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Overcoming Supply Chain Challenges

By David Dundas

Supply chain shortages appear to have become an everyday factor in the aircraft MRO sector, and these are one of the major challenges faced by the supply chain as an entirety, but what started off the problem? Should we raise inventory levels or place orders for parts in advance? Is anybody seeing any signs of improvement in the situation? These are all questions we asked a broad section of industry experts to see how the industry, as a whole, is dealing with the situation.

What was the trigger for these supply chain problems?

Our industry has been plagued by supply chain shortages for some time now and

we wanted to find out what contributors felt was the trigger for these supply chain problems. It soon became apparent that, not unsurprisingly, the COVID-19 pandemic has become the prime culprit, though not everyone felt the same way. What can't be argued against is that when the industry shut down during COVID, large parts of the labour force, including skilled technicians, were lost to aviation. Mike Cazaz, CEO & President, Werner Aero LLC, puts it all very succinctly: "The trigger was the shutdown in response to COVID-19, this caused many personnel coming out of COVID to reevaluate their lives, and some moved out of the industry or retired altogether."

Scott Symington, Chief Commercial Officer, AJW Group points out that as a

consequence: "The subsequent ramp-up required sourcing and training of new staff, resulting in a time lag on material supply." He then adds that: "... the delay in aircraft deliveries and in-service issues resulting in grounding new-generation aircraft has compounded the issue with older-generation aircraft not retiring as expected."

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This has created a perfect storm." Scott Butler, Chief Commercial Officer, Ascent Aviation Services concurs with the fact that OEM output was devastated by COVID shutdowns, saying that: "The supply chain has been trying to catch up ever since. That, coupled with OEM issues like the GTF and Boeing output, has added to the complexity of keeping older aircraft flying while still supporting new aircraft types. We keep moving the goal posts on the OEMs."

Focusing on the situation in the UK, new research data sheds light on the current business climate, as UK manufacturers say that it is harder to do business now than during the pandemic. Some 83% of manufacturers said that the past six months have presented significant challenges, citing interest rate increases (40%), upward pressure on wages (26%), and increasingly complex global supply chains (23%). Marc Green, Sales Director at Newbow Aerospace explains further: "With such challenging economic conditions, UK manufacturers are streamlining their operations and costs, focusing on protecting margins and incorporating AI into supply chains, as a means of reducing staff numbers. Many manufacturers, previously reliant on overseas suppliers, have started to 'reshore' their supply chains, a process in which companies move production from overseas to the countries where goods are sold." Timothy Russo, President, STS Component Solutions,



Marc Green, Sales Director, Newbow Aerospace



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the material services division of STS Aviation Group also highlights the COVID legacy. "Prior to the pandemic there was very strong aftermarket demand, which was effectively brought to a standstill for 12+ months. As airlines began to increase capacity the OEM supply chain struggled to keep up with heightened demand and in many cases, this was compounded by labour challenges (shortage, turnover, etc.) which added further complexity and delays," he says.

However, David Chaimovitz, Founder & CEO, Setna iO feels that this problem is not that new after all and both he, Claire Hochard and Terry Stone raise some interesting points. "Aviation repair and manufacturing has always been challenging, and there have been supply chain challenges for the 12 years that I have been in the business. That being said, the current supply chain issues are directly resulting from the ill-conceived global lockdowns in 2020. The workforce layoffs and shutdowns remain incredibly challenging to come back from," Chaimovitz comments. Claire Hochard, Purchasing Manager, Vallair prefers to look

beyond COVID as well. "Supply chain issues in the aerospace industry were caused by several factors, the COVID-19 pandemic led to widespread shutdowns and labour shortages, disrupting manufacturing. Geopolitical tensions and trade wars added complexity, forcing companies to adapt to new tariffs and regulations. Transportation problems, like shipping delays, made it hard to maintain a steady flow of materials. All of these factors severely impacted the aerospace supply chain."

