

# MRO

**Component  
lifecycle.  
A hands on  
approach**

**AerFin**  
Phase-out  
of Finnair A319

**Asian MRO**  
Strategic positioning  
for market recovery

**TAT-Piedmont**  
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## More airlines adapting aircraft for a different purpose

**K**enya Airways is the latest international airline to repurpose its aircraft cabins for cargo transport. The African airline says it is the first operator to repurpose a Boeing 787 into a "Preighter," an interesting term that refers to converted passenger cabins used for cargo.

The airline says the repurposed cabin has been certified to carry up to 16 tonnes of cargo, potentially enabling the aircraft to reach its maximum payload while in cargo operation of 46 tonnes. The repurposing began in December last year and was completed in January.

Since the start of the COVID-pandemic, airlines with predominantly passenger fleets have jumped onto the conversion bandwagon to mitigate the dramatic fall in passenger numbers and to respond to the ongoing demand for essential and medical goods.

These types of conversions have been ongoing since the onset of COVID. Back in April last year Airbus developed a modification for A330 and A350 family aircraft which has enabled operators of the types to install freight pallets directly onto the cabin floor seat tracks, after removal of the economy-class seats. The modification is packaged for operators as an Airbus Service Bulletin (SB). Under this arrangement Airbus defines the engineering workscope and manages the process for obtaining the one-time certification from the EASA.

Lufthansa was an early convertor. Soon after obtaining Engineering Order Specific Tailsign approvals from the German Federal Aviation Authority it modified an A330-300 for cargo transport within 36 hours. The prerequisite for such a conversion from a passenger to a cargo aircraft was a comprehensive technical documentation. Several criteria must be considered and incorporated into the technical documentation by suitably qualified engineers and approved.

Currently, it is not only the demand for air transport of medical supplies that is growing, but also that for commercial goods.

Back in Kenya, the repurposing of the first 787 is now complete and has received airworthiness approval from the Kenya Civil Aviation Authority (KCCA) and the United States FAA. The airline is now preparing to ferry cargo to global destinations.

These are the times that we live. With passenger numbers at an all-time low, airlines have to seek alternative means of revenue.

**Keith Mwanalushi**  
EDITOR

Changing with the times. KQ is repurposing its 787s.

Photo: Boeing





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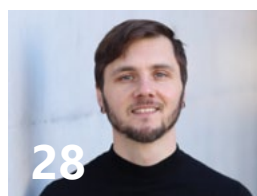
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## APOC Aviation strikes landing gear exchange deal with Avion Express Malta

APOC Aviation's specialist landing gear division has concluded its first landing gear deal with Avion Express Malta, the Maltese-based ACMI and aircraft leasing operator. A freshly overhauled A321-200 from stock replaced its ran-out gear which APOC took in exchange. With several A320 family and B737NG assets already out on lease, or in active exchange programs, the company worked closely with Avion Express Malta to finalize the deal. Currently around 40% of APOC's LDG stock is leased, 30% is allocated to exchange programs and the remaining 30% is set up for additional lease opportunities, part-out projects and sales. "We're looking to purchase prime LDGs for stock and plan to increase our inventory by about 50% over the next 6 months" remarked Karolis Jurkevicius, VP Landing Gear Trading – APOC Aviation. "Identifying suitable assets is always challenging, however we do consider LDGs with leases attached if they fit with our asset criteria of the highest quality."

## AES awarded EASA and U.K. CAA Part21J Design Organisation Approval

Aerospace Engineering Solutions (AES) has released that its Shannon, Ireland, office has received full EASA Part21J Design Organisation Approval (DOA) further complementing its U.K. Civil Aviation Authority (CAA) Part21J Design Organisation Approval. AES believe this approval structure will provide a transparent Supplemental Type Certification (STC) /Modification process following the U.K.'s departure from the EU. This approach will avoid the complication and risk associated to validation of STC's, repairs and modifications between the respective regulatory bodies within the U.K. and EU. This twin approval arrangement will provide its customers confidence so they can react quickly to the opportunities of a new aviation landscape.

## Delta TechOps marks latest next-generation engine maintenance milestone

Delta TechOps teams have completed the first engine maintenance visit of a Rolls-Royce Trent 7000 engine from a Delta A330-900neo at its state-of-the-art Technical Operations Center in Atlanta. The repair marks the first of many Trent 7000 engine repairs to come through Delta TechOps' maintenance facility. While this first engine came directly from Delta's fleet, Delta TechOps will perform maintenance on Trent 7000 engines from airline customers around the world. Prior to the engine visits, TechOps' Assembly Shop, Repair & Support group, Engineering and many other teams spent months preparing for the build, part repairs, and engine test. This included aviation maintenance technicians and inspectors visiting the Rolls-Royce shop in the U.K. for special Trent 7000 training (prior to the COVID-19 pandemic). During the past few years, TechOps has made significant investments to further enhance maintenance capabilities, especially for next-generation engines that feature higher efficiency and less fuel burn. These major projects include the conversion of aircraft hangar bays into a new engine shop, development of a hot section repair shop, construction of the largest MRO test cell in the world and an additive manufacturing shop.



Photo: Delta TechOps completed first engine maintenance visit of a RR Trent 7000 engine

## GAMECO expands 737-800 Boeing Converted Freighter capacity to meet strong demand

GAMECO (Guangzhou Aircraft Maintenance Engineering Company Limited) has announced the addition of a third conversion line for the 737-800 Boeing Converted Freighter (BCF) at its Guangzhou facility. Concurrently, GAMECO is also inducting the first aircraft into its second BCF line, which was announced in September 2020. With the addition of the third line, GAMECO will also take steps to implement a new takt production system. Based on the popular Next-Generation 737, the 737-800BCF is meeting customer demand for a newer-generation freighter that offers higher reliability and lower fuel consumption and operating costs per trip compared to other standard-body freighters. Primarily used to carry express cargo on domestic or short-haul routes, the airplane is capable of carrying up to 23.9 tons (52,800 pounds) and flying up to 3,750 kilometers (2,025 nautical miles). To date, the airplane has won more than 150 orders and commitments. According to the most recent Boeing Commercial Market Outlook, 2,430 freighters will enter the global fleet over the next 20 years to meet market demand, including 1,080 standard-body passenger-to-freighter conversions. Asia will account for approximately 40% of the standard body freighter market demand.

## AJW Group opens new 35,000 ft<sup>2</sup> warehouse in EU



AJW Group has opened a new EU warehouse at Malpensa airport, Milan  
Photo: AJW

AJW Group has opened a new 35,000 ft<sup>2</sup> warehouse in Milan to primarily support easyJet's EU operations as part of the recently signed complete supply chain solution contract. The new EU facility located adjacent

to Malpensa airport, Milan, holds significant inventory of over 10,000 lines of stock across 3,000-part numbers of rotatable, repairable and C&E items. With 30 staff delivering a 24/7/365 operation and operating under easyJet's part 145 approval, the EU network will be fully supported by a bespoke logistics service from this new facility. Despite global travel restrictions and numerous local lockdowns, AJW has succeeded in implementing the project on schedule, with physical infrastructure, IT and recruitment completed, and further training ongoing. The facility was added to easyJet's MOE in December 2020 and the stock transition was performed throughout December and early January. The facility went live on January 28, supporting the easyJet network. The opening of the new EU facility will ensure an ongoing efficient delivery of spares to easyJet aircraft across Europe and will speed up operational recovery with improved logistic links by supporting network locations close to the hub.

**Astronics Corporation** has been awarded an order of approximately US\$11 million from **Collins Aerospace** (Collins) for business jet connectivity equipment. The order is a follow-on to previous orders for inflight connectivity (IFC) hardware that Astronics has been providing to Collins. Astronics' equipment supports the growing interest in the business jet connectivity services offered by Collins Aerospace. Having received many strong customer reviews, Collins' system provides unparalleled high-speed world-wide connectivity that enables a broad variety of remote conferencing services as well as streaming entertainment. "We are excited to extend and expand the relationship with Collins Aerospace to provide best-in-class connectivity equipment for its customers," stated Michael Kuehn, Astronics CSC President. "We believe this order validates the success of Collins Aerospace connectivity services and the performance of Astronics connectivity hardware. Improved connectivity for the business jet market has become an imperative and we are committed to providing the best connectivity capability available for aircraft with our technologies."

