

# MRO



## Spare Engines

Adjusting supply  
& demand

### **Fleet Analysis**

Adapting to a  
changing market

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# Aircraft fleet planning will be crucial

Airlines will need to look closely at the fleet mix.  
Photo: Lufthansa Technik

Fleet decisions will ultimately have an impact on airline operating costs particularly in the aviation recovery phase. **Keith Mwanalushi** examines the market for MRO solutions amid the current shifting trends.

Over the last several months aircraft operators have been faced with the conundrum of trying to keep their fleets flying without the usual load of passengers required to maintain revenue flows. And the effects of the COVID-19 pandemic have seen the rate of new deliveries fall and altered retirement thresholds.

To get back in the sky following the COVID crisis, several airlines may need to pull aircraft from storage and this could place a high demand for MRO services, but clearly not all aircraft will return to service at the same time, or return at all.

Embraer published a forecast that sees the number of regional jets increasing over the next several years. Pastor Lopez, President, MRO Services Group, GA Telesis, LLC says the current predictions are in favour of single-aisle aircraft as cross-country travel will be slower to recover from the implica-

tions of COVID-19. "The utilisation of regional jets aligns with the current aircraft load factor all airlines are experiencing. However, the limiting factor to a substantial expansion of RJ usage in the United States is the scope clause major carriers are bound by. As such, we are bullish on the 737 NG and A320 as these models fit well within the scope of GA Telesis capabilities."

At AAR Corp, they have been working very closely with airline partners in returning their stored aircraft to service and the demand has been manageable, reports Brian Sartain, SVP Repair and Engineering at AAR. "In fact, many of these storage programmes helped us preserve jobs for our mechanics through the worst of the crisis. I am aware that some storage facilities are suffering from a shortage of mechanics due to COVID related issues, but AAR has taken extra precautions to insure we

avoid that. We are seeing the older fleets of aircraft like 737-700 and A320CEO's being replaced by the 737MAX and in some cases E-Jets on thin routes and we have in-



Brian Sartain, SVP Repair and Engineering at AAR.



There is confidence in the market for airframe works on types like the 737NGs.  
Photo: Patrick Delapierre

sured that we have those capabilities. As for older widebodies, many are transitioning to cargo service and we have seen an uptick in volume with those customers.”

Mike Cazaz, President and CEO at Werner Aero Services feels much will depend on how the aircraft have been stored. He says



Mike Cazaz, CEO at Werner Aero Services

taking aircraft out of long-term storage does require substantial amount of work, per OEM procedures. “Typically, engines are removed off the aircraft during long term storage and properly stored, so that won’t be an issue. The issue is to verify that the airframe is in check. As an aircraft gets older, the material gets older and the wear and tear is tougher with the older airframe as supposed to a younger aircraft.”

At the Vallair MRO facility in Montpellier, South of France, they have seen an uptick in demand for storage and aircraft preservation. Vallair is active in the storage business with around 15 to 20 aircraft in storage in Montpellier and a similar number at the Chateauroux facility.

Asked if there could be a rush for services on older mature fleets post COVID, Malcolm Chandler, Head of Commercial and Marketing at Vallair believes, possibly not – “At the moment no, with the new fleets of about 10 years and younger we are starting to see some more traction. Anything older than the 10 to 12-year stage is looking at parking for longer term and potential part out. And now

the part out market is very flat, effectively because nobody needs the spares.”

At the Montpellier facility, Vallair offers all levels of maintenance and modification on the A320, B737 and the ATR and covers the aircraft cabin reconfiguration and exterior painting.



Malcolm Chandler, Head of Commercial and Marketing at Vallair



The retirement of legacy aircraft will have some impact on the MRO side.  
 Photo: Stuart Bailey

Sajedah Rustom, CEO at AJW Group echoes similar sentiments saying they expect airlines to prioritise their younger fleet, particularly their smaller aircraft as operating costs will be lower.

