

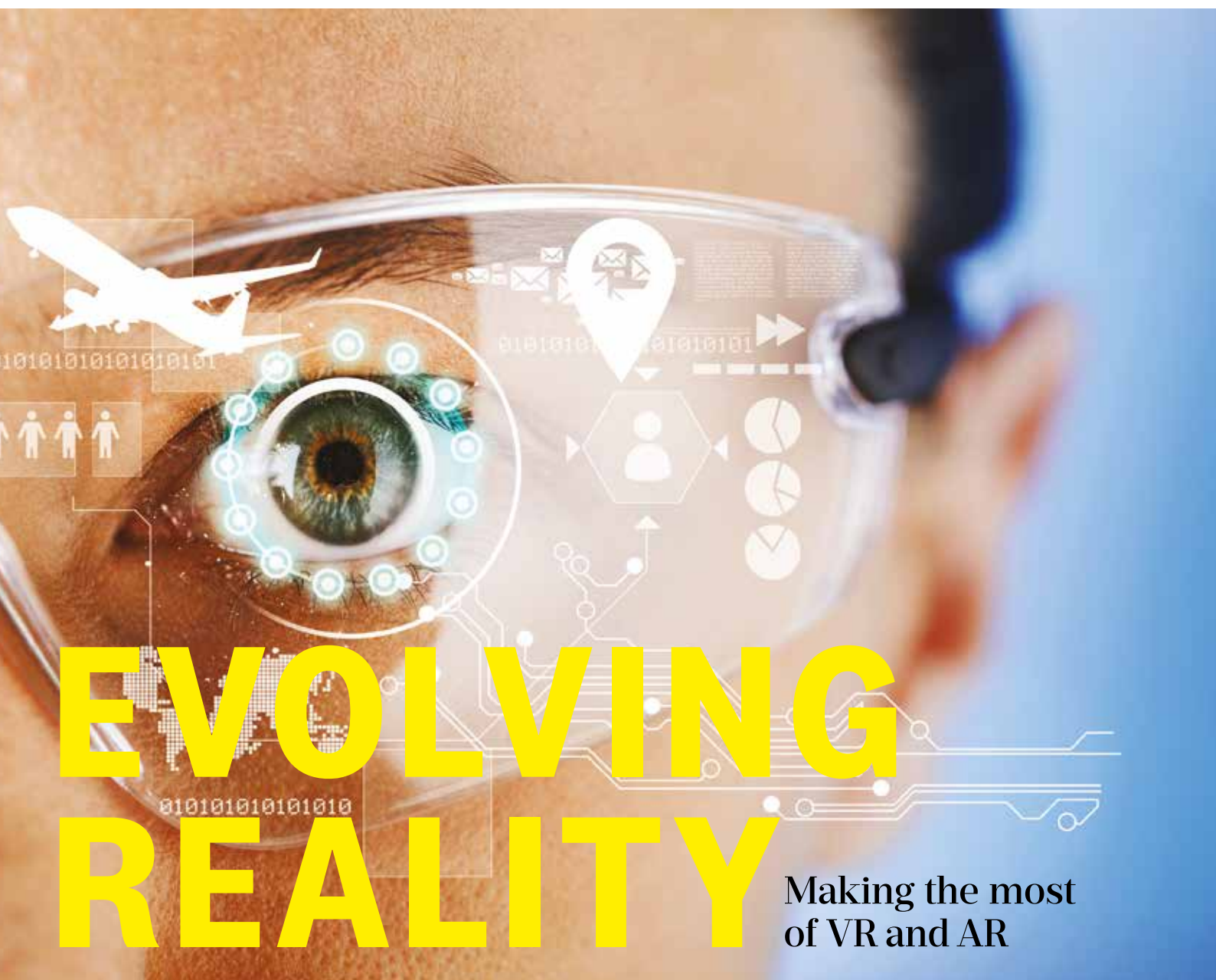
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MRO

Management



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Making the most
of VR and AR

Tactical moves

GA Telesis shares its
Turbine Vision 2020

Smooth operation

An innovative approach to
CFM56 maintenance

A bright spark

Maintaining electrics
and electronics



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Editor's LETTER

Satu Dahl

satu.dahl@realresponsemedia.com



Welcome to the November issue of MRO Management. As always, you'll find this issue packed with insightful content and interviews.

Many of the articles in this issue look into how different approaches to maintenance can save airlines money. In our feature on technology (*pages 30-34*), we examine how robotics and virtual and augmented reality technologies are bringing big benefits to MRO logistics operators, and in our engine maintenance article on pages 24-25, we speak with hourly cost maintenance programme provider JSSI and learn how carriers can be savvier with their MRO spend.

On pages 18-19, you can find a detailed interview with Russell Shelton, president of the engine strategy group at global aviation integrator GA Telesis. In the piece, Shelton shares his insight on the company's long-term engine MRO strategy, Turbine Vision 2020.

In this issue, we also look into the latest developments in the electrics and electronics sector (*pages 26-28*) and learn how Boeing

continues to see strong customer demand for its 737-800BCF standard-body and 767-300BCF medium-widebody freighters. In order to meet the high demand, the manufacturer is working with GAMECO and ST Engineering to open new conversion lines in Asia.

In our Innovation Spotlight piece on pages 21-22, we catch up with Aero Norway and find out about the company's innovative approach to CFM56 maintenance during the pandemic.

We hope you enjoy reading this issue! Looking ahead to the next issue – the last one of the year – we will be bringing you insights on IT software, aircraft recycling and much more. And last but not least – please remember you can also find even more exclusive stories and industry insight on our aviation news website aviationbusinessnews.com.

A handwritten signature of Satu Dahl in black ink.

Satu Dahl
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Hangar Talk

News from across the industry



COMPONENTS

Honeywell releases upgrade for 131-9A auxiliary power unit

Honeywell has released a high-efficiency mode upgrade for its 131-9A auxiliary power unit for single-aisle Airbus aircraft. This mode, enabled by a software encryption key, is expected to increase the average time-on-wing by 1,200 flight hours and reduce fuel burn by 2 per cent.

Honeywell says the 131-9A is known for its reliability and lower maintenance costs. Honeywell Aerospace's vice-president of engines and power systems, David Shilliday, said: "Now, more than ever, our airline customers are concerned with cost savings and operational efficiency. This upgrade is an easy, one-time modification enabled with software and will be available first for our Maintenance Service Plan customers, and later for all operators of 131-9A units."

"It enables extended usage and better efficiency for our customers' 131-9A auxiliary power units to control costs now and in the future."



BUSINESS

APOC Aviation reveals ambitious growth plans

Dutch aviation company APOC Aviation has reported "sizeable" investment from private equity firm Egeria. APOC's founder and CEO Max Lutje Wooldrik retains his interest in the company, while current shareholder Antea and other investors are selling their stake.

APOC Aviation, based next to Rotterdam Airport in the Netherlands, specialises in the trading, leasing and part-out of aircraft, engines and landing gears and the company plans to accelerate its global growth strategy. This will include supplementing its narrowbody airframe, engines and landing gear acquisition policy; enhancing its global footprint; and readying its commercial spare parts inventory for a post-Covid resurgence.

The company also plans to open a base in Singapore before the end of the year to offer Asian operators access to its A320 family and 737 spare component capability. A US hub is set to follow in the first quarter of 2021.

Wooldrik commented: "We were already talking to Egeria before Covid-19 hit. They were enthusiastic about our vision to become a US\$100 million company. Even though the pandemic has delayed the process, we're proud they have sustained real confidence in our performance and the belief in our future strategies to want to share our journey."

APOC Aviation plans to open a Singapore base and a US hub



MAINTENANCE

HAECO Xiamen completes first A350 C-check

HAECO Xiamen has announced that it has completed its first Airbus A350 C-check for Cathay Pacific Airways. This marks another significant milestone in the development of the company's capabilities as part of the HAECO group.

HAECO Xiamen says it is dedicated to expanding its technical capabilities so it can meet the growing demand for airframe services support for new generation aircraft in the aviation industry. It currently holds approval from multiple authorities around the world for all major and new generation commercial aircraft types, including A320neo and Boeing 787.