## Skyways Technics Asia extends workshops and capabilities

Skyways Technics A/S has announced that its fully owned subsidiary Skyways Technics Asia Sdn Bhd, established in Subang, Malaysia in 2014, has successfully extended its structural repair workshops and warehousing facilities to more than 3,000 m<sup>2</sup>. The workshops' surface area has tripled, with the installation of additional shops for sheet metal and composite works. Furthermore, the warehouse has doubled in size, increasing the space for both owned and consigned structural components that are available for loan, exchange and outright sale. The components also further support operators in AOG situations. Skyways Technics Asia continues its focus on regional aircraft support and is now able to release structural repairs for all ATR interior, fuselage, wing, nacelle, and door items, with both EASA and CAAM certification. The scope includes sensitive components such as radomes, outboard and inboard flaps, and flight control surfaces (ailerons / elevators / rudders). Amaury

Parent, Regional Manager in charge of Skyways Technics Asia development, says: "This substantial capability addition is a natural step after the successful launch of our MRO operations in Malaysia two years ago – a launch that was greatly welcomed by operators, MROs, and lessors throughout the Asia-Pacific region". Going forward, the proximity and competitiveness of these unique capabilities in Asia are set to grow the level of regional support provided to the Asia-Pacific aviation industry. Skyways Technics is focused on the continued strong development and increase in workshop capabilities also as regards more aircraft types and Civil Aviation Approvals from neighbouring countries. "We have a great setup established in Malaysia and a team of highly skilled and motivated employees that we want to do so much more with", adds Regional Manager Amaury Parent. "We have a very strong relationship with and obligation towards amazing operators and lessors throughout

Asia Pacific, with whom we believe we can bring further value with an increased offering of Skyways Technics Services. We really love what we do – we feel we just started and that the potential is fantastic". Benjamin Nielsen, CEO of Skyways Technics, also strongly believes in the resurrection of the aviation industry post-Covid-19 pandemic. "Having a regional presence in Europe, the Middle East, Asia, and the Americas, we currently see that the world and demand for our services are developing in different ways, depending on the present situation and level of restrictions. Since March 2020, the level of investment in aircraft (maintenance and spares) has been very low. However, regardless of whether the aircraft are flying or on the ground, several maintenance tasks are due ref. calendar times. So even with a post-COVID start that is relatively slow, there is a lot of accumulated maintenance that needs to be taken care of, and Skyways Technics is ready to support just that, when needed".

## Russia's TMH Group to buy Bergen Engines from Rolls-Royce

Russia's TMH Group, a supplier of rolling stock, has agreed to buy Norway-based Bergen Engines from Rolls-Royce for a net price of €150 million (US\$180 million). The deal is one of a number of sales involving its smaller businesses in an attempt to mitigate the financial hardship the conglomerate is suffering as a result of the COVID-hit aerospace industry. Rolls-Royce relies heavily on revenue from airlines which is generated on a flying-hours basis and has already warned that it may well suffer from continued cash outflows through 2021 as air travel looks to remain constrained. The company hopes to raise approximately £2 billion (US\$4.74 billion) and a major portion of that amount will come from the sale of Spain-based IAP Aero. "The sale of Bergen Engines is a part of our ongoing portfolio evaluation to create a simpler, more focused group and contributes towards our target to generate at least £2 billion from disposals," said Rolls-Royce's CEO Warren East. Bergen makes medium-speed gas and diesel engines for marine and power generation clients, employing approximately 950 people, and generated roughly £239 million (US\$327.00) in 2019.



Assembly line at the Bergen Engines plant

Photo: Rolls-Royce

## Rolls-Royce and HAL expand partnership with MRO and supply chain MoUs

Rolls-Royce and Hindustan Aeronautics Limited (HAL) have agreed to expand their partnership in India for collaboration in two significant areas – expanding the supply chain for both Civil and Defence Aerospace and establishing an authorized maintenance center for Adour Mk871 engines to support Rolls-Royce's global customers. Through these new collaborations, the two companies will build on their rich partnership of over 60 years, wherein Rolls-Royce engines have been 'made in India' and supported by HAL under license from Rolls-Royce. Rolls-Royce and HAL have signed a Memorandum of Understanding (MoU) to establish an Authorized Maintenance Centre for the Adour Mk871 at HAL to support international military customers and operators. HAL already has the capabilities and capacity to support a larger customer base, with over 30 years' experience in MRO of the Adour engines in India, under license from Rolls-Royce. The two companies have also signed a 'Letter of Intent' (LoI) to work towards making Adour Mk871 engine parts in India for several international customers. In addition, HAL has recently been awarded new business with Rolls-Royce to supply forgings including shrouds, cases, and seals for Rolls-Royce's Trent family of engines and for the Pearl 15 engines. These parts would be manufactured at HAL's Foundry and Forge Division at its state-of-the-art facility in Bengaluru.

## Bombardier to lay off 1,600 staff – focus now on Challenger and Global jets

Bombardier is to continue its transition from plane and trainmaker to solely a business jet manufacturer as it looks to lay off 1,600 of its staff. The majority, 800, will be mostly those based in Quebec, though some 250 in Wichita are also likely to go as operations on the poorly performing Learjet are to be closed down. Spurred on by the consequences of the COVID-19 pandemic and its effect on the aerospace industry, the move comes as the company looks to generate US\$400 million in recurrent savings by 2023. Pre-pandemic, Bombardier had anticipated breaking even on free cash flow in 2020; this has now been altered to between 2021 and 2023. This

year the company anticipates business jet deliveries will be in line with 2020, showing modest revenue growth, and with an adjusted EBITDA in excess of US\$500 million, as it closes down production of its Learjet later in the year in order to focus on the more profitable Challenger and Global business jet models. According to Refinitiv IBES data, analysts have estimated an average 2021 adjusted earnings before interest, taxes, depreciation and amortization (EBITDA) of US\$661.3 million. Bombardier reported a 19.7% fall in business jet deliveries to 114 in 2020, in line with industry trends. However, 2020 revenues from corporate aircraft activities increased

by 3%, assisted by year-end deliveries of Global 7500 jets and a bounce back in demand. The company reported 2020 free cash-flow usage from continuing operations of US\$1.9 billion, while it expects to reduce cash burn in 2021 to better than US\$500 million. The company said it now has pro forma cash and cash equivalents of about US\$5.4 billion, including proceeds from the sale of its transportation unit, and a pro forma net debt of about US\$4.7 billion. Bombardier reported an adjusted loss before interest and taxes of US\$165 million for the quarter ended Dec. 31, as opposed to a profit of US\$168 million the previous year.



### VSE Aviation signs five-year distribution agreement with Triumph Systems & Support

VSE Aviation has entered into an exclusive five-year distribution agreement with Triumph Systems & Support as part of its new Aviation Landing Gear initiative. The agreement, which took effect in January, has a total estimated value of approximately US\$100 million over five years. Under the terms of the agreement, VSE will be the exclusive distributor for more than 150 line-replaceable units and 1,600 landing gear accessories supporting current, in-production Boeing and Airbus platforms. VSE will provide support to global commercial airline and MRO customers through distribution centers in the Americas, Europe and Asia. This agreement enhances VSE's existing presence in the hydraulic landing gear components market. Landing gear vertical is an attractive space given the mission-critical, high-value nature of the parts and components being supplied, and VSE's unique ability to offer bundled solutions comprising product distribution and repair capabilities. Under VSE's new, multi-year Aviation Landing Gear initiative, the company is developing a comprehensive landing gear suite of solutions for global airline and MRO customers. This suite will include services such as gear sales, exchanges and repair management as well as the distribution of proprietary and specialty products, kitting and other just-in-time value-added services, including 24/7 AOG service. VSE believes that this solution suite will simplify the supply chain process and reduce working capital requirements for customers.

**Seabury Solutions**, a subsidiary of New York-based **Seabury Capital Group** and one of the market leaders in delivering aircraft M&E and MRO software solutions for the aviation industry, has announced that the U.S. regional airline, **Ravn Alaska**, has reiterated its ongoing commitment to Alkym®, the company's end-to-end enterprise MRO IT platform. Bruce Gowling, Seabury Solutions' Senior Vice President, emphasized that "Alkym's end-to-end capabilities for managing aircraft maintenance, compliance, and material logistics provide the Ravn Alaska team with the right features to drive operational enhancements," in the areas of: gaining up-to-the-minute key performance indicators via Executive Dashboards, which optimize the airline's overall performance and adaptability to the demands of day-to-day operations; empowering the leadership team to focus on the most pressing management and operational issues via Trend Monitoring & Alerting; and streamlining the information flow and eliminating email-based information silos via a Fleet Management Console that serves as a central hub for cross-departmental communication. "These advantages, combined with other Alkym capabilities, enable Ravn Alaska to meet and exceed its financial and operational objectives, specifically increasing revenues, reducing and controlling costs while improving its industry reputation and goodwill in responding to daily operational requirements," expanded Gowling.