Finally, Terry Stone, Vice President Material Sales, VAS Aero Services also identifies problems that existed in the pre-COVID era, commenting that: "The impact caused during the COVID period acted as an accelerant that further and negatively compounded an existing situation. The effect was felt in virtually all facets of the supply chain: availability of people, restricted transportation resources (i.e., port backlog, container shortages), raw material availability, closure or combining of production facilities and skilled employees leaving the industry."

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Marc Green, Sales Director, Newbow Aerospace



Claire Hochard, Purchasing Manager, Vallair

The most common supply chain challenges

Perhaps dependent on specialisations, we were keen to find out which were the most common supply chain challenges encounters by MRO operators. It seems there are a number of problems created by catalogue lead times. As OEMs have struggled to keep up with both production and supporting the aftermarket, catalogue lead times have continued to increase and this particular problem plagues MROs and operators globally. Timothy Russo advises that: "STS has helped mitigate this in several ways but primarily through the increased investment in demand forecasting tools and the use of predictive analytics. These tools have had a positive impact on our on-time delivery, inventory position & book to bill performance."

According to Claire Hochard, "At Vallair we observed that getting parts on time is hard because of shortages and slow procurement. Suppliers can be unreliable. So, managing our inventory is tough, and predicting supply and demand accurately is a challenge. Technology isn't always used properly which can lead to inefficiencies. There aren't always enough skilled workers, which makes things even harder. Across the industry, there is a lack of skilled workers which will take time to address," while Terry Stone points out that: "While we are not

an MRO, we do see a large and constant demand for expendables and standard hardware."

It would seem that long turnaround times have been exacerbated by inexperienced personnel and a "land grab" by some of the OEMs. OEMs and their suppliers are not meeting the current demand for spare parts and services. Some new-model engines are experiencing technical problems which results in them being temporarily out of service and consequently ground aircraft completely. Mike Cazaz adds that: "these are new models; the industry is not yet equipped to deal with the amount of shop visits that are required to repair them hence there is a bottleneck that could take a few more years to settle."

To round off the subject of the most common supply chain problems Scott Symington is very precise: "The issues above are the material supply and demand issues, but we must continue to meet the challenge of passenger demand, with RPKs surpassing pre-pandemic levels by +5.9%. The issue of component TAT is probably the most common challenge as the longer it takes to repair unserviceable material, the more inventory is required to support the in-service fleet," while Scott Butler feels that "Change is the key headwind. When we switch technologies, and when airlines have to pivot due to OEM issues, there's a downstream effect which takes time for the supply chain to catch up on."

The effect of bottlenecks on USM pricing

We next wanted to establish how, exactly, MRO operators felt bottlenecks affected the price of used service material (USM). The bottleneck situation at the repair shops is

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Claire Hochard, Purchasing Manager, Vallair

a key factor in the imbalance in the supply and demand equation and since USM prices are primarily pinned to the OEM CLP (catalogue list price), which are increasing 7-12% p.a., they are following the market and going up. Scott Symington adds that: "It is going to be some time before we see an alleviation in this situation."

Scarcity of supply can contribute to the impact on pricing levels. However, other factors influence price to a greater degree – material source, condition, remaining service life, tag, trace, etc. Providing high-quality USM that meets the customer condition(s) offers value. Consequently, as Terry Stone puts it: "Price is not necessarily a reflection of value," while Mike Cazaz remarks: "The bottleneck has had a significant effect on prices of some USM by driving prices up. Simply put, some companies that have ready-to-go materials that are in demand can charge whatever they want, and they certainly do. Prices have gone up to levels that we have never seen."

Scott Butler, Tony Russo and David Chaimovitz all seem to be of a like-minded opinion based on the economics of supply and demand. "USM only becomes more valuable with any kind of supply chain shortage, especially with older aircraft flying longer than expected. Whomever has the part on the shelf, ready to go will get the sale," says Butler, while Timothy Russo succinctly says that: "As demand continues to increase and supply remains constrained, prices of USM material have continued to rise. Customers who have not traditionally purchased USM are looking at all options available to them, when time is of the essence." David Chaimovitz, Founder & CEO of Setna iO is equally concise: "Of course, a lack of readily available supply in any market with strong demand will cause price increases."