The return of the older and larger aircraft will take a longer period and its likely only a portion of these aircraft will be brought back into service. Rustom explains that the majority of the effort will be at a line maintenance level, but as specific aircraft are brought back, component failures on start-up will lead to demand for exchanges to expedite the process, and an increase in demand for inspection/test and minor repair as units pull from parked aircraft are recertified to calibrate airworthiness.

“We do expect components requiring more comprehensive [and therefore expensive] repairs to be put on hold, or even scrapped and cannibalised to support lower cost repair on similar components,” says Rustom. “Nevertheless, we at AJW monitor the market diligently with endless digital tools driven by market intelligence that allow us to forecast and align our sales and operations plan along with changes in the industry. For instance, our new product introduction roadmap at AJW Technique considers platform capacity planning into 2021 and beyond, for us to prioritise development of in-house repair capabilities to support parts that are most in demand. It is an iterative and agile process that we run in collaboration with our top loyal customers. In the last

six months, despite the pandemic, we have implemented 37 new capabilities including the 787 slides programme which has seen tremendous success.”

**Legacy fleets and adapting to a changing market**

The pandemic has widely put an end to operations of some legacy aircraft like the passenger 747, with airlines replacing these with newer generation types which is a welcome boost for aircraft OEMs and their suppliers but will surely impact the various segments of the MRO market.



Sajedah Rustom, CEO at AJW Group

“Without technology, MROs would not be able to manage a healthy and sustainable cashflow during these times.”

*Sajedah Rustom, CEO at AJW Group*

## INTEGRATED MRO SOLUTIONS

Rustom agrees that the retirement of some legacy aircraft such as the 747 will have major impacts on the supply chain, including the MROs. However, similarly to OEMs and other suppliers, she says MROs will need to shift their in-house capabilities and adjust to the changing market. AJW Technique's core capabilities are focuses mostly on narrowbody and twin-engine widebody (A330 and Boeing 767).

Rustom adds: "Whilst we expect a future reduction in overall 767 work for example, the A330 market continues to be strong. Even on the 767, we are seeing an upside in the freighter market, which will offset the reduction in the passenger fleet to some extent. So as the overall market recovers, we are well positioned to support the aircraft expected to be flying first, and do not expect to see a significant impact in the overall mix. Most of our technicians have 25 plus years of experience in the aviation market; they hold tribal knowledge that permits AJW to be flexible with any shift the market is making."

Lopez from GA Telesis also sees a slight impact on the MRO side because of the exit of the 747 but he also sees parked 747 freighters re-entering service. "We believe airlines will not immediately replace parked legacy aircraft as the demand for flying will remain below the pre-pandemic levels. Thus, our belief, reinforced by consulting firms, is that aircraft OEMs will be forced to reduce production rates. Compounding the lack of travel is the price of oil. If oil prices remain low, airlines do not have an economic incentive to invest in new, more efficient aircraft.

"We also believe aircraft OEM suppliers will be under pressure to reduce costs and boost other revenue streams due to the reduction of new aircraft production rates. This will place them in direct competition with independent MROs. At GA Telesis, we have worked on an OEM-alignment strategy for many years. So, in this respect, we are close to OEMs. We can deliver OEM quality at a sensible cost to our airline customers," Lopez states.

Mike Cazaz anticipates that older airframes such as the B747 will end up having more supply of spare parts in the aftermarket which will end up competing with the cost



MRO landing gear services.  
Photo: GA Telesis

of the repair of the components. He says those who still operate these aircraft will find that in most cases it will be cheaper and quicker to buy a serviceable unit off the market, than to send their unit for an MRO visit – "That will significantly decrease the demand for repairs and overhauls of spare parts and engines for these legacy aircraft."

The impact for AAR has been two-fold, in the airframe market they have focused on domestic airframes almost exclusively and most of their passenger-carrying customers utilise AAR for narrow-body maintenance. "We have seen a quick recovery there and the retirement of airframes like the 767 and 747 from passenger service has led to increased cargo fleets that we can service here in the States. In the engine market, the retirement of these airframes has led to greater availability of

“Aircraft OEM suppliers will be under pressure to reduce costs and boost other revenue streams.”