Photo: Ravn Alaska

**Thomas Global Systems** has received Civil Aviation Administration of China (CAAC) Supplemental Type Certificate (STC) approval for its TFD-7000 Series plug-and-play LCD flight displays for Boeing 737/757/767 cathode ray tube (CRT)-equipped aircraft. CAAC certification is the latest in a growing number of TFD-7000 Series regulatory approvals, including from the Federal Aviation Authority (FAA), European Aviation Safety Authority (EASA), Transport Canada Civil Aviation (TCCA) and the Japan Civil Aviation Bureau (JCAB). The TFD-7000 retrofit innovation captures all the benefits of LCD technology in a proven, drop-in solution with growth capacity for emerging airspace requirements, while avoiding a major flight deck modification with its associated aircraft downtime and crew retraining costs.



Photo: Thomas Global has received CAAC approval for Boeing 737/757/767 plug-and-play LCD flight displays



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OH-LVA flew to Cotswolds for disassembly.  
Photo: AerFin

## Finnair A319: Breaking up gracefully

Retired aircraft are a vital source of components feeding into inventory pool programmes and support for in-service fleets. **Keith Mwanalushi** talks to James Bennett, Commercial Director at AerFin about the disassembly of one of Finnair's A319's.

**T**owards the end of last year, AerFin and Finnair announced a collaboration for the sustainable phase-out management of Finnair's retiring aircraft. The collaboration kicks off with the disassembly of one of Finnair's A319 aircraft, whereby Finnair will analyse and determine where continued operational value can be driven on a component level from Finnair's airframe and engine assets.

The A319-112, registered OH-LVA, MSN 1073 was retired by Finnair at 21 years old having notched up 32,710 flights, totalling some 55,367 hours. The aircraft was flown to The Cotswolds in the UK where the

part-out process begins to salvage at least 90% of the aircraft, with materials and parts that can be reused or recycled. Engines, landing gear, computers, actuators, pumps, batteries, and valves are some of the components that can be reused. In addition, all structural parts removed from the fuselage, such as doors, hatches, and control surfaces, can be easily installed on other aircraft.

There has always been value in components removed from retired aircraft, and despite today's market conditions, James Bennett, Commercial Director at AerFin is hopeful that harvested parts are in de-

mand for airlines operating older or A319 fleets. He says despite the lack of significant disassembly activity taking place, at AerFin they see airline interest in optimising their own inventory amongst their parked and surplus fleet. "Our recently announced collaboration with Finnair is evidence of this, where we're supporting them in the disassembly, repair management and re-marketing of their inventory, but also tailoring a harvest programme to minimise MRO costs for their active fleet. We see this more creative USM strategy being a feature in a post-COVID world where inventive cost avoidance or minimised solutions are needed."





“We see this more creative USM strategy being a feature in a post-COVID world.”

*James Bennett, Commercial Director at AerFin*

James Bennett, Commercial Director at AerFin

AerFin is managing the disassembly of the A319 through its network of teardown partners, with the engines disassembled at their facility near Cardiff. Harvested components are then repaired before entering AerFin's supply chain of Tier-1 airlines, MROs, lessors, and OEMs with select components re-entering Finnair's component inventory pool to support its continued fleet operations.

In managing the end-of-life of their aircraft, Finnair said the airline wanted to collaborate with an expert partner who is as focussed as Finnair is in reducing the environmental impact of the aviation sector. After a thorough evaluation, the carrier selected AerFin based not only on its extensive experience in maximising residual value of aircraft and engine assets but also a shared value in creating innovative solutions to make aviation more sustainable.

And speaking on the wider disassembly market in relation to the current COVID related challenges Bennett tells AviTrader MRO that he does not see significant shifts in demand in the disassembly and teardown market, at least not yet. "De-

mand for disassembly and teardown activity is usually linked to a buoyant MRO landscape. One of the features of this pandemic has been a shift to the right of most high-cost maintenance activity until such time that operator cash flows are more predictable."

He says without the kind of maintenance activity that was seen pre-COVID, then the routes to market for used serviceable material [USM] is unclear and thus teardown activity is more limited. "However, with the global rollout of a vaccine and a return to normalcy will see a surge of USM demand for even more cost-conscious airlines and MROs to support a peak of maintenance activity, particularly on engines, Bennett states.

On the issue of used serviceable materials Bennett believes all indications show USM demand will increase significantly. From cost conscious and cash constrained airlines to MROs who need to be even more competitive to increase their market share, to lessors who will need to ensure cost effective transitions and lowering cost of ownership for themselves and their

customers. He says whilst overall USM spend will be down for the coming year or so while the MRO market recovers, it is widely accepted that USM will represent a bigger percentage of overall MRO spend than before.

"The A319, A320 family will be driving a big portion of this demand, along with the 737NG, particularly on the engines." Bennett reminds that almost 50% of those V2500s/CFM56-5Bs and CFM56-7Bs have still to see their first shop visits. "It's an economic perfect storm for increased USM."

Finnair stated that their decommissioning decisions always consider sustainability and responsibility with a view to achieve the best economic outcome. Bennett echoes that point saying the aviation sector as a collective, has a key responsibility to reduce its carbon footprint. "We are delighted to partner with Finnair, an airline that is leading from the front with its sustainability objectives, collaborating with them to maximise commercial and technical value from its end-of-life airframe and engine assets – leveraging our collective expertise to make aviation more sustainable."



There will be a sustainable phase-out of Finnair's retiring aircraft.  
Photo: Finnair

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Operating Empty Weight	44,500 kgs	46,000 kgs
A-Code Positions	14	14
Available Ton Miles*	61,071	57,604
Occupant Capacity	6	4
Flight Deck Crew Baggage	YES	NO
Crew Service Area	YES	NO
Crew Access	Full size L1/R1 door retained	Half size (48") manufactured hatch
Highest Standard Payload*	27,000 kgs	25,500 kgs
Permanent Ballast	NO	YES

\*Assumes weight variant 00/No ACTs



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“The current environment requires APUs to be available on short notice due to changing demands.”

Barry W Startz

## As Easy as APU



We are also offering exchange APU's and LRU's to our customers says Startz.  
All photos: TAT-Piedmont

APU rentals have grown in interest over the last few years permitting operators to rent, rather than purchase, an auxiliary power unit. **Keith Mwanalushi** highlights some recently announced solutions at TAT-Piedmont.

**A**t the start of the new year, TAT Technologies announced that its fully owned subsidiary Piedmont Aviation (TAT-Piedmont) and Honeywell International Inc., had entered into a decade-long agreement for an exclusive worldwide Auxiliary Power Unit (APU) rental services for OEM authorized GTCP331-500 APUs.

In recent years, there has been a surge in demand for operators looking towards rental providers for short-term and long-term APU rental solutions. Just prior to the onset of the COVID pandemic, industry data showed that the projected global air-

craft APU market will grow at a compound annual growth rate of 5.3% to reach almost \$1.5bn by 2023.

"The current environment requires APUs to be available on short notice due to changing demands under COVID," informs Barry W Startz, Senior Director of APU Operations and Commercial Business and Senior Director TAT Trading.

Under this contract, TAT-Piedmont acquired Honeywell's GTCP331-500 APU's rental bank and will offer rental services to airlines who are operating Boeing 777 aircraft. TAT Piedmont will serve on behalf

of Honeywell for any rental of GTCP331-500 APUs to Honeywell customers on an exclusive basis.

In addition, TAT-Piedmont and Honeywell entered a binding MOA to authorize TAT-Piedmont to provide licensed MRO services on GTCP331-500 APUs, and provide relevant know how and parts, making TAT-Piedmont an authorized global MRO services provider for this APU.

The B777s still remain prominent and primarily active in Asia Pacific, the Middle East and Europe. TAT Trading has 331-500 APUs positioned around the world to sup-



port their customers. Right now, there is still a sizable market for aftermarket services on the popular B777, with several expected for conversion to freighters.

The GTCP331-500 APU is installed on all Boeing 777 aircraft around the world and is expected to be in operation for the next few decades, generating meaningful MRO business opportunities, according to TAT Piedmont. The rental services agreement and the anticipated authorization to provide licensed MRO services, are major growth opportunities for TAT.

This agreement, together with the recent MRO license agreement for the GTCP331-200/250 APU will strengthen the strategic relationships between TAT Piedmont and Honeywell and prove the strong positioning of TAT-Piedmont as a global quality MRO services provider for a variety of APUs to airlines, aviation players and military organizations, the company anticipates. TAT Piedmont is working on transferring contracts on the GTCP331-200/250 as part of this long term agreement.