The company aims to meet demand for new generation aircraft

In other developments for the company, it announced in late July that, following the formal approval of its Airbus A320 part-out capability by the Civil Aviation Administration of China, it had undertaken its first A320 part-out project for Yan Wu Group, disassembling four aircraft for the Chinese mainland operator.

The aircraft part-out service complements HAECO Xiamen's comprehensive suite of service offerings ranging from parts manufacturing

for new aircraft, cabin design and completion to airframe maintenance, modification and cabin reconfiguration.

HAECO Xiamen, based at Xiamen Gaoqi International Airport, has 460,000 square metres of facilities which include six hangars that are capable of simultaneously accommodating 12 widebody aircraft and five narrowbody aircraft.

HAECO Xiamen is a member of the HAECO Group and the group's other shareholders include Xiamen Aviation Industry Co., Cathay Pacific Airways, Japan Airlines Co., The Boeing Company and Beijing Kailan Aviation Technology Industry & Services Co.



PARTS

Satair produces metal printed flying spare part

Airbus services company Satair has provided an airline customer in the US with what is believed to be the first certified metal printed flying spare part.

According to Satair, the A320ceo wingtip fences in question are no longer in production and the original spare parts supplier had difficulties providing the cast part. This led to a regular loss of the moulds, resulting in a potentially high investment cost for Satair to replace the moulds for individual orders.

Felix Hammerschmidt of Satair said: "AOG procurement department turned to the Additive Manufacturing team for a solution. After a short pre-assessment, the part was handed over to the RapidSpares design offices at Airbus.

"Using a new certification process they were able to re-certify the former cast part within five weeks and adapt it to titanium, which is a qualified airworthy additive manufacturing material."

He added: "The lead time for certification is expected to reduce even further in the future once the technology becomes more of a standard."



BUSINESS

Collins Aerospace and Fokker Services expand MRO agreement

Collins Aerospace Systems and Fokker Services have agreed to expand an existing 10-year MRO contract. The 'FlightSense' on-site support agreement covers

Collins Aerospace's integrated drive generators (IDGs).

An IDG provides primary electric power for the aircraft electrical system by converting variable engine input speed to a constant output speed. This enables the generator portion of the IDG to produce alternating current at a constant frequency.

The contract will add new IDG part numbers for the A320neo. Collins Aerospace will continue to manage Fokker Services' onsite inventory of IDG components. Fokker Services, in turn, will now be able to repair Collins Aerospace IDGs for the A320neo at its Amsterdam Airport Schiphol facilities.

Collins Aerospace's vice president, aftermarket, power & controls Ryan Hudson commented: "This agreement will help

Fokker Services streamline supply chain operations, increase repair reliability and lower operational cost to better serve its customers with quality repairs of Collins Aerospace components."

Fokker Services' director of procurement, Ben Scharrenberg said: "We bring added value based on many years of experience in supporting component MRO, our high quality standards including FAA, EASA and CAAC approvals and our service expertise. We look forward to supporting our customers and to further expanding our relationship as Collins Aerospace's channel partner."

As part of the expanded contract, Fokker Services will support airlines, MROs and integrators with OEM solutions for the Collins Aerospace IDGs.

The contract will add IDG part numbers for the A320neo

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The new year: ups & downs?

As 2020 draws to a close, we speak with IBA to find out what's in store for MROs in 2021

According to IBA, 1,000 aircraft are set to be returned to lessors in 2021. So, what are the key concerns around this for the market? President and head of advisory at IBA Phil Seymour explains that, in recent years, there have been around 800-900 typical lease end dates (when operating leases are expected to end) per year. That number has grown and was expected to grow through the natural increase of operating leases versus the owned aircraft fleet. However, the growth period most airlines experienced since 2013/14, combined with delays to the A320 neo programme, GTF engine issues and the max grounding, resulted in the vast majority of these leases being extended.

So, what for the 1,000 or so aircraft that have lease ends in 2021? According to



It's possible that airlines will be looking to terminate leases ending in Q3/Q4 2021 much earlier

PHIL SEYMOUR
PRESIDENT &
HEAD OF ADVISORY, IBA

Seymour, a handful of these leases may be extended if an airline needs the capacity and defers the arrivals of newer replacements. "However, it's more likely than not that all 1,000 aircraft will be returned – and this figure is only for 2021. It's possible that airlines will be looking to terminate leases ending in Q3/4 2021 much earlier than that."

Reducing cash outlay

The pre-Covid redelivery model was reasonably thorough, Seymour says. Lessee A redelivers an aircraft to lessor B. Lessor B had already organised the next lease to lessor C. That process was also great business for the MRO sector because Lessee A needed to have work performed to meet the redelivery conditions, and was also likely to pick up some additional work in order to prepare the aircraft to be delivered to Lessee C.

Some of that work may not have been scheduled maintenance. However, as the previous issues have shown, there is an average 'overspend' of around \$2million USD for a narrowbody, and \$4.5million USD for a widebody redelivery because the typical commercial terms go above and beyond standard airworthiness-related maintenance.

"A key issue now is that airlines will want to reduce cash outlay, especially for an aircraft or engine they won't be operating," Seymour notes. "Lessors will need to decide whether to impose the conditions and force the MRO spend or agree to a cash settlement and

therefore avoid MRO spend, at least in the short term. This means the MRO market will be left with significant gaps, and slot availability, leading to a huge loss of income."

IBA forecasts that a drop in aircraft leasing activity will reduce engine shop visits. Seymour explains that negotiated settlements between lessors and lessees will lead to a reduction in shop visits rather than the engine work being carried out.

"The decision may vary depending upon whether cash reserves have been paid by the lessee to the lessor during the lease period. A lessor holding several millions of dollars in accrued reserves for future maintenance may well decide to retain that cash, rather than create a fully-lived engine for which it does not have a clear vision of future revenue."

Flexible terms

So, MROs are expected to introduce more flexibility into their shop visit programmes

and Seymour says there are numerous ways this could be achieved. "We have been influenced by the OEMs to think that it is in the interest of all parties to keep engines on wing for as long as possible. This is a reasonable argument because if fewer spare engines are needed, it maximises the cost per hour and cost per cycle economics. However, let's look at this in the light of what we know now, or rather what we don't know.

"We don't know when and how utilisation will return to 2019 levels. We don't know exactly which aircraft and engines will benefit from the hoped-for rebound, but the expectation is that older narrowbodies and widebodies will be phased out first.

"Many of these aircraft would have otherwise continued in service and required third or fourth shop visits, which are frequently remunerative for shops because older engines tend to need more parts replaced. As it is, most of these visits simply will not happen."

According to Seymour, this creates potential for "flexi-shop visits". Rather than spending \$4million USD to gain 8,000 cycles from an engine refurbishment, it would make sense to preserve some cash and spend \$2million USD to gain 3,000 cycles. "Of course, the long-term economics would favour spending the \$4million USD but, as cash is king at the moment, it makes sense to spend less in the short term."

737 max - upside for the MRO sector?

With Boeing 737 max planned to return to service soon, what do MROs need to consider? Seymour says that, whilst the OEMs have developed storage programmes, "We have never seen so many 'new' aircraft stored for such long periods of downtime – the max grounding has meant that hundreds of aircraft in hundreds of locations with different weather and environments will need to be reactivated."

"Boeing will want to institute reactivation programmes to ensure there can be no return to service incident for the max. We are expecting each and every aircraft, even if it was already in service, to undergo much more invasive inspection, ground runs and system checks prior to service than any other 'normal' aircraft. That may signal some upside for the MRO sector – hundreds of hours of work and definitely some materials for each and every max." 

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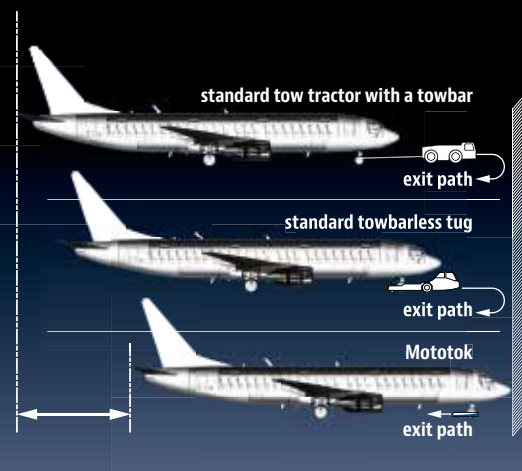
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Best freighter forward

CEO *Grégoire Lebigot* discusses Vallair's cargo conversion programmes and its aircraft recycling activities

F

For Vallair, recycling has always been at the forefront of our endeavours. Many years ago, we recognised the importance of sustainability and the need to recycle aircraft and parts if possible. We focus current activities towards achieving this.