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*Scott Butler, Chief Commercial Officer,
Ascent Aviation Services*

Methods used by airlines and MRO providers to avoid AOGs

We asked our contributors what they felt airlines and MRO providers should do to prevent production disruptions and AOGs.

Unless advised in advance, airlines and MROs may not be aware of production disruption issues with their suppliers. In many cases, this only becomes obvious after an order is placed and the delivery date keeps slipping. Not a good situation. Maintaining a high inventory level is certainly one way to mitigate that risk. But there are economic considerations to that strategy and, even then, it's not always the best approach.

An aspect to exploit is the analysis of the data from previous checks, over several years, specific to a fleet type. Compare that analysis against orders placed, particularly AOGs, to get a sense for the level of AOG activity. Then, order those parts. This is a deeper analysis than used for

maintenance check pre-draws or advance order placements that are routinely done. As Terry Stone further explains: “Unless an MRO has purchasing authority for more than consumables/expendables and lower value materials that they will routinely stock, they generally rely on their airline customer for the bulk of the materials needed for a check. With that said, MROs have access to their data across multiple customers and fleets. They can perform a similar analysis for the material classes that they do stock. Preparation and Planning = Prevention.”

Scott Symington, Scott Butler, David Chaimovitz and Mike Cazaz also all feel that being proactive and planning are essential. “Predict, prepare, and plan!” says Symington. “For an MRO and supply chain solution provider such as AJW Group, it is a matter of having a solid yet agile inventory management strategy to meet customers’ needs. By ensuring we have the right stock at the right place at the right time – we provide the highest levels of customer service to prevent AOG situations where possible,” he adds. Scott Butler says briefly: “Plan for the worst. More and more airlines are partnering with third parties to stock USM. They are tearing down their own aircraft to support continued operations,” while Chaimovitz comments: “Forward planning is more important than ever. Our ‘in stock, ready to go’ strategy



Timothy Russo, President, STS Component Solutions



Scott Butler, Chief Commercial Officer,
Ascent Aviation Services

of proactively managing our supply chain remains critical.” On the same theme, Cazaz feels that: “Strategic thinking and better planning are needed, that usually requires some capital expenditure. They will need to improve stocking and not rely on ‘just in time’ inventory to manage their assets.”

However, Timothy Russo and Claire Hochard adopt slightly different approaches to the situation. Russo believes that whatever the situation, it is important to be transparent with customers. “While it is impossible to entirely eliminate disruptions or an AOG situation, the ability to mitigate a delay comes from knowing all the options available. At STS, we routinely prepare multiple options for the customer when issues arise. Whether confronted with an AOG scenario or facing a delivery delay, fostering a relationship of transparency with customers and being able to offer creative solutions to resolve an urgent matter is always a win/win,” he comments. At Vallair, Hochard talks about adopting a multifaceted

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David Chaimovitz, Founder & CEO, Setna iO

approach: “Using advanced inventory management and predictive analytics to keep critical parts available, we focus on building relationships with all our suppliers and use performance-based contracts to reduce risks. Regular risk assessments, contingency planning, and maintaining emergency stock are essential.”

How part ordering and inventory levels can combat supply chain shortages

We were curious to establish whether it was good policy to raise inventory levels upon parts becoming available and whether it is advisable to place orders for parts well in advance.

David Chaimovitz at Setna iO responds bluntly: “It depends on the organization and the core business model of the organization. Should airlines ensure they have enough components to avoid AOGs? Of course. Should part trading firms hold two-times the inventory of a single line item as compared to 2019 levels? Probably not,” though Scott Butler at Ascent Aviation Services doesn’t believe that “levels have to be raised, just the pipeline needs to be planned in advance. The airlines that are working on a long-term solution for USM are controlling their own destiny.”