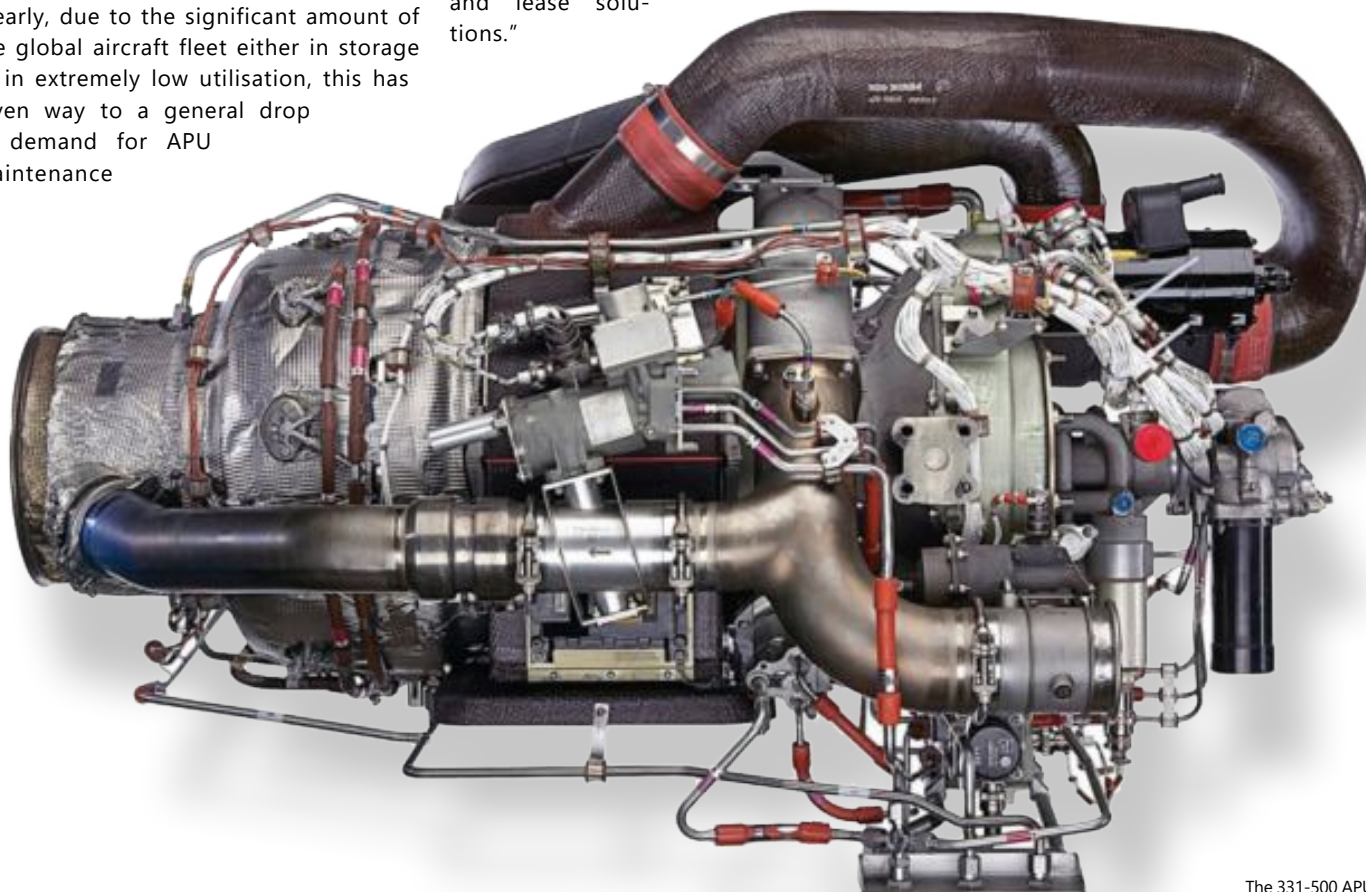
Clearly, due to the significant amount of the global aircraft fleet either in storage or in extremely low utilisation, this has given way to a general drop in demand for APU maintenance

support presently since most APUs are on-condition components, rather than driven by calendar limits – which is the case for components such as landing gears, as explained in the cover feature on APU maintenance in the October 2020 edition of *AviTrader MRO*. This presents opportunities for flexible solutions that meet the operational and budgetary requirements of operators, such as asset rental solutions.

Startz notes that operators require improved turn time and high quality at a lower cost. He says TAT Piedmont Power and Actuation have implemented lean processes throughout the shop to improve in all areas and continued to invest significantly in maintaining special processes such as machining, NDT, plating and painting in-house. "We are also offering [advance] exchange APU's and LRU's to our customers and allow interaction with an on-site representative dedicated to improving the communication with customers. TAT Piedmont is a true one-stop-shop offering flexible, customer-centric, MRO, exchange and lease solutions."

Some APU OEMs are known to remove PMA and DER repair parts from APUs. As an authorised Honeywell Channel Partner, Startz stresses that TAT Piedmont Power and Actuation provides an all-OEM APU solution at a lower cost. "Together with Honeywell, we are able to develop approved repairs to avoid part replacement, the same way that non-OEM approved DER repairs could do, with the obvious advantage that they can remain at lease return events, for example."

Ultimately, TAT Piedmont indicates that the introduction of the GTCP331-500 APU to their offering will more than triple the potential market size available for TAT-Piedmont. This new agreement is expected to add revenues and generate profits for TAT Piedmont soon. A recovery of the airline and aviation industries in the mid-term will meaningfully enhance business volumes related to this new agreement.



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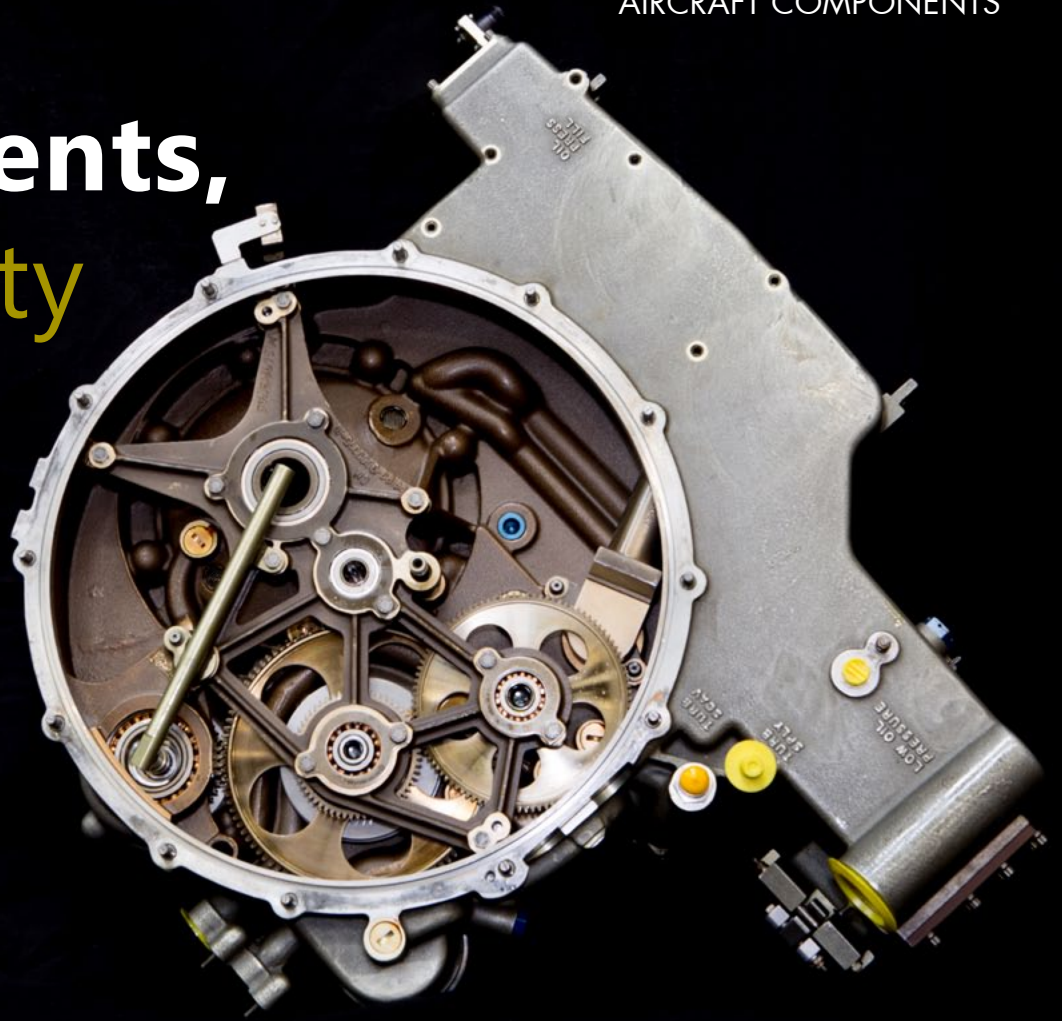
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# Components, traceability & repair



Repair consistency across the available pool of components is vital.  
Photo: Logix.Aero

Tracking the component lifecycle and ensuring traceability of some aircraft parts are enormously vital processes. **Keith Mwanalushi** examines how current trends in the industry are impacting these operations.