Maximising the life and value of aircraft, engines and parts is at the very core of our ethos. In 2006, I was one of the historical founders of AFRA (Aircraft Fleet Recycling Association) and Vallair remains recognised as a leading independent provider of teardown services with an extensive network for sourcing and disposal of assets.

A significant part of our recycling activity is, of course, our cargo conversion programme and our core competencies lie with the conversion of Boeing and Airbus narrowbody aircraft from passenger to freighter. Vallair is the launch customer for the Airbus A321 freighter and we have recently delivered our first A321P2F conversion to launch operator Qantas Freight, with our second A321 PCF due to be



By recycling passenger aircraft into freighters, we extend their economic lives by 15–20 years and provide an eco-friendly solution

delivered by the end of 2020. As the A321 is a relatively young conversion candidate, using newer technologies, we expect operators to see a 20 per cent reduction in fuel burn per payload.

Historically, of course, our expertise in the conversion of narrowbody aircraft comes from the Boeing 737-800. It is the only other narrowbody freighter currently available on the market and we have undertaken 15 conversions to date. Offering unrivalled capacity and capability, this aircraft can accommodate 11 full height containers or pallets and an increased main deck payload.

The Covid-19 pandemic has certainly seen a huge increase in demand for air cargo. By recycling passenger aircraft into freighters, we are extending their economic lives by 15–20 years whilst providing a fuel-efficient and eco-friendly solution.

To support this, we have purchased 10 A321 aircraft for conversion so far. We predict that our B737 and A321 cargo conversion programmes are without a doubt the long-term effective solutions that will support the projected market demand of the next 20 years or more. We are excited to lead the way with our pioneering A321F programme

and hope that we are playing our part in protecting our environment, while fulfilling the demand of air cargo.

In addition to recycling passenger aircraft as freighters, Vallair also manages teardowns. Our facility in Chateauroux, France employs skilled and certified mechanics to identify, store and manage parts for maximum efficiency and asset value realisation.

Vallair continually seeks to acquire narrowbody and engine assets for sale, lease and teardown in its own right and in partnership with other investors, lessors and MROs.

For the past 10 years, we have partnered with Veolia, one of the largest waste management companies in the world. Veolia is experienced in the treatment of waste and recovery of materials and Veolia Aero Recycling is responsible for the separation of materials into recyclable and non-recyclable. Together, we achieve a recycle and recovery rate of 94 per cent, above and beyond the levels of our nearest competitor.

An important part of the disassembly process is also ensuring that the airframe is deconstructed whilst guaranteeing safety, environmental protection and cost optimisation. At every step we ensure that the ground is fit for reuse and conduct all our disassembly activities in line with the strict AFRA guidelines. 



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In my **view**

Jonathan Berger, managing director of Alton Aviation Consultancy explores how a pause in MRO operations provides unique opportunities for operators



Organisations that converted more fixed costs to variable can now cauterise their haemorrhaging cashflows

It's hard to believe that just a few months ago, the major issues keeping MRO executives up at night – skilled labour shortages, limited hangar capacity and engine overhaul material shortages – have vanished virtually overnight because of Covid-19. Decades from now, the 'great MRO pause of 2020' will undoubtedly be compared to other major historic events such as the terrorist attacks of 9/11 in terms of the impact on the aviation industry.

Over the past few months, my colleagues and I have fielded daily calls from aviation investors, MROs, airlines and manufacturers seeking insight into what the 'new normal' will look like and, more importantly, how long the industry will take to recover.

No one can answer these questions until the airlines rationalise their post-Covid fleet plans. Airlines are working around the clock on this very complex, multi-factorial equation which encompasses passenger and cargo demand forecasts, new aircraft order books, aircraft lease contract commitments, upcoming major aircraft and engine maintenance events, as well as aircraft operating costs such as crew and fuel.

We estimate this process will continue to play out over the next few months as all industry participants and stakeholders remain laser-focused on executing cash preservation tactics while concurrently seeking government assistance.

With a long history of weathering industry shocks, a playbook of cash preservation methods and best practices has evolved for airline maintenance and engineering divisions to follow. These practices include deferring or cancelling all non-essential spend, avoiding costly maintenance expenditures by parking or retiring aircraft approaching major overhauls, tapping into the engine lessor market to defer engine shop visit inductions and leveraging the robust third-party line maintenance supplier market.



As we observe the effectiveness of global operators in reacting to the current crisis, it has become evident that organisations that have successfully converted more fixed costs to variable are now able to cauterise their haemorrhaging cashflows far faster than those burdened with bulky fixed infrastructure and excessive headcount.

Accordingly, the 'great MRO pause' provides a unique opportunity for operators to reconsider their entire MRO supply chain and sourcing strategy. Over the past decade, the third-party MRO supply chain has matured tremendously, with new highly efficient, cost-effective specialist suppliers delivering significant value, including many non-traditional outsourced segments such as line maintenance, engineering services, training and inventory management.

Ever since one major airline CEO declared in 2017, "I don't think we're ever going to lose money again," there has been an ongoing debate as to whether the airline industry is at last post-cyclical. However, the jury has reached a verdict: the airline industry remains at the mercy of exogenous events.

The strategic path forward for airline executives is to focus on their fundamental core competencies while ensuring the right balance of fixed versus variable costs in order to firstly be well positioned to rapidly increase capacity as demand returns and secondly, be better prepared to weather the next inevitable downturn. 

Forecasting the future

Gary Vickers, CEO of MRO software company Aerogility explains how model-based AI can be used to manage fleet maintenance needs

Aerogility describes itself as a model-based AI company. Can you explain what model-based AI is?

Model-based AI is getting a lot of interest right now. At Aerogility, we have created software models utilising 'intelligent agent' technology. The agents represent assets, processes and decision-makers in a holistic model of an airline operation. The model simulates a fleet of aircraft flying over time and forecasts the whole commercial lifecycle for each aircraft and the maintenance & engineering operation.

The benefit of model-based AI is that the simulation process is more transparent and the outputs more explicable compared to some data-driven AI. Our simulations are more likely to result in safe and trusted support for decisions – an important element of gaining acceptance for AI in the corporate world.

How can this type of technology be used to manage and forecast a fleet's maintenance needs?

Customers use Aerogility to fly their fleet over any timeframe and this forecasts life



Our simulations are more likely to result in safe and trusted support for decisions

consumption on the airframe, powerplant and other major systems. The simulation considers multiple factors, optimising when a scheduled maintenance or inspection should be carried out.

Planners can also introduce modification or upgrade programmes, and in some Aerogility models we include stochastic factors for predicting unscheduled events. When a maintenance event occurs, the simulation brings the aircraft into a hangar and all the required skills, inventory and toolings are utilised and their associated timings and costs are recorded.

How have your clients' needs changed since Covid-19?

This type of technology is excellent for forecasting the future impact of discontinuous or disruptive events. Covid-19 is a good example of where, very rapidly, previous business assumptions were thrown into disarray. For fleet

planners, these short-notice changes have an impact on what was once a relatively stable long-term maintenance plan.

Planning teams, which may be reduced in size or working reduced hours, cannot afford the time and effort of manual methods. They are using Aerogility to adapt quickly to changing circumstances by automatically generating new and re-optimised schedules for each new scenario they are hit with.

What role will technology play in supporting airlines as they enter a recovery period and beyond?

We are assuming that airlines will continue to face uncertainty for some time to come, both in terms of living with the consequences of Covid-19, as well as the changing commercial landscape of an industry that has been hit hard. This means that management teams will face some very difficult decisions about the future of their business, and they will need to resolve many trade-offs when considering their options.

We are committed to our goal that these difficult and challenging decisions must be augmented by safe and trusted model-based AI, and now there is an even greater need to provide airline professionals with more advance tools in support of their decision making.

What's next for Aerogility?