While inventory levels are specific to each operator and/or MRO, the ability to pivot when market dynamics shift is paramount. As the market continues to evolve, it is imperative that each customer’s inventory strategy evolves in parallel. For frequently replaced parts, implementing a process to place scheduled orders can prove to be advantageous, capitalising on the predictability of demand and locking in pricing. “Ultimately, having the right tools and allocating resources to manage

inventory forecasting and intermittent demand across thousands of part numbers is fundamental to achieving long-term success,” concludes Timothy Russo at STS Component Solutions

While raising inventory levels prevents future disruptions and lowers the risk of AOG situations, the cost of holding extra inventory can be high. Ordering parts well in advance is beneficial and ensures availability when needed and flexible supply. However, Claire Hochard urges caution as “this can tie up capital and warehouse space, so we try to find the right balance with careful forecasting.”

Of course, preparation and planning will help to minimize stock outs. It is prudent to maintain certain stock levels to ensure you can meet your service level goals or contract obligations. Yes, orders should be placed in advance for maintenance activity. Prior to the current situation, supplier lead times were more accurate. Due to the supply chain situation being what it is, supplier-provided lead times today may not reflect the current actual reality. “Consider using your historical purchasing data combined with actual delivery performance and tweak order placement times to compensate for leads times. Consider the repair cycle TAT when purchasing USM and evaluate the feasibility of placing larger, single orders with a phased delivery schedule,” suggests Terry Stone at VAS Aero Services

In answer to the questions: “Should inventory levels be raised upon parts becoming available and is it advisable to place orders for parts well in advance?”, at Werner Aero Mike Cazaz has two words to say in response: “The short answers are Yes and Yes.” He explains further: “If airlines want to avoid or reduce AOGs they will have to be willing to spend the money and raise their inventory levels. It is certainly



David Chaimovitz, Founder & CEO, Setna iO

advisable to preorder some of the high-moving items as they tend to sell very fast.”

To conclude, Scott Symington at AJW Group talks about adopting a proactive stance to the situation. He explains that: “AJW’s strategy of investing in substantial inventory well in advance exemplifies a proactive stance that can provide a competitive advantage in navigating supply issues. By holding a robust inventory of 450,000 line items valued at over US\$500 million, the company has established a resilient buffer against supply chain disruptions, ensuring a steady supply of critical parts to meet customer demands.

“Raising inventory levels upon parts becoming available is a possible strategy. By capitalising on opportunities to replenish stock, companies can better position themselves to fulfil customer orders promptly and maintain operational continuity. If taking this approach, one does need to consider cost and storage capacity to ensure efficient inventory management.

“Placing orders for parts well in advance aligns with AJW’s proactive approach to inventory management. For newer platforms such as the Neo and Max, there is no teardown material available, so the only solution is to place longer-term forward orders with the OEMs. We are also investing in packages of spares on new platforms wherever possible and are now the first

independent supply chain solution provider with a significant inventory in the A350 space.”

Do PMA parts alleviate supply chain shortages?

We were keen to find out whether MRO providers had suggestions as to how PMI parts can help in alleviating supply chain shortages.

PMA parts can offer a strategic solution for overcoming supply chain shortages by providing alternative sources for critical components from approved alternative suppliers and alleviating the reliance on a single source. However, adoption is very much driven by both the airline and to a large extent, the lessor and asset owner. As Scott Symington puts it: “There is no doubt that in certain critical cases, PMA offers the only viable alternative, and if you want to fly then airlines are taking a less conservative approach,” while Scott Butler is of the opinion that: “PMI needs to be embraced where applicable. Operators / lessors that allow for PMI parts are presented with a lot of alternatives to the OEM supply chain disruptions. Negotiating lease return conditions that allow for PMI should also be at the forefront of the operators’ mind.”

PMA parts have provided value to the aftermarket for many years but have gained greater visibility recently due to the supply



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chain challenges. Whether the customer is looking for increased material availability, more advantageous pricing, or increased reliability, PMA parts can offer some if not all three benefits. Timothy Russo explains further: “While the supply chain challenges opened the door to PMA for many customers, STS has supported our global customer base with PMA material since inception,” though Claire Hochard talks about taking a more cautious approach. “As an MRO, Vallair must get client approval before using PMA (Parts Manufacturer Approval) parts to ensure they meet the clients’ quality and safety standards. This protocol helps us to maintain the integrity and reliability of our services.” She then adds: “I believe clients will increasingly need to use PMA parts to avoid long lead times. Embracing PMA parts can help operators maintain operational efficiency and reduce the risk of delays which affect customer satisfaction.”