**D**uring the COVID pandemic, industry experts have seen several things trending with aircraft component management. Firstly, it's apparent that multiple aircraft types are being pulled forward for retirement, which has caused market and OEM concerns of material oversaturation. "Also, there has been a very dramatic slowdown in both the procurement and repair investment of inventories worldwide from a supplier perspective and the airline side," states Jason Reed, President at Flight Solutions Group, a division of GA Telesis. As a result, Reed reckons the consequences are starting to create an environment where replacement of components, rather than repair, is go-



Jason Reed, President, Flight Solutions Group

ing to become the norm due to the said saturation. "There is also a serious push from OEMs to sell mass volumes of new parts to the aftermarket suppliers to continue making budgets knowing there is a longer-term effect on their sales."

At AerFin they see many unserviceable parts removed from aircraft and being held pending repair. "As we exit the global restrictions on flying there is potential for this to result in extended turn times at the repair shops due to backlog, compounded by the effect on the supply chain for access to piece parts required to support the repair," notes Chris Hooley, Director – Airframe Division at AerFin.

“Component exchange activity has increased whilst operators seek a more economical solution to meet immediate demand.”

*Chris Hooley, Director – Airframe Division, AerFin*



Chris Hooley, Director – Airframe Division, AerFin

AerFin recognise the importance of airlines having reliable access to high-quality stock and therefore they have a large inventory available for immediate dispatch in advance of exchange activity. “This supports airlines and MRO’s with an economical solution to ensure minimal impact to airline operations. Additionally, we are also seeing prolonged inactivity of the operating aircraft and therefore result-

ing in increased removal rates particularly on external sensors, pitot, static and AOA sensors.”

Owing to reduced fleet operations and cash constraints, Hooley observes that there has been a reduction in high-cost component and major asset purchases. “However, component exchange activity has increased whilst operators seek a more economical solution to meet immediate demand.”

Certainly, due to the significantly reduced level of flying and the resulting financial stress on airlines, cost control at all levels has been the key focus. This applies equally to component maintenance, comments Sajedah Rustom, CEO at AJW Technique. “Repair volumes are down significantly due to the reduced flying hours, and the high number of parked aircraft. And for those components which are in the repair cycle, there is a trend to avoid high-cost repairs. Those which do require a high-cost repair will typically be put on hold for now, or even scrapped and cannibalised to support lower cost repair on similar components.”



Sajedah Rustom, CEO at AJW Technique

Rustom continues saying the early retirement of aircraft and uptake of teardowns have resulted in a surplus of used serviceable components at relatively low prices. “However, we have steadily witnessed an increase in component removal since the beginning of COVID. We created solutions to help reduce customer costs and mitigate against risk exposures for instance, we implemented a Quote and Hold solution which allows customers to send components to AJW Technique for test and evaluation and then hold the units until they need the unit back in their stock, which has enormously helped customers maintain cashflow.”

Aircraft do not do well while inactive, requiring daily, weekly, and monthly checks to keep them in a “serviceable” condition. These checks can sometimes lead to replacement of LRUs/components while they are grounded causing the operator to either replace within their own stock or rely on components in the market, according to James Palacios Vice President and General Manager at The Aircraft Group, a business unit at Kellstrom Aerospace. “In order to keep costs down and to continue to conserve cash, the option to exchange components will be seen as a more viable option as the operator will typically only be liable for a smaller percentage of the outright purchase of the component itself.”

Palacios sees another trend that will likely become more popular is the leasing of components as another option. He



James Palacios, VP and General Manager at The Aircraft Group





“We have steadily witnessed an increase in component removal since the beginning of COVID.”

*Sajedah Rustom, CEO at AJW Technique*

Generally, industry repair volumes are down due to reduced flying hours.  
Photo: Patrick Delapierre

says typically leasing is synonymous with a whole asset itself, whether it would be the airframe, engines, APU, and landing gear. “This same concept will now be applied to the components themselves, just on a smaller scale which will then save the operator money and conserve liquidity further. The proverbial JIT buying is what most operators are looking for in today’s environment, part suppliers are challenged with having the material needed by the operators ready to go. Furthermore, once the demand signals have been initiated buyers are looking to exchange units to save time and money.”

Despite the scaled down operations, airlines still have some planes flying and business continues. Consequently, operators are consciously striking a balance of conserving cash-out while optimising the usage of their fleets. “Therefore, they prefer to move from PBH models and the purchase of new parts to utilising used

parts and repairs on time and material basis as well as loans and exchanges to focus on the short-term needs,” comments François de Larambergue, Head of Engineering, AOG Desk and Procurement at Spairliners.

While seeing the market prices of used serviceable parts on a downward trend due to continued teardown of retired aircraft, De Larambergue also sees a rise in prices for logistics services to send requested components to customers. “Therefore, the savings from lower component prices are often ab-

sorbed by the higher transportation costs. Spairliners is of course always aiming to profit from favourable market conditions to purchase components and we are using the opportunity to right-size our stock where possible.”



François de Larambergue, Head of Engineering, AOG Desk and Procurement at Spairliners

Since the introduction of the COVID vaccine in December it is giving the industry optimism and MRO aftermarket players like Werner Aero Services are starting to see increased demand for components, at least for budgeting reasons now, from airlines and lessors who are making plans to remove aircraft out of storage.



### Traceability for life limited parts and lease agreements

Full life history (or back to birth) is critical for life limited parts (LLPs) as the air operator requires a full understanding of the components history to ensure all life limits are understood and adhered to. As part of a lease return check, Rustom from AJW explains that it is normal practice to perform an audit of all life limited components, and so it is essential the operator maintains accurate records to support this process. "This is relatively straightforward when components are repaired or overhauled and returned to the same operator, as all the records and traceability is held within one system. However, when exchanges are made it is essential to validate all required records are available and accurate, and to ensure all information is recorded within the operators tracking system."

"Note, however the majority of components are on condition, with those that are life limited being focused mainly on landing gear, engines and safety equipment."

Additionally, Rustom says there has been a huge transition towards digital solutions to proactively manage and forecast repairs on life limited parts via traceability. She states with the development of predictive and preventative maintenance, aggregations of historical and real-time data enable just-on-time parts replenishment and proper manpower capacity planning

for MROs; and predicts the condition of the unit based on its historical behaviour. "This in turn drives efficiency for MROs but also helps airlines provision for timely removals, reduces parked aircraft intervals and reduces maintenance costs. AJW has been investigating the area of both predictive and preventative maintenance to streamline the repair process and foresee customers' requirements."

Mike Cazaz, President and CEO at Werner Aero Services believes ensuring the traceability of LLPs will guarantee that these items will be overhauled or replaced at the due time and hence ensure the continued safe operation of an aircraft. "Usually, under an aircraft lease agreement there are restrictions for the utilisation of LLPs or the age of LLPs to be reinstalled on a leased aircraft. But since the value of an LLP is measured by the lifetime or cycle, it is important from an economic perspective to keep track of the utilisation of the LLP."

Regardless of a leased or owned asset, trace is fully required by airlines to ensure their passengers are getting from point A to B safely. But when it comes to leases, Reed from Flight Solutions Group observes that most lessors have return condition requirements that are essential to ensure the asset value after a certain period – "Lessors want less PMA, DER, or aged life products on their aircraft to make the asset as marketable as possible for the next operator."

Lease agreements generally have well defined trace and minimum life remaining requirements for LLPs upon return. Although life remaining can generally be commercialised, Palacios reminds that the lack of acceptable back-to-birth trace can quickly make an asset unsellable, non-remarketable and the LLP itself unusable. He says depending on the return conditions stipulated in the agreement itself, it could in extreme cases constitute a breach, but use of the word "acceptable" above versus "required" was purposeful. "As well known, our industry suffers from a self-created problem of regulatory requirements for trace versus perceived requirements for trace with that latter having become the default by which auditors conduct back-to-birth trace investiga-



Patrick Leopold, Director of Leasing and Trading at Vallair

tions. Therefore, the importance of back-to-birth trace conducted to the level of expectations and perceived requirements of the market has become an absolute must despite actual regulatorily mandated trace being less demanding on the auditors and actual ability to use or re-market the LLP," Palacios explains.