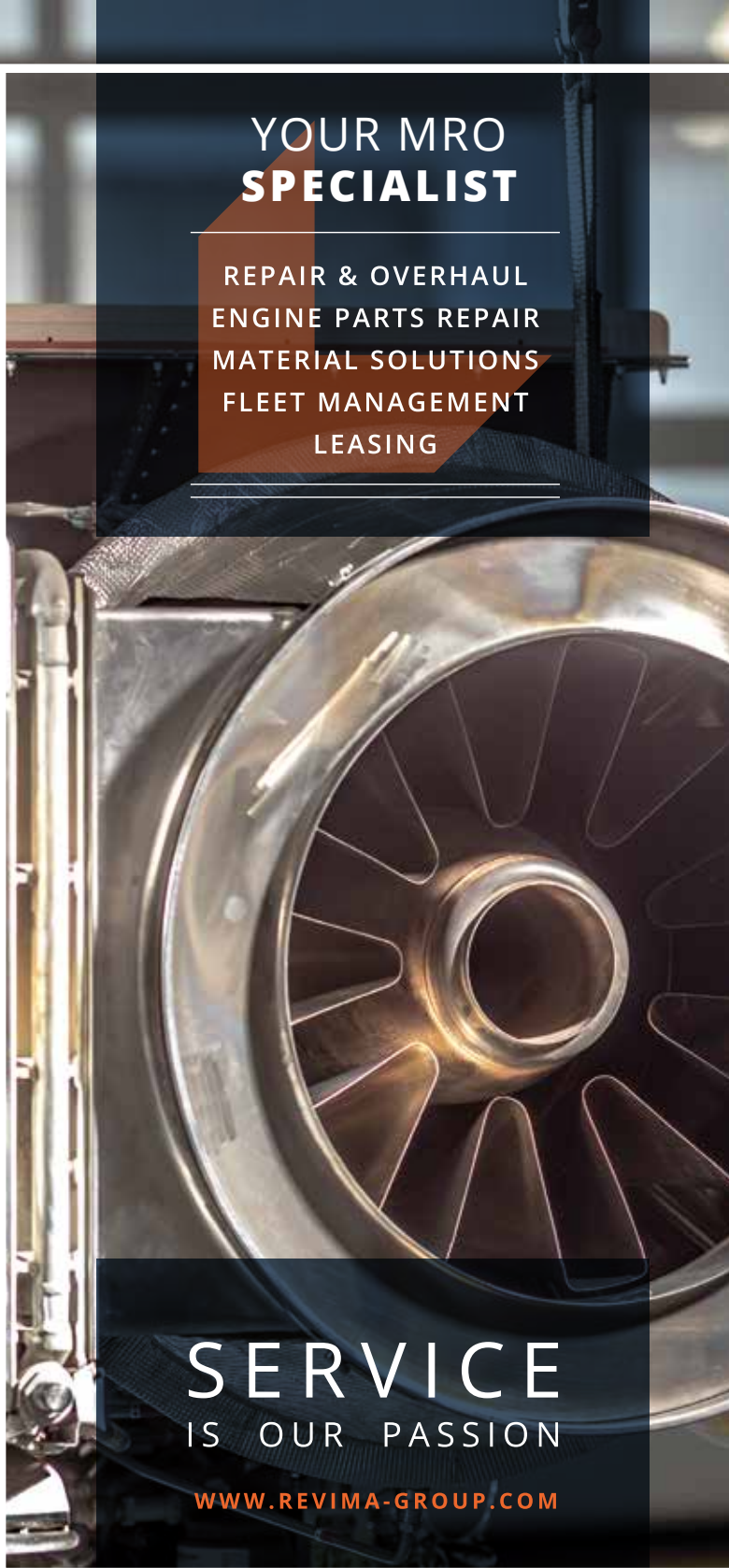
We will continue to develop and improve our core forecasting, planning and predictive analytics capabilities for our defence and airline customers. Aerogility has an important contribution to make in digital transformation for aerospace and defence, and we are especially interested in expanding our enterprise-wide model to provide a type of 'enterprise digital twin' for joined-up decision-making across multiple departments throughout the lifetime of an asset. 



A male technician with glasses and tattoos is working on a large industrial engine component. He is wearing a black polo shirt with the "Revima" logo on the chest and grey gloves. The background shows a workshop environment with various mechanical parts and tools.

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TOP TABLE Strategy for growth

Russell Shelton, president of the engine strategy group at global aviation integrator GA Telesis, shares his insight on the company's long-term engine MRO strategy, Turbine Vision 2020

GA Telesis announced its Turbine Vision 2020 strategy in July. The aim of the strategy is to integrate the company's aircraft engine technology know-how and consolidate all aspects of component, hospital, and complete engine MRO services into integrated offerings, coupled with technology and maintenance financing programmes.

Turbine Vision 2020 will also include developing an engine component repair business from the company's existing back-shop capabilities and the plan is to acquire additional component MROs focused on turbine engine technologies. The company says it will also develop a globally positioned network of subsidiary special procedure aero-engine hospitals and build-out additional engine platform maintenance capabilities at existing MRO units.

Embracing change

GE Aviation veteran Russell Shelton who recently retired from GE was appointed as president of the Turbine Vision 2020 strategy in August. We caught up with

The core of Turbine Vision 2020 is to make our customers more efficient

Shelton to find out more about his first few months in this exciting role and learn how the strategy will be implemented.

So, how has Shelton found his first months as president of the engine strategy group? "I have been very fortunate over the course of my career to have many excellent mentors," he notes. "Every one of them told me that joining GA Telesis would be the smartest thing I have ever done. In a nutshell, it is the smartest thing I have ever done. I have been blessed to join an extremely intelligent, creative, inquisitive, aggressive and fun team."

Regarding overseeing Turbine Vision 2020, Shelton says that the company's objective is to intelligently redefine aviation services. "The core of Turbine Vision 2020 is to make our customers more efficient. When you go to the gate to

catch a flight, the aircraft is essentially there waiting for you. However, the costs to the airline to put it there are staggering. Every supplier variation must be accounted for. Every task for turning the aircraft, which now includes super cleaning, has to be performed. It is a long list of expenses."

Spare engine availability and engine MRO are a substantial portion of this, Shelton notes. "The key to minimising costs is to reduce variation. Information and logistics are essential to achieving meaningful reductions. Actual service is a big deal in the service business. Our goal is for our customers to place a demand that is filled when they need it."

Finnish finesse

The engine heavy maintenance unit of GA Telesis, GA Telesis Engine Services (GATES), is based in Finland. In a recent exciting development for the unit, it announced a significant upgrade to its customer support services in August.

The unit is introducing an innovative remote table inspection solution to its current and future customers as a countermeasure to the global travel difficulties and social distancing due to



The reality is we are in a time of great flux and the opportunities change constantly

Covid-19. Regarding how the operation in Finland is performing, Shelton says Covid has impacted the entire industry and GATES Finland is no exception. "The year began at a record pace and has slowed considerably since then. That said, we will end the year within shouting distance of our volume goals," he reveals.

There are certainly opportunities for GA Telesis in the current market – as Shelton says, engines must be maintained for commercial aviation to function. "The nature of the opportunities has changed and is changing on a daily basis. There is a much greater emphasis on lighter and quicker workscopes.

"The reality, though, is that we are in a time of great flux and the opportunities change constantly. We are focused on being nimble and quick so that we can leverage the full weight of the GA Telesis product portfolio to serve our customers."

When it comes to the long-term impact of Covid-19 on the engine MRO market, Shelton is optimistic. "Jack Welch once said that you have to have a short term before you can have a long term. The industry is going to struggle through the short term and there will likely be structural changes to the way MRO services are provided. Travel will return and the long term looks very bright. We will just have to weather the storm to get there." 

Clockwise from top left: GA Telesis aims to integrate the expertise of aircraft engine technology know-how into its comprehensive, forward-thinking Turbine Vision 2020 strategy

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Left: Aero Norway has the skilled technicians to extract the best EGT margins
Below: Neil Russell, COO of Aero Norway

Aero Norway has adapted well to survival in the CFM56 market due to its flexibility and ability to offer tailored solutions to customers. “Our specialist CFM56 repair services meet the specific requirements of each customer and we have also introduced virtual engine table inspections,” Aero Norway’s chief operating officer Neil Russell explains. “This gave us an advantage in the current market where airlines are looking for flexible support programmes, more bespoke repairs and customised worksopes.”