PMA parts have been around before the current supply chain shortage situation. Terry Stone points out that: “If the PMA parts

require the same raw materials, production processes and expertise to manufacture them, then no. They are exposed to the same constraints as non-PMA parts. However, USM parts are an option and in many cases are considered before choosing PMA,” while Mike Cazaz sees PMA parts as a key solution to one problem. “PMA parts can always help as they provide additional access to new parts that are not OEM produced. This is a great solution for spare parts support on many sections of the aircraft. However, significantly, financial institutions who own aviation assets prefer to protect the value of these assets by using OEM provided or USM. Hence PMA parts are not as prevalent as they should be.”

Is there a light at the end of the tunnel?

Lastly, we wanted to find out if respondents had managed to spot any recent improvements in the supply chain landscape and whether any of them could



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the needs of their customers will find themselves well positioned for long term success." Butler too remains positive. "The light is there, but still a bit away. Until the disruptions at the OEM airframe, engine and tier-1 suppliers begin to subside, there will still be a need for creative solutions in the market," he concludes.

Meanwhile, Mike Cazaz is less optimistic, and David Chaimovitz has concerns over long-term problems created by trouble at Boeing: "We only see slow improvements but this state in the industry seems destined to continue for the next couple of years at least," says Cazaz. "The MRO supply chain seems to have caught up to more reasonable levels versus a year ago, and we are no longer seeing huge price increases across the board. That being said, Boeing and Airbus have delivered approximately 2,700 less aircraft than expected in their global forecast at the end of 2018. These 2,700 aircraft will never be made, and we are surfing a generational wave of high MRO/component demand and low aircraft supply," Chaimovitz points out, urging caution

It would seem that there is no fixed or unanimous opinion of the state of the supply chain in the aviation industry at the moment. However, it is also clear that on balance, there is a greater sense of optimism and that the worst may well be behind us.

finally see a light at the end of the tunnel?

The aviation industry is a dynamic yet resilient one. More than anything, the events of recent years have highlighted the agility of industry stakeholders who have driven change and process improvement to survive and navigate the ongoing challenges. Adaptability is key in this situation and only the strongest will overcome the supply chain challenges. "Whether we're facing these challenges or others related to the sector, disruptions are inevitable, whatever their nature, but a resilient supply chain built on enduring relationships, as AJW has forged over the past nine decades, reinforced by our commitment to efficiency, is what makes us an industry leader," Scott Symington says, though he ends on a positive note: "Despite current challenges AJW's MRO operations are thriving due to high demand, meticulous inventory strategy, and efficient operations. There is always a light at the end of the tunnel, we have learnt to navigate the dark times and seek out the light, which is why we've been in operation for 92 years."

Claire Hochard, Terry Stone, Timothy Russo and Scott Butler all remain quietly optimistic for the future. Hochard sees

investment as key to overcoming supply chain problems. "Significant efforts have been made to improve supply chain delays. Technological advancements have cut delays and boosted supply of parts. However, there is increasing demand for qualified maintenance technicians, and logistics specialists. Continued investment in recruitment, training, and talent retention is necessary and it is a key component of Vallair's business strategy," says Hochard, while Stone comments that: "Increasing aircraft production rates are still a reality. The supply chain has been steadily building, or in some cases rebuilding its capabilities to meet these demands. While we are not quite out of the tunnel yet, we can see a much brighter light than we did 12 months ago." Russo also chooses to adopt a positive outlook. "While improvements are still incremental, they are heading in the right direction. Organizations in every sector of aerospace have had to realign their processes and allocate resources to account for this new normal. Ultimately, those organizations that exhibit the greatest willingness to embrace change, engage in transparent collaboration and prioritize

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Terry Stone, Vice President Material Sales, VAS Aero Services



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