores of small holes, burn marks and blistered paint.

The aircraft was grounded and expected to remain out of service for four to eight weeks, adding to the airline's reliability woes. This turned out to be way off the mark with the aircraft ultimately out of action for around five months between May and October 2022.

Adding in the supply chain issues that were at their peak when the event occurred it is not difficult to understand the long time it took to get the jet back into service. For Jetstar it meant losing around 10 percent of its widebody capacity for five months at a time when passenger demand was surging.

The issue for airlines is not that unexpected events, like those at Jetstar, happen but how much longer it now takes to recover and get operations back on schedule, and that's without factoring skills shortages in MRO facilities.

At the end of March, Boeing and Airbus had a combined backlog of more than 12,000 unfilled orders with nearly 11,000 of those for single-aisle aircraft, such as the A320 and 737.

After putting orders in the bin or on hold for three years airlines are

now scrambling to get hold of new generation, more fuel-efficient aircraft, particularly with fuel still at higher than normal prices.

Last year Airbus missed its production target of 700 aircraft deliveries and for this year it set an even higher goal of 720. In the first quarter of 2023 Airbus delivered 127 new planes and while production is not always linear it is well down on where it needs to be.

CEO Guillaume Faury said that 2022 was a year characterised by a complex environment and that supply chains remain "constrained by the impact of COVID, the war in Ukraine, energy supply issues, inflation and constrained global markets."

He added that the situation showed signs of stabilizing in December but that 2023 might bring some more unexpected reasons for supply chain disruption. "So as the old problems get better, we might be hit by the consequences of the energy crisis in Europe or the very challenging and chaotic situation in China."

Whatever Faury thinks about the situation in China didn't stop Airbus signing a deal in April to install a second A320 Final Assembly Line (FAL) at its Tianjin facility. Airbus has four A320 FAL sites, the others being in Hamburg (Germany), Toulouse (France) and Mobile (USA).

The new FAL is aimed at supporting the growth of Airbus sales in China but will also be an important element for Airbus to meet its delivery and monthly production targets globally. Despite missing the 2022 target Faury confirmed a target monthly production rate of 65 in 2024 and 75 by the middle of the decade. →