Throughout the pandemic, Aero Norway has endeavoured to fulfil the ever-changing demands of its customers. In May the company invested in five CFM56-3 engines which it introduced into its refurbish and sell programme. “It became apparent that as a result of Covid, and with many passenger aircraft grounded, operators of the classic freighters flying with CFM56-3 engines were burning more hours than ever before to support the increased demand for air cargo.

“To this end, we predict engine maintenance requirements from freighter customers are set to continue to increase,” Russell notes, continuing that although the CFM56-3 is a legacy product for Aero Norway, the company has the skilled technicians to extract the best EGT margins and thus generate greater efficiencies and economies for its freighter customers and has agreed to support -3 customers’ requirements until 2026.

POWERING innovation

Aero Norway’s chief operating officer **Neil Russell** discusses the company’s innovative approach to CFM56 maintenance during the pandemic



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Left: Team members have been able to work at intervals around engines to adhere to social distancing regulations
Below: The company upgraded their plasma machine, investing in the Oerlikon MultiCoat™ Pro advanced thermal spray system

To give us more flexibility, we added repair bays, as we call them, to do the lighter workscopes

Responsive service

“Our aim has always been to be responsive and reactive,” Russell explains. “Early on, it became apparent that there was an increased demand for lighter and hospital workscopes, and we received an influx of requests from customers to fulfill it.”

“If we have a heavy maintenance job, we schedule that into our normal workflow but to give us more flexibility we added repair bays, as we call them, to do the lighter workscopes. This demand has surged, so we have had to adapt and modify our facility to accommodate it.”

The company has converted major module build space into four additional repair bays to satisfy the volume of lighter workscopes currently coming into the shop as well as investing in training, fixtures and tooling to support it. “We were fortunate, however, that we already had the infrastructure, including workforce and material handling trolleys, in place.

“To accommodate this shift we have had to consider our team and their specialist skills. We have moved people from other sections who had the relevant competencies, as well as on the job training for others. We have found, however, that having engines for repair enables us to provide a socially distanced physical barrier for our team who are able to position themselves at intervals around the engine, and any collaborative work or checks have been carried out with social distancing in mind.”

Russell says that the safety and well-being of the company’s workforce has always been paramount and it has strictly adhered to the guidelines set out by the Norwegian Government around social distancing, foreign business travel and visitor admittance into the facility. “To further enhance our offering, we have also invested in an upgrade to our plasma machine (thermal spraying), a substantial investment that was initiated in 2019/2020 which was part of our strategy to grow our back shop and identify which parts needed to be brought in house.”

The Oerlikon MultiCoat™ Pro advanced thermal spray system platform offers increased efficiency as well as multiple thermal spray processes in one system including plasma spray and HVOF (High Velocity Oxygen Fuel). Introducing the new machine has allowed greater physical flexibility in the company’s machine park as it has a reduced footprint and enabled the company to offer HVOF-related repairs it didn’t have capability for before, in addition to the plasma repairs.

Digital tech

“In 2019, we invested in a high-speed grinder,” Russell reveals, explaining that currently the machine is used on every engine core performance workscope. The operation of the grinder is fully automatic and features all-digital technology to ensure the integrity of the system. The purchase of this specialist machine, the Danobat mBTG-800, will ensure stable and efficient turnaround times are maintained and that the services Aero Norway’s customers are offered remain at the forefront of engine MRO technology capabilities.

“We focus heavily on lean production while maintaining competitive turnaround times and best serving our customers, and the investment in this state-of-the-art equipment will enable us to achieve and maintain these standards. It is our intention to continue to innovate, react and adapt our processes; we believe this flexibility and investment will be our strength for the future.” **M**



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IN CONTROL

Mark Winzar, JSSI's senior vice president of business development for EMEA & APAC tells Satu Dahl how a flexible approach to maintenance can save airlines money

It's evident 2020 has certainly been challenging for airlines, with more than two thirds of the global passenger fleet grounded at the height of the pandemic according to travel industry data and analytics provider Cirium. Now, outstanding aircraft maintenance tasks are mounting up. In this time of tightened budgets, how can carriers be savvier with their MRO spend? Mark Winzar, JSSI's senior vice president of business development for EMEA & APAC notes the industry is quickly running short of cash. "At the virtual World Aviation Festival in September, IATA's payment programme director Thierry Stucker warned that the world's airlines only have a six-month median supply of cash left to survive in the wake of the coronavirus pandemic.

"As airline executives look to make crucial decisions to ensure the survivability of their fleets, many are undertaking a detailed review of how they manage the costs of operating and maintaining their fleets. Unexpected events are inevitable during the lifetime of an aircraft and, over time, maintenance accounts for as much as 35 per cent of an aircraft's annual operating budget."



Clockwise from left: Outstanding aircraft maintenance tasks are mounting up; An HCMP offers protection against unplanned maintenance event costs; JSSI's Mark Winzar notes that the industry is quickly running short of cash

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ENGINE MAINTENANCE



Spreading the costs

Airlines often have to fork out large upfront payments to ensure they have 100 per cent coverage for all aircraft maintenance events, says Winzar. In a post-Covid-19 world, where budgets are tight and cash flow is carefully monitored, a more flexible approach is needed.

"Low-cost carriers and regional airlines are starting to take the lead of their long-haul cousins by exploring hourly cost maintenance programmes (HCMPs)," Winzar reveals. "Their objective – to improve efficiency, maximise aircraft availability and ensure maintenance is a more predictable expense.

"With zero upfront payment, the operator pays an hourly rate; then, at the time of a maintenance event, the HCMP

provider and the customer each pay a pro rata share of the total event cost. These programmes protect airlines and present a clearer picture so they can better predict cash flows."

Winzar says that, when margins are thin, this concept is especially important and provides greater economic flexibility, budget stability and more control. "An HCMP offers protection against unplanned maintenance event costs, which means an airline can focus its time and resources on planning ahead rather than worrying about financing unexpected maintenance costs or ensuring maintenance can be performed in a timely manner."

When it comes to managing engine events, operators are increasingly looking for options. For smaller airlines, opting for an independent HCMP provider can offer enhanced support in addition to financial stability. "They act as your advocate during each maintenance event, closely managing shop visits and supporting with rentals or exchange engines. This offers an alternative to going straight to the OEM MROs for new parts, keeping costs down and minimising downtime," Winzar notes.

Driven by data

Data transparency will help the entire aviation industry during the Covid-19 recovery. Large airlines and long-haul carriers have historically used data analytics with good effect to predict and manage maintenance events, but smaller operators may not always have had the bandwidth to do this, says Winzar. "Selecting an HCMP that has a global reach and offers technical support is therefore important because it enables smaller airlines to tap into data reserves and predict upcoming events with their aircraft engines or parts."

Sharing data enables operators to have more control over their maintenance

35%

Maintenance accounts for as much as 35 per cent of an aircraft's annual operating budget

and support partners, driving reduced costs. "The rewards can ultimately reach passengers too, as data transparency helps increase aircraft availability and gives airlines an opportunity to pass on any cost savings to the end consumer."

Every airline is unique

No airline business model is the same, particularly in the fast-changing world of Covid-19, and Winzar explains that some airlines opt for an HCMP focused on scheduled shop visits, service bulletins and catastrophic engine failure, while others want cover to include replacement for life-limited components, engine removal and reinstallation, or labour for routine inspections.

"Because there is no 'one-size-fits-all' approach, an HCMP and support should be tailored around specific needs. Having a flexible enough approach to meet an individual airline's detailed requirements is key." ■



Data transparency increases aircraft availability and gives airlines an opportunity to pass on savings to the end consumer



ELECTRIC EXCELLENCE

Clockwise from left: Equipment undergoes intense scrutiny at Inertial Aerospace Services; Sunshine Avionics employs its expertise to check equipment such as control display units (right) and flight management systems (below)

C

Calling someone ‘an expert’ these days is often meant pejoratively, denigrating someone who has worked and studied their subject for years, achieving notable qualifications and peer recognition. It has been known for generalists to suggest that “people have had enough of experts”.

In aviation, thankfully, the maxim that ‘safety is no accident’ prevails in both of the ways it can be read. So, when it comes to designing and maintaining aircraft, it is clearly the best option to call upon well-trained specialists to do the job. Given the many components, systems and modules making up an aircraft, there are many areas of specialisation, electrical and electronic systems being one example.