Generally, where traceability is not gapless, or is lost, it is difficult to remarket or sell, comments Patrick Leopold, Director of Leasing and Trading at Vallair – "A lease agreement can specify the traceability requirements to different levels, sometime partial traces are acceptable, but it depends on each lease agreement negotiations and what is required by the lessee."

At Spairliners, they have standards in place for the documentation of LLPs and maintain the data digitally as well as on paper whenever a part is handed over. However, De Larambergue calls for an industry-wide template or platform to be available to ensure the standards are aligned globally and that could be easily exchanged across operators and suppliers. "While we do see that further evolution of the track and trace technologies, for example RFID tags, will continue to boost supply chain performance, we could imagine that block-chain technology could be a great tool to help build such an industry standard, not just for the physical traceability of parts, but also for the documentation of their entire lifecycle."



Mike Cazaz, CEO at Werner Aero Services



Cost control is being applied to component maintenance.  
Photo: Patrick Delapierre

Hooley from AerFin adds, as well as LLPs, there are also several components with hard and soft time thresholds (recommended by OEM but not mandated) which require similar controls. "Due to the range of adoption of such recommended thresholds by the operators, AerFin maintain such components to the highest standard in order to maintain consistency across our available pool of components, particularly in relation to the recommended thresholds for component removal."

#### Failure analysis on components

With some components exposed and operating in extreme conditions, for instance, sand, high temperatures, snow, and ice, they can be subject to failure.

At AerFin, as with any component removed due to failure, regardless of operating conditions, they are inducted into their approved Part-145 facilities and firstly undergo incoming visual inspection to check for any outward signs of damage and/or

discrepancy, before moving onto functional testing in accordance with the relevant OEM CMM to confirm failure. Then, using the results of the functional testing and the reported failure information from the operator, troubleshooting per the CMM commences to identify, isolate, and correct the defect. After the initial repair, the units then undergo further functional testing to ensure that all faults have been corrected and no additional faults are present, and that the unit is operating fully to the OEM specifications.

Hooley further adds that if any unusual failure/removal trends are identified during regular reviews from a specific operator or region, then AerFin takes a proactive approach to look further into them, in conjunction with the relevant operators and OEM's, to attempt to firstly identify if any external forces (such as extreme operational conditions) have contributed to an increase in defects/faults and then secondly to identify and recommend any pre-

ventative actions that can be taken either during the workshop visit or by the operator in order to address the root cause of the failure in an attempt to reduce or eliminate any future failures.

Another trend lies in the management of components that form part of an aircraft that is in long term storage. Leopold from Vallair notes the challenge here is to make sure they are kept in serviceable condition whilst being in on the ground. "There is of course the management of the parts with regards to their calendar time expiry once the aircraft will need to go back into service, but also there are the environmental conditions to consider [humidity, moisture, potential corrosion, erosion when parked in the desert], as well as issues that arise out of lack of operation, especially on electrical components. With utilisations being down and sometimes aircraft being flown just to keep them serviceable, parts may fail or become unserviceable unpredictably."





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## Strategic aligning for Asian recovery

Recovery in Asia is stronger than other regions.  
Photo: Skyways Technics Asia

In the wake of the COVID-19 pandemic, **Keith Mwanalushi** examines the challenges and opportunities that are now present in the MRO industry in Asia and the continued focus on cash management.

Over a long period of time, MRO's in Southeast Asia, China, and Asia-Pacific have ramped up their capabilities to cater to a growing aircraft fleet that has propelled the demand for aircraft maintenance services. Demand for MRO services is directly related to aircraft utilisation. The more hours and cycles consumed, the greater the need for airframe, engine, systems and parts inspections and replacements.

"It is therefore not surprising that China and Southeast Asia were seen, in a pre-COVID world, as on a continual growth trajectory, based on expected GDP and hence air traffic growth," comments Phil Seymour, President and Head of Advisory at IBA.



Phil Seymour, President & Head of Advisory at IBA

Data from IBA also shows that recovery in China and the wider Asia-Pacific region is much stronger than in other parts of the world. Seymour notes that Europe's recovery has been noticeably erratic and much slower, and a short-term recovery is not likely in the coming months. "China and Asia-Pacific MRO demand is recovering and although it is not yet at 2019 levels, this is much better than the rest of the world," notes Seymour.

The commercial aviation sector has certainly suffered massive losses, but there seems to be a desire by some governments in the region to support the development of MRO as an important strategic industry. Interestingly too, Amaury Parent, Regional Manager at Skyways Technics Asia





“We are confident that the market will naturally use the added value of our services when flight operations get back on track.”

*Amaury Parent, Skyways Technics Asia*



Amaury Parent, Regional Manager  
at Skyways Technics Asia

in Malaysia observes the variations in the region at which the pandemic has been tackled. This has translated into variable purchasing behaviours among operators and airframe MROs. “We expected activity to pick up with lessors, but unfortunately it feels like it will take some time for them to activate end-of-lease and redelivery projects.”

Skyways Technics has seen an opportunity here where numerous operators are showing willingness to step out or put their PBH

programmes on hold and look closer at their component maintenance costs. That is where Skyways Technics can bring value in smarter and lower costs and bring expertise on rotatables repairs cycle management, suggests Parent.

As a result of this unprecedented crisis, Jaap Beijer, President and CEO at MTU Maintenance Zhuhai in China says airlines are extremely focused on cash management to ensure their survival. “Fleet planning is highly dynamic, and we are supporting our customers and partners with scenarios and engine MRO strategies to maximise the use of existing assets, but also to avoid unnecessary spend. It is possible to utilise assets for a longer period and only invest in small worksopes for instance, but this requires flexible, customised maintenance concepts and expertise, like that of an experienced MRO provider such as MTU Maintenance.”

Based on the high financial pressure on customers, MTU expect to see a trend towards budget driven decisions, smaller worksopes and onsite repairs. Beijer says MTU’s biggest focus is to keep supporting customers during their ramp-up phase. “Our onsite team in Zhuhai will help with smart and cost-effective

onsite maintenance and we’ve been steadily increasing our portfolio of services, including LEAP inspections onsite. These events are not only becoming more important regarding the impact of COVID-19 on engine MRO but also with the introduction of the newest generation of engines, designed to enable more on and near-wing fixes.”

Furthermore, MTU are also offering single engine solutions that include smart worksoping, used parts management and quick-turn repairs.

## Ongoing investment in the region

In just the last few months, several European-based MROs have announced expanding their presence and capabilities in the region. Revima, the independent APU and landing gear MRO specialist completed the certification processes of its new landing gear facility in Chonburi, South of Bangkok, Thailand.

The 120,000 square feet facility construction began in February 2019 and was completed just a year later in March 2020. The \$40m facility is equipped with the latest machinery and tooling, fully connected for smart monitoring and maintenance processes. It is environmentally friendly, with wide use of green





“The trend is moving to specific cost-oriented shop visits that include more repairs and more used parts.”

*Jaap Beijer, MTU Maintenance Zhuhai*

Restrictions have largely lifted at MTU's facility in Zhuhai, China.  
Photo: MTU

chemicals and no waste rejection for its plating facilities. It is also equipped with brand new machining and test equipment, from 5 axis milling and grinding machines, hydraulic test benches, to high performance non-destructive equipment.

The Thai facility also offers large training and customer amenities to host audits, meetings, product inspections and trainings. Its aim is to deliver to the Asian market high value solutions and top-quality services. It will be able to overhaul up to 600 landing legs yearly.

Olivier Legrand, President and CEO of Revima Group tells AviTrader MRO that the outlook for the APU and landing gear market in Asia has not changed significantly compared to original projections as most of the platforms Revima targets are younger and popular aircraft types. He says while the Asia region is not immune to the COVID pandemic impacts, he mostly sees a time delay in MRO events and believes that this market will rebound first and return quicker to significant growth than others.

Legrand adds: “When we took the decision to build this facility about two years ago, our goal was to expand our services in Asia Pacific by being able to address the market needs of the two most successful commercial aircraft platforms: the A320 and B737 families. They represent in Asia Pacific alone over 20 % of the worldwide fleet, 40 % with China. Despite the pandemic, we were able to finalise the construction, training and set-up required to successfully obtain three very important initial Part 145 certification audits thanks to our very professional team.”

Rotterdam-based APOC Aviation also announced the opening of its first facility outside Europe. The new APOC base in Singapore will hold stock of A320 family and B737 components, providing the local market with faster access to their stock of spares inventory.

Karim Grinate, Vice President – Component Sales at APOC Aviation comments: “An Asia Pacific base means our stock is in place ready to serve the region as Asian operators get their fleets flying again. We believe that through regional deployment, operating in

local languages and within the same time zone, we can deliver the fastest and most efficient service to our customers.