*Pastor Lopez, President, MRO Services Group, GA Telesis*

Used Serviceable Material (USM) and as the largest supplier of these parts in the Americas, this has been a great opportunity for us to support our customers still flying those airframes whether in the passenger or cargo markets," Sartain mentions.

Vallair have placed some cargo aircraft with operators during the pandemic. They took two aircraft off lease earlier in the year from South America and have now been placed with operators. Obviously, the big news from Vallair these days is the A321 cargo conversion programme and there have been some significant orders coming in.

In October last year, Vallair signed an agreement with SmartLynx to lease two newly converted A321-200 freighters. This was quickly followed by the signing an



Alya Al Qalam AL Yafie, Manger Development Engineering with Oman Air

Lol (Letter of Intent) with US based Global Crossing Airlines Inc. (GlobalX) to lease ten converted A321 freighter aircraft in the most significant deal in the history of the A321F. More recently, Vallair announced the first A321 passenger to freighter conversions to be undertaken in China.

**Integration of MRO solutions through technology**

Alya Al Qalam AL Yafie, Manger Development Engineering with Oman Air sees a number of disruptive technologies which could reshape and enhance MRO solutions, one of them being Blockchain which is one of the leading technologies that can be used to improve record-keeping and enable faster lease turnover while maintaining a high standard of data privacy – “Another good example of these applications is data analytics and machine learning technology which allows data collection and analysis to recognise patterns and make predictions that can effectively take the variability out of processes. Predictive maintenance is a powerful tool for MRO’s as it helps to predict maintenance needs in advance to better anticipate component failure and reduce unexpected maintenance costs.”

At Swiss AviationSoftware (Swiss-AS) they have not slowed down throughout 2020 in terms of development according to Sales Representative, Chris Clements. “We have been able to maintain our development roadmap with little or no adjustment. AMOS has a full range of functions and technology that enables our customers to maintain not only the stringent safety and quality standards required of them, but with our mobile options the users can work whilst adhering to the social distancing issues we have to work with today.”

Swiss-AS have made some advances in AMOS to enable customers to work paperless, using AMOSmobile/EXEC and AMOSmobile/STORES and exchange work package’s electronically are all benefits that can improve the execution of maintenance regardless of the age of the aircraft, Clements clarifies. “We have seen an increase in requests coming from both within the AMOS community and in pre-sales to help customers shape their digital transformation – including the introduction of paperless and digital processes based on AMOS. However, despite the industry interest it is not an overnight transformation.”

In today’s world, a digitised MRO has not only become an enabler for increased efficiencies and forecasted work assessment; it has become a requirement to keep MROs profitable post-COVID 19, as Rustom from AJW notes. She says predictive maintenance initiated by aggregated data modelling for estimated removals and aircraft health monitoring systems implemented by airframe OEMs has massively changed the game and continues to provide benefits to MROs and other vendors across the chain.

“All MROs have had to revisit their replenishment cycles and align with a lower demand for repairs especially for older platforms due to low utilisation,” states Rustom.

“Access to market intelligence and integrated customer solutions has allowed us to assess whether parts require repair or if used serviceable material provides the customer with a more competitive proposition. Without technology, MROs would not be able to manage a healthy and sustainable cashflow during these times. Other technologies such as RFID, augmented reality, 3D printing, enables faster turnaround time and transparency with customers, making the MRO a differentiator in the market.”

The pandemic has pushed the need for digital solutions as cost structures have quickly become too heavy to support a lower volume of work. As Rustom points out, it has been extremely important at AJW to fast track their digital roadmap and automate as much of the workflow as possible with digital solutions that have not only helped to manage work inflow, resource allocation and inventory levels, but also streamline day-to-day activities, eliminate waste and maximise component touch-time – providing benefits to both the company and customers.



Chris Clements, Sales Representative at Swiss-AS



A321 passenger to freighter conversion has gained traction. Photo: ST Engineering