In this case, being so specialised often results in the MRO of such systems being entrusted to the original equipment manufacturers (OEMs) – companies such as GE Aviation, Liebherr, Safran, Collins Aerospace, Teledyne Controls and Thales. However, there are also a number of independent MRO companies, such as HEICO and Lufthansa Systems, which have developed strong reputations for their support of this equipment.

Thales is involved in both electrical systems and electronic systems. The company describes electrical technology as “an enabling technology to improve, simplify, automate and

When it comes to caring for electrical and electronic systems on modern aircraft, specialist help is needed, reports **Bernie Baldwin**

Independent MRO companies such as HEICO and Lufthansa Systems have developed strong reputations

control power systems on board aircraft". It claims a place among the top three players for electrical equipment and systems for aerospace, for which it designs, develops, manufactures and supports electrical power generation and power conversion equipment.

"Significant strengths are the rare expertise in high power electrical generators and converters associated to strong capabilities in real time control present in the Thales portfolio," the company declares. Those powering generating and converting systems supply units such as lights (including those for position, anticollision, landing, taxi and the cabin interior), radio equipment, fuel gauges and pumps, plus a range of other equipment.

On the electronics side, Thales Avionics provides flight deck systems, flight management systems, flight controls and other avionics displays and platforms. Whether dealing with electrical or electronic systems (flight control systems, communications/datalink and so on), there are key points to which attention is paid when one of these pieces of equipment needs to be serviced. "When equipment comes in for maintenance, we first check if it is at the latest

standard and we test the equipment in order to determine the failure cause," states a Thales spokesperson. "We give special attention to all parameters [involved]. All identified checkpoints identified in the maintenance documentation of the equipment are therefore scrutinised in order to validate part replacements and failure correction."

According to the spokesperson, the testing techniques used on these types of equipment range from static measures to use of a specific test bench which reproduces the environment (mechanical, electrical) in which the equipment operates.

HEICO's senior director of marketing Kim Barmoha describes

how her company approaches the task of dealing with these systems and the processes usually required. "Most avionics systems – flight control/flight management, navigation and communication systems on modern commercial aircraft – received for service have common failures that are typical for those LRUs (line replaceable units). The HEICO Avionics companies have built processes to continually evaluate and address these common failures and incorporate them into an engineered, preventative approach to the servicing of the units," she explains.

"Most of the failures surround the power supply circuitry. For each component, HEICO companies





Left: Inertial Aerospace Services has a multi-point checklist of items to ensure components are fully operational

Below: Thales uses new technologies to anticipate on the failure detection analysis, thereby reducing shop processing time

The latest aircraft have greatly increased levels of system monitoring with many more parameters measured

Sunshine Avionics and Inertial Aerospace Services establish a multi-point checklist of items which are replaced as part of the preventative maintenance process,” Barmoha continues. “Most of these parts are the various capacitors and power filtering devices that are relatively low cost but have high failure rates. With this approach, we can help improve the on-wing performance of the units once returned to service and reduce total cost of ownership.”

As for the testing techniques used by the company, Barmoha states, “HEICO Avionics repair companies use the OEM-prescribed test equipment and testing steps to identify failures. We employ electronics engineers and experienced specialists as our repair technicians. These technicians apply prescribed and advanced isolation processes, developed for the specific units to verify and expose common and hidden failures that may not be fully understood using typical, go/no-go testing. Decades of experience is our most valuable tool in understanding and correcting the failures on these equipment types.”

The latest generation of aircraft have greatly increased levels of systems monitoring, with many more parameters being measured. Add the advance transmission of that data to airline maintenance departments and

third-party MRO providers and some real benefits can be accrued.

So how much does in-service monitoring of electric and electronic systems help in preparing the maintenance shop for the work it has to do when units come off the aircraft? “On some equipment, such as starter generators which are connected to the avionics or digital control unit, there is built-in test monitoring that helps better track failure mode/cases,” states the Thales spokesperson. “With these new technologies, when a failure appears, we can save time [by being able to] anticipate on the failure detection analysis and therefore reduce shop processing time.”

Elaborating on how her company makes optimal use of the ability to examine data from the systems before an aircraft reaches the gate, Kim Barmoha notes, “In some cases, HEICO Avionics will partner with our airline customers’ engineering and reliability teams to monitor their avionics system performance and develop soft-time part removal programmes for preventative maintenance, so we can catch failures before they occur in service and potentially avert flight delays.” The value of that to an airline is, of course, considerable – both in actual operating costs and in maintaining brand value among customers.

“We in turn apply our engineered preventative maintenance approach to our service process to improve the on-wing life of the unit,” adds Barmoha. “During the repair process we can also provide feedback with analytical data about the performance of units under test, to help our customers make better decisions based on the health and service life expectancy of their equipment.” Again, therefore, cost savings are potentially available.

As noted, putting safety first is the mantra in aviation. Thus, when it involves keeping sophisticated systems airworthy, it’s always better to ask an expert. **■**



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Justin Burns looks into how new technologies such as VR, AR and robotics are boosting the MRO logistics sector



The Covid-19 pandemic has had a profound impact on MRO logistics and operations. However, the use of new technologies and digital solutions is helping companies overcome challenges, driving efficiency and cost savings. Virtual reality (VR) and augmented reality (AR) are helping save money and time, improve operational efficiency and ensure social distancing of employees in the workplace, while other technologies such as robots are also bringing added value.

Logistics efficiency gains

MRO logistics companies have invested in VR and AR and it is helping improve the level of service to their customers, making processes more efficient and boosting performance.

Swiss MRO logistics provider Kuehne+Nagel has implemented AR in its operations and Erik Goedhart, senior vice president, global head of aerospace & industrials, says the technology is being used in many elements across logistics processes. “We use the digital twin model for our warehouse operations to simulate the impact of various factors on our operations to learn how to better and quicker adjust our modus operandi,” Goedhart notes.

K+N is deploying a concept called robotic process automation using AR across its MRO logistics operations and business units to automate processes which are simple but have high volumes. “These ‘bots’ can read and interpret emails and other instructions and can act accordingly, leading to time savings and utilising our staff in more value-added activities,” says Goedhart.

The technology is bringing a range of benefits, Goedhart notes, but the biggest is positioning in the marketplace. “Based on the technology, we can lead the supply chain transformation in close collaboration with our customers. As such, at a macro-level it will lower the cost of transport, but even more, it will significantly reduce the value of stock in the supply chain,” he says.

German logistics giant DHL Deutsche Post Group is using VR and AR in its MRO logistics operations to ensure a more efficient and faster picking process throughout its warehouses. DHL is operating a



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Right: DHL's 'vision picking' operation allows users to select items either by voice command, a scan or simply tapping on the glasses meaning their hands are free during picking and packing

user-friendly operation called 'vision picking', meaning the hands of staff are free during picking and packing and the visual support helps to locate products quickly and make them ready for dispatch.

"On behalf of our customers, we monitor the increase in efficiency in great detail for each area of application," a DHL spokesman says. "A decisive added value of the data glasses is the direct confirmation of a picked item in the system.

This is done either by voice command, a scan or by simply tapping on the glasses. "This not only saves time, but it also improves the accuracy of the feedback to the warehouse management system."

Overall, the picking process is accelerated and at the same time accuracy is increased while training and instruction times for new employees are also reduced significantly. The logistics company says smart glasses are only a small part of the digital strategy and used in combination with other wearables and smart devices and supported by an overall plan for digitisation of a warehouse.

Boosting performance

MRO operators are also utilising AR and VR to improve processes, and the technology is giving technical staff more tools to fix problems and helping leave no holes in maintenance resources. The technologies are allowing maintenance operators to quickly execute and report repair jobs, meaning that equipment can be fixed and used much faster than would normally be possible.

AR is being used by MRO operators for remote guidance via wearable or mobile devices, as engineer skills can be 'augmented', meaning more qualified technicians can provide expertise from any location, at any time. Engineer efficiency can be maximised through the use of smart glasses or a mobile device, so they can see a real-time and interactive demonstration of a repair job right in front of their eyes.