“Singapore is the ideal strategic trading position to allow us to maximise opportunities as they present themselves. But we are also



Jaap Beijer, President and CEO MTU Maintenance Zhuhai



looking closely at developments in China and Hong Kong as we consider another Asian warehouse location. In terms of regulations and the USM market, China in particular is working to match standards with Europe and the US" adds Grinate. "This presents us with a good opportunity to sell our newer aircraft parts across the region."

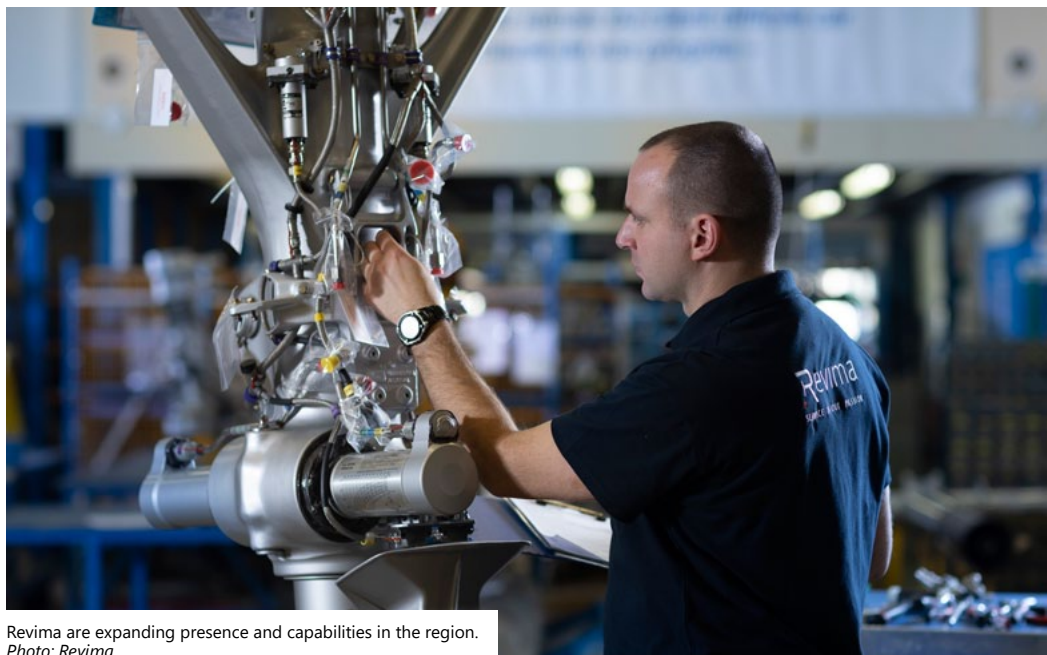
MTU Maintenance Zhuhai, are also planning to establish a second facility in the neighbouring Jinwan district. The facility is to be called MTU Maintenance Zhuhai Co., Ltd. Jinwan Branch, and will have an initial annual capacity of 250 shop visits and expects to enter operations in 2024.

Parent from Skyways Technics Asia feels there is a need for more capabilities to be established in Asia Pacific, and therefore they have decided to specialise in regional aircraft structural repairs in Malaysia. "Our capabilities are unique in this region, and the need is confirmed – from OEMs wanting to build a better aftermarket support network for operators, to airlines willing to use high-quality and affordable repair services, and MROs looking into refocusing on the core business of turning aircraft checks quickly and efficiently."

Parent says structural components are bulky and heavy, and sending them to Europe or North America for repair also often results in occasions where freight cost outweighs the actual repair cost. "We are confident that the market will naturally use the added value of our services when flight operations get back on track. Generally, we also know that the regional aircraft fleet will continue to grow over the coming years as well as continue to retire old aircraft types that are not supported anymore, and we'll see the more modern and cost-efficient platforms that we are specialised in".

IBA's Seymour suggests data evidence is showing the European MROs will promote their services into the Asia-Pacific region, since their "home" business has dropped to between 20% and 30% of 2019 levels. "In reality, it is likely that MRO demand in Europe has fallen to below even this level," he says.

Seymour explains that this is because although utilisation burns off time and cycles, when an aircraft or engine does require maintenance, the airline may not immediately send that aircraft or engine for refurbish-



Revima are expanding presence and capabilities in the region.  
Photo: Revima

ment. "The airline will have the option to hold that aircraft or engine and replace it with another that has time and cycles available."

The phrase, "using green time" is being used across the industry, and with it the use of other available aircraft or engines that lead to this option. This approach preserves precious cash within the airline, at the expense of the MRO sector, he adds.

"It is inevitable that MROs based in lower growth regions will offer their services in regions that are growing. Airlines in China and Southeast Asia will also benefit from increased competition. Established MROs in the region may therefore see increased competition from other regions. Additionally, lower labour costs in Southeast Asia should provide some protection from the higher labour costs seen in Europe," Seymour indicates.

#### The road to recovery

Whilst the pandemic is not over, many of the countries in the Asia Pacific region have managed to control the second wave more effectively than other regions, Seymour observes. "This means that air traffic has been better able to recover, and so the MRO prospects for the region look healthier."

However, Seymour warns there is a challenge that may become apparent, which relates to the environment and the weather in the region. "Aircraft do not react well to not being used, and this is especially true in areas

where there is high humidity. This means that there is a higher risk of aircraft being returned with service corrosion and system unreliability that may not be apparent in the short term. It may not be until the next major check, when access is gained to structural areas, that issues relating to the aircraft being parked or stored for an extended period are discovered."

Seymour stresses the importance of updating aircraft and engine maintenance programmes to consider reduced utilisation. "All aircraft maintenance programmes are based on assumptions about annual hours and cycles. It is highly likely those assumptions are wrong when we look at utilisation in 2020."

Beijer at MTU sees that China is currently leading the world in terms of recovery – in domestic travel – with some small but encouraging growth in this segment year-on-year. He says furthermore, restrictions have largely lifted and their facility in Zhuhai is back running at just about full capacity.

He notices the trend moving to specific cost-oriented shop visits that include more repairs and more used parts. "MTU Maintenance Zhuhai is offering its customers flexible on point solutions and flexibly adapting to market needs. Our customised solutions are highly individual and dependent on the customers' financial situation, current flight volume and ownership of the fleet."

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In the hot seat.....

# Dimitri Martel

Co-Founder & Managing Director Aeroji GmbH

## What attracted you to this business?

My background as an aero-engine development engineer meant I was attracted to the aviation industry since the beginning. I have gained experience from engine design activities, through test and validation until engine certification but I also was fortunate to work with people from various disciplines. Data became my breathing air over the last 10 years. At the same time I started to develop interests in entrepreneurship as I saw the potential to accelerate efficiency improvements in all areas and bring solutions into production very quickly. It was a hard step to leave the technical research and development segment, but I wanted to connect my skills with my newly built up interests. The new venture gave me the chance to stay in the aviation industry and to deliver the best support I can. I like streamlining processes by optimising resources, but in order to achieve that a good research/analysis is required. This in fact relies on transparency which is also one of my core beliefs.

## What does a typical day's work entail in your job?

Well, I guess a typical day starts with checking all latest messages I got over night. We usually do our team daily first thing in the morning to communicate our progress and set up link calls. The situation with the lockdowns (closed kindergartens and home schooling) in Germany created a huge challenge. Usually, I juggle between work, care and playtime with my son and home schooling support for my daughter. As a typical startup in the early stage the daily job covers all aspects, from business development activities and administration, over marketing and sales until development support. It is multi-sided and diverse. Sometimes hard and confusing, but always interesting and challenging. This is what makes it a fun role.

## Briefly, give us an overview of what Aeroji is about?

The partial opacity of the engine market points out that all market participants show enormously high efforts, planning uncertainties and difficulties in strategic growth. The missing transparency of information together with extensive communication tracks are causing - in an environment which is looking for quick solutions - the biggest challenges for all market participants.

We are on a mission to digitise the aero engine procurement process and connect business partners in a much more convenient way than currently. As part of our vision we are also striving for a re-worked contractual and technical due-diligence for the users of our platform. We develop the platform to provide simplified aero-engine lease and sale processes with available tools like a marketplace, a social network communication



Martel - We are on a mission to digitise the aero engine procurement process.

system and documentation management. The purpose of the platform is to connect engine sellers and purchasers as well as lessors and lessees (operators) at first. The platform will furthermore integrate MRO repair, end of lease and logistics providers to support all relevant aspects of the aero-engine procurement processes and will thereby create a one stop shop solution.

### When and why did you set up the business?

It has been an amazing journey from the very beginning to the present day at Aeroji, having the idea in summer 2019, founded in mid of 2020 and now bringing the idea to life. The motivation for the co-founders was to create something from scratch with our own hands and minds. It somewhat feels like destiny that all the co-founders have a similar history but different working backgrounds. However we share the same interests, we are almost the same age and grew up with new technologies.