AR is used by MRO operators for remote guidance via wearable or mobile devices

AAR says it is piloting the use of AR to "make it more efficient and inventory smarter" at the company's Miami facility, where it is trying out hands-free workflow and communication, using RealWear HMT-1 headsets and Librestream's AR platform. The technology enables a master technician to show a junior technician what he or she is doing and get instructions overlaid onto the tasks, saving time spent walking between hangars answering questions.

Another area in which AAR is using AR is to grant permissions before technicians cut and drill sheet metal. A technician can use the hands-free video, voice and photo capabilities to collaborate with a remote expert before making the cut.

Meanwhile, MRO operator IFS is working with AR specialists XMReality on remote guidance through AR, enabling engineers involved in a repair to contact colleagues back at the base. With this remote guidance, a support technician can watch, show and guide

the engineer through every step of the repair with augmented hands and tools without having to leave base.

VR simulation is also being used to improve training as it can speed processes up, saving time and money. By utilising VR in training, MRO operators can substantially

reduce the time that traditional engineer training programmes take, saving time and money. Lufthansa Technik is using VR to train employees on maintenance tasks and says the technology is "opening the way for improved work procedures, increased safety and reliability".

Other areas in which Lufthansa is using the technology include assembly support, such as the assembly of a CFM56-5B low-pressure turbine drive shaft, where the component is completely reproduced as a 3D model, and by using VR headsets or tablets, the quality of the work can be improved. VR is also being used to improve the process of fitting a cylindrical flange connection in engines such as on Trent 900s.

Robotic future

Other new technologies are also being used to enhance both MRO logistics and operations. These include robots, which are being used to support operational processes.

DHL is using robotics across its operations to improve productivity. These

Right: The Sarcos Guardian XO is a battery-powered, full-body exoskeleton which takes the hard work out of heavy lifting

include assisted picking robots, goods-to-person robots, cleaning or wrapping robots, indoor robotic transport and inventory management robots.

“For implementing these kinds of robots from a variety of vendors and connecting them to our multiple warehouse management system, we use standard interfaces that help reduce the integration complexity,” a DHL spokesman says.

Meanwhile, in MRO operations, Delta Air Lines’ division Delta TechOps has partnered with Sarcos Robotics to explore new employee technology – a mobile and dexterous exoskeleton – designed to boost employees’ physical capabilities and bolster its safety.

The Sarcos Guardian XO is a battery-powered, full-body exoskeleton. The robotic suit is designed for employees to wear and does the heavy lifting. By bearing the weight of the suit payload, the exoskeleton may enable an employee to lift up to 200 pounds repeatedly for up to eight hours at a time without strain or fatigue. Potential uses include moving maintenance components at Delta TechOps or lifting heavy machinery and parts for ground support equipment.

Lufthansa Technik uses a stationary robot for the intricate inspection and repair of fuselage and wing structures and has put a mobile solution into operation. With the help of the new robot, mobile service teams can detect and repair large damaged areas on the wings and the fuselage of an aircraft – on site and even upside down.

“The use of the mobile scarf joining robot not only results in cost and time savings. It also significantly increases quality, since it makes entirely new repair geometries possible,” says Henrik Schmutzler, innovation engineer for composite repairs.

Technology is the solution

The latest technological innovations are proving invaluable to the MRO sector, in both logistics and operations. Heathrow Airport-based MRO logistics provider



Lufthansa Technik uses a robot to inspect fuselage and wing structures

B&H Worldwide says it is implementing digital solutions and technology to help it overcome challenges. “We see technology as an enabler to provide value-added services and visibility of our customers’ global supply chains,” says Seth Profit, group sales director.

Technology is proving its worth in a crucial area in helping keep track and manage MRO stock in the supply chain worth billions of dollars. “The reposition of aircraft parts globally to service grounded aircraft is one area where we can use technology to track not only the part and shipment, but help manage the return of parts to enable the customers’ supply chains to keep flowing and not tie up valuable cash to buy additional parts,” says Profit.

Goedhart says the stock turnover in aerospace is “unacceptably low” compared to other industries and where

the “real reduction of cost in the value chain will come from”. He says, “A small example is on engine stands. It is a hidden secret in the industry that it is a challenge for customers to know where their engine stands are, whether they are serviceable or not. That

leads to unnecessary transportation cost for a stand which might be available around the corner.”

“A leasing company said to me they are buying stands like envelopes. They don’t put it on the balance sheet as they would not know where it ends up. The stands are more than \$200k of value. So, technology is the solution,” Goedhart says. “We have a stand tracker and manage the batteries of the GPS on the stand as well as the calibration status. Customers can see the stands worldwide, for which engine and condition (serviceable or unserviceable). As such, the number of stands in the world can easily reduce by 15 per cent.”

The MRO sector continues to face severe headwinds due to the impact of Covid-19 but technology is proving to be an ally and a solution; investments are paying off. **M**



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Left: Boeing continues to see strong customer demand for the 767-300BCF medium-widebody freighters

Below: Boeing is opening additional freighter conversion lines in China and Singapore



A RESILIENT market

While the pandemic is still causing havoc in the passenger market, there is strong demand in the freighter conversion segment for aircraft manufacturers, as *Satu Dahl* discovers

Boeing released its annual forecast for the commercial and defense aerospace market in October. Reflecting the impact of the Covid-19 pandemic and market dynamics, Boeing projects that commercial aviation and services markets will continue to face significant challenges. However, the market for the Boeing freighter family is witnessing strong demand.

In September, Boeing, ST Engineering and Guangzhou Aircraft Maintenance Engineering Company (GAMECO) announced agreements to open additional freighter conversion lines in China and Singapore. “The freighter conversion programme is an excellent way to double the life of an airplane and provide operators with an economical way to replace less efficient freighters,” says Ihssane Mounir, senior vice president of commercial sales and marketing for Boeing. “By working with our partners to add freighter conversion capacity, we look forward to meeting the strong demand in this market segment and helping our customers scale their operations.”

Jens Steinhagen, director of Boeing Converted Freighters, Boeing Global Services explains the reasons behind





opening the conversion lines in these locations in Asia. “Boeing has more than 20 years of experience with multiple MRO facilities in Asia on freighter conversion programmes. We are focused on working with our MRO partners to ensure we meet the growing market demand, which is why we added additional lines to support future capacity for both the 737-800BCF and 767-300BCF. Any future conversion line decisions, whether with existing or potentially new partners, will be driven by a variety of factors, including the business environment and market demand.”

Steinhagen says that the company continues to see strong customer demand for new 737-800BCF standard-body freighters and the 767-300BCF medium-widebody freighters. “Our recently published 2020 Commercial Market Outlook shows replacement of older generation airplanes, plus those needed for growth, will create a demand for 2,430 freighter deliveries over the next 20 years – 930 airplanes will be production freighters and 1,500 freighters will be passenger-to-freighter conversions.

“Acceleration of passenger airplane retirements as a result of the impact

The freighter fleet will increase from 2,010 in 2019 to 3,260 by 2039 – a 60 per cent growth

of the pandemic will provide additional feedstock opportunities for freighter conversions. The freighter fleet will increase by more than half from 2,010 freighters in 2019 to 3,260 by 2039, representing a 60 per cent fleet growth over the next 20 years.”

A flying start

The new 737-800BCF line at GAMECO is scheduled to open in early 2021 and will be the MRO company’s second conversion line for the 737-800BCF. “The addition of the new production line demonstrates our ability to quickly respond to market trends and requirements and is a testament to the skill and professionalism of the entire GAMECO-Boeing team,” says GAMECO general manager Norbert Marx.

The second conversion line for 767-300BCF widebody converted freighters at ST Engineering’s facility in

Singapore is scheduled to open later this year. In response to an enquiry about the scope of the conversion line development, an ST Engineering spokesperson explained: “On the planned size of the new facility, we will be

building the second line at our existing facility in Singapore, so no new hangar or construction is required.

“We have the capacity to undertake 4-6 conversions a year with the existing line. With the second line, we can increase to 8-10 conversions a year. We have a ready pool of experienced technicians/engineers who can be reskilled or redeployed as necessary to handle the uptick in BCF volume.”

Lim Serh Ghee, president (aerospace) of ST Engineering noted: “Our strong talent pool, operational flexibility and existing infrastructure allow us to adapt quickly to evolving market needs and render the necessary support to our partners and customers.