### How has Covid-19 affected the engine aftermarket business?

Last year was a year like no other.. Having started with record breaking numbers at the beginning it ended with bankruptcies and huge revenue losses.

The effects of the Covid 19 pandemic resulted in the lowest aircraft utilisation in history. Therefore, operators deferred their MRO activities as much as possible and created huge planning uncertainties and near term revenue losses for maintenance facilities.

On the trading side we have recognised more spare engines on the market. Moreover the amount of green time engines will be increasing because of an early retirement strategy of major operators. This detrimentally affected the asset valuations and aftermarket prices.

For most operators/lessees it was helpful that several lease deferrals were available, typically for a period of 2-3 months as an initial support package. It turned out that this was not long enough since lessors are now forced to provide further rent relief or early lease termination. This leads to huge revenue reductions and increased exposure to deferred income from riskier lessees.

The engine aftermarket depends on a working operators business. A sustainable support of operators by governments and aviation organisations will generate a domino effect on the recovery of the engine aftermarket.

### Aeroji recently had a Beta launch. What was this about?

We just launched the Beta version of the marketplace module and are currently looking for Beta testers who will join us on our mission. As of today we host more than 30 engine leasing and trading professionals from over 25 companies and 11 countries worldwide as Beta users. It was a great start for us and professionals from all segments such as airlines, lessors, MRO shops and distributors joined Aeroji. We are eager to develop our service continuously in a flexible, creative and most importantly collaborative way to exceed our customers' and partners' expectations. So far the Beta users tested the marketplace features and gave us feedback. Of course we fixed the bugs at first, but more importantly we added new features requested by the users. The Beta is the main interface to our aviation community and it also shows how we can interactively develop the service for the community. The testing period is scheduled to last months. After the initial playground phase, we will launch the operational phase of the Beta where we will begin to aggregate real asset items in the database as a preparation for the launch of the platform in Q2 2021.



The purpose of the platform is to connect engine sellers, purchasers and the leasing community.  
Photo: Aeroji





One of the biggest challenges will be the increased availability of green time engines says Martel.  
Photo: WinAir

### Are you seeing any challenges in the engine aftermarket sector?

There are a lot of challenges in the engine aftermarket, but even in this times I stay positive and look at them as an opportunity. My personal credo is that the biggest challenge should come from the inside. In other words, I am always asking myself how and where can I improve without being driven by current circumstances.

Looking at the engine aftermarket sector one of the biggest challenges will be increased availability of green time engines as well as the low asset valuations. A lot of mid-life assets will probably never take-off again. This creates a huge penetration in the strategies of the asset owners.

Another important part of the equation will be flexibility driven by the fluctuating and less predictable demand and travel restrictions. All stakeholders, from network hubs, airlines up to maintenance providers will have to adapt to an agile way of operations with innovative approaches and processes.

However this also contains opportunities for change, but all the new deals must be backed up by professionals with a good track record and viable strategies to avoid creating unstable, unsustainable business structures.

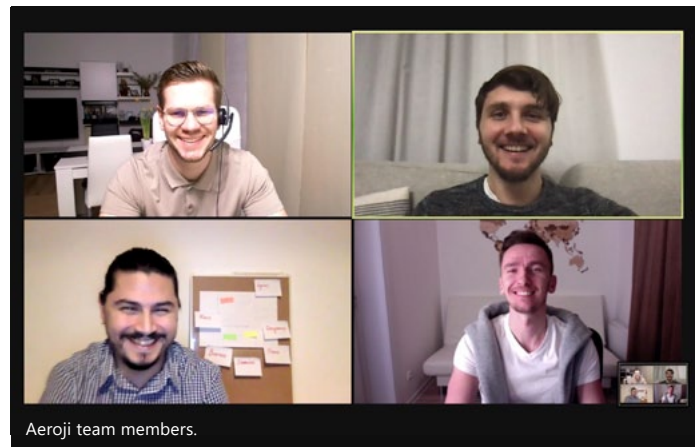
### What are your plans for 2021?

For the first half of 2021 we are looking to increase the amount of Beta users on our platform because we are depending on the varied feedback of the users. The feedback will give us the opportunity to continuously tailor our service and product according to the needs of the users.

Furthermore we will introduce several new features and functionalities in order to optimise the existing usability, but also to continuously develop Aeroji. We plan to extend the product portfolio in order to allow our customers to have a single system for their broad asset portfolios.

We are excited to collaborate with other service providers in order to assess the potential of integrating and connecting their services with Aeroji. The goal is to create a one-stop-shop for our clients with cascade booking of supportive services and products like engine stands and logistics.

And of course we will continue building the CRM functionalities in order to support the transition process of the assets with technical, commercial and legal due diligence features.



Aeroji team members.

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## »»»»→ on the move



Tiziana Masullo

ATR has appointed **Tiziana Masullo** Managing Director and President of ATR Americas, a subsidiary of ATR, effective from December 2020. Based in Miami, Masullo previously served as Vice President of Services Sales and Contracts and succeeds **Jurgen Lebacs**. She will oversee a staff of 32 people covering the following areas: technical support and safety, training and flight ops, services sales and contracts, customer material support, GMA & Repairs, CSDs and FSR, finance and human resources. Masullo began her career with Leonardo, before moving to ATR where she has spent 27 years. With a lengthy background and many leadership positions in training, flight operations and services sales, as well as contract negotiation, she brings a wealth of experience to her new role. She is also the first woman to lead one of ATR's subsidiaries.



Evren Akca

Aero Norway, the independent engine MRO provider and trusted partner for customers operating CFM56-3, CFM56-5B and 7B engines, has appointed **Evren Akca** as Sales & Marketing Manager. Akca first joined the Aero Norway team as Customer Support Project Leader in 2014, and his new role will see him support Aero Norway's growth strategy and focus on best-in-class service for its expanding global customer base. Akca began his career in sales and customer support at Pratt & Whitney's Turkish engine center in 2011, having graduated with a BSc in Economics.



Jessica Matthews

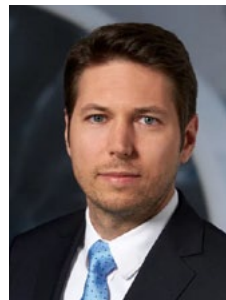
GA Telesis (GAT) has appointed **Jessica Matthews** as Managing Director of GAT Logistics Solutions. Matthews will be tasked with leading all aspects of strategy, sales, operations, contracts, revenue, and margin targets, as well as managing all future partnerships in the logistics space. Matthews will also be responsible for growing the GAT Logistics Solutions network globally. The growth and emphasis on GAT Logistics Solutions is part of a larger strategy of the Flight Solutions Group's (FSG) ability to offer comprehensive, vertically in-

egrated support solutions to its customer base worldwide. Spanning over 15 years, Matthews brings a wide range of management experience gained throughout increasing levels of responsibility in brand name corporate level logistics and 3PL commodity management.



Philip Scruggs

AerCap has released that **Philip Scruggs**, President and Chief Commercial Officer, will retire in March 2021 and that **Peter Anderson** will take over as Chief Commercial Officer. During his 26-year career with AerCap, Scruggs has held a number of positions within the company — lawyer, leasing executive, Chief Commercial Officer and President. Over the past ten years, he has led the commercial business of the company, managing a fleet of over 1,000 aircraft that has generated on average over US\$4 billion per year in revenue and purchasing over US\$27 billion of new equipment from Airbus, Boeing and Embraer. Peter Anderson brings to the role two decades of global experience in aircraft leasing and structured finance, having worked in Dublin, Singapore, London, and Sydney. He is a member of the Group Executive Committee of AerCap and is currently responsible for AerCap's leasing activities across Europe, the Middle East, and Africa. Prior to his current position, Anderson opened, developed, and led the Asia Pacific office of AerCap's predecessor ILFC, transitioning to the Head of Asia Pacific during AerCap's acquisition of ILFC in 2014.



Patrick Biebel

Effective January 1, **Patrick Biebel** took over the helm of MTU Maintenance Lease Services B.V., a joint venture between MTU Aero Engines and Sumitomo Corporation headquartered in Amsterdam. In his role as Managing Director, Biebel follows on from **Andrea Lübke** and will be responsible for MTU's leasing business, asset management activities, and driving the company forward. Prior to this position, Biebel was Vice President Corporate Development and in charge of all of MTU's mergers and acquisitions and business development activities – ensuring the future growth and success of MTU's aftermarket division. Biebel joined MTU in 2012 and has assumed various positions with increasing responsibilities within MTU's commercial MRO, finance, and corporate development organizations.



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