We take pride in our partnership with Boeing and, with the opening of an additional line later this year, look forward to continuing to deliver timely and quality freighter conversions.” 

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A SPARE thought

Over 62 per cent of the ATR fleet is now back in service. The aircraft manufacturer reveals how it is innovating to help its customers to save money when it comes to MRO operations



Often at ATR, we talk about our policy of continual improvement, where we introduce innovations, such as ClearVision and RNP-AR 0.3/0.3, that will deliver real value to operators,” says ATR VP products & services, Laurent Caballe. “However, when it comes to our MRO activities, this continual improvement means continual reduction; driving down direct maintenance costs for airlines.”

The Global Maintenance Agreement (GMA) is arguably ATR’s principal offer to support operators in reducing their maintenance costs. Launched more than 20 years ago, more than 70 per cent of the ATR fleet is now covered by a GMA and airlines – such as Finnair earlier this year – continue to sign up.

“Our spares philosophy is aligned with the customer support responsiveness we aim to embed throughout the company. We have created an ecommerce style website to streamline operations thanks to increased digitalisation. Customers can also use a focal point that is available

24/7 and will respond within two hours. In terms of orders, 95 per cent are fulfilled and delivered in less than two days, which has a positive impact on aircraft availability and utilisation. We are also proud to offer the widest range of spares categories as well as having the largest worldwide stock.”

This same philosophy sees ATR aim to offer spares at prices that are competitive on the market, whilst also introducing targeted discounts at specific points

We are proud to offer the widest range of spares categories and have the largest worldwide stock

in the year. “For the last two years, we offered a ‘Black Friday’-style discount, but this year we decided to launch it earlier, prior to Thanksgiving, so this year it is simply ‘ATR Spares Days.’” The promotion will run for around three weeks, beginning 26 October, and aims to support the airlines and MROs by reducing prices.

While regional aviation is showing more resilience to the Covid pandemic than other segments, in many instances regional airlines are logically smaller than their counterparts. While this can sometimes provide a certain flexibility in terms of adapting fleets and activities to the current crisis, it also means that reserves are often smaller and margins finer, so additional support is necessary.

“As the crisis has evolved, we have really focused on the extra support we can provide to our operators. Much of the ATR fleet continued to perform essential operations during the crisis, so in terms of operations we suffered less than other segments and even other turboprops, with a later and shallower decline and an earlier recovery. More than 62 per cent of our fleet is back in service and dispatch reliability is important – ours is at 99.6 per cent.”

“Our efforts to reduce our costs did not begin after the pandemic,” says Caballe, “but today, we know that our operators need savings wherever possible, so now is a good time for ourselves and airlines to focus on MRO. An accumulation of savings can make a big difference and we are the right partner to deliver that for our airlines.”

Above: Laurent Caballe says increased digitalisation has streamlined operations

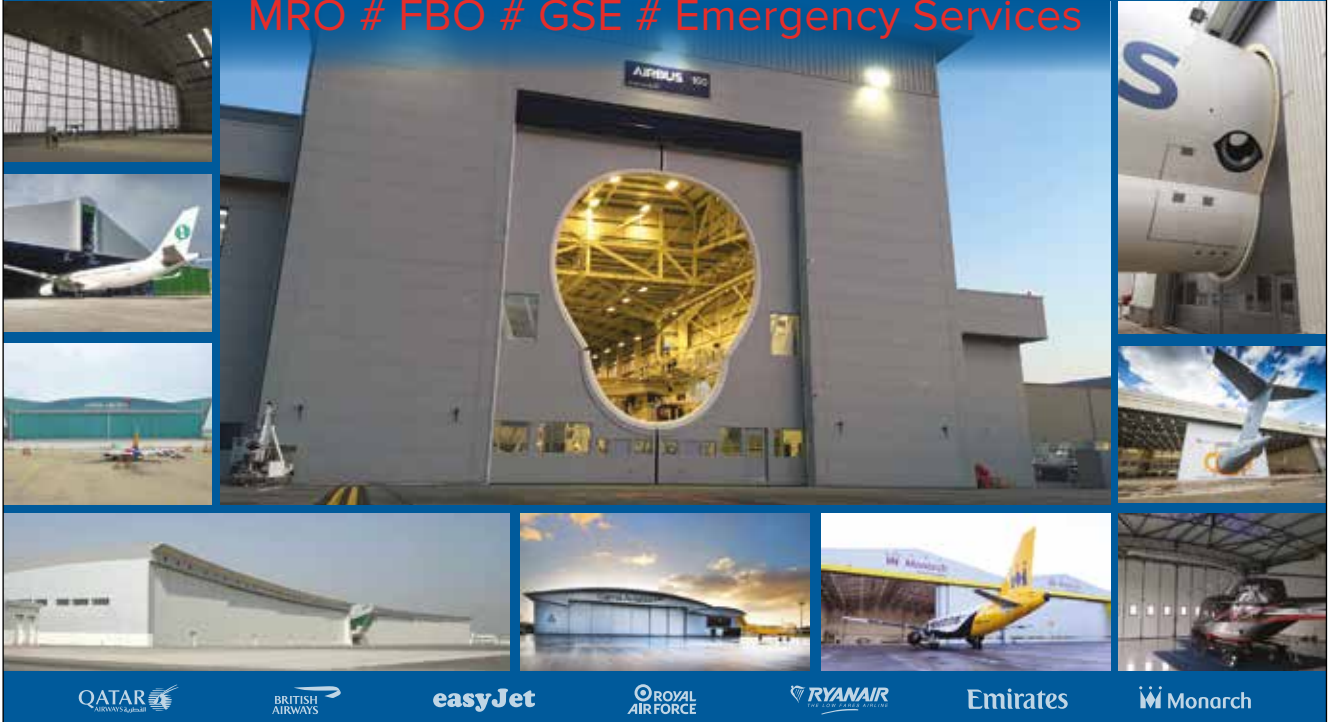
Left: Finnair benefits from customised support from ATR

Below: ATR offers competitive prices and targeted discounts on spares during the year



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Career PATH



Can you walk us through your typical day at work?

I run my own company from home, and I find doing this well needs discipline and organisation. My first job is always organising my 'To Do List' and my calendar. Then it's all about cracking on with my tasks: chasing quotations for avionics equipment, writing project reports, attending online meetings and making sales calls.

Sometimes, I attend meetings or project trials in person and it's nice to escape the house. Working at home is great but it is really important to look after your physical health. I always walk around when I am on the phone. That helps me get my daily steps in!

How did you get into aerospace engineering?

My original ambition was to be a pilot, but asthma put paid to that. Fortunately, I had a plan B! My degree was a 'sandwich' course and I entered the Dowty graduate apprentice scheme to complete my placement.

That led to a job there in 1986 as a systems engineer. I stayed for two years before moving to Smiths Industries and then BAE Systems, followed by Rolls-Royce.



Aero BD director *Adrian Leatherland* discusses his extensive career and shares his thoughts on entering the MRO industry

What do you like the most about your job?

No two days are the same. There are always new challenges and different things to do for my various clients. I hugely enjoy helping my clients achieve their business goals – but the thing I really like is working for myself. Having been made redundant four times since 2014, it's nice to work for someone who is unlikely to make me redundant again!

What has been the most satisfying experience of your career?

Establishing the Part 147 MRO Training company in 2003 as a joint venture between Lufthansa and Resource Group. I was appointed general manager

and built the organisation from myself and two assistants to a well-respected Part 147 with 20 plus staff and multiple clients from right across the world.

It was a tough challenge, but we succeeded as a team. We created new and innovative training products and launched an outsourced MRO apprenticeship training programme. The school remains in business today and I am still in touch with some



of the original apprentices who have built strong careers in aircraft maintenance.

What advice would you give to a young person entering the MRO industry?

Aviation is having a really difficult time currently – but it will pass; the industry will recover. Maintain your enthusiasm – people work in aviation because they love it and that makes for an enjoyable career. Keep agile – keep your skills up to date and



take opportunities to extend your skills and competencies.

Don't be afraid to take a risk and move jobs if you can gain more responsibility and experience new challenges.

Manage your network – aviation is a family and it will help build your career in the long run and support you as you can support others. ☺

Establishing the Part 147 MRO Training company was a challenge but we succeeded

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