

MRO

Aerospace Magazine



Planes in Transition

Moving assets during a crisis

Components

Support for post-pandemic flying takes off

Cash converters

321 Precision and HAECO extend conversion capabilities

Joramco

Taking centre stage amidst MRO recovery

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Effective transitions and pushing the digital effort

Earlier this month we reported that multiple lessors are set to terminate lease agreements with Russian airlines by March 28 following sanctions imposed by the EU. The situation has taken a nosedive since then with the Russian administration now making changes to the law that will make it harder for lessors to repossess their assets.

The Russian-Ukrainian events and the steep rise in fuel prices are not good for our industry as we are already seeing some airlines trim their schedules in anticipation of higher fuel prices resulting in higher ticket prices and a drop in passenger travel which unfortunately dampen the expected airline industry recovery of recent months. We have seen carriers like Loganair in the UK add a fuel surcharge on new ticket sales as it responds to increasing worldwide fuel prices, no doubt others will follow.

This is also not good news for the lessors as some of them are small time investors and they will likely seek to offload their assets because they do not have deep pockets to handle this crisis in the same way as the bigger players like AerCap who are reeling with the loss of revenues from Russian customers.

In this issue we are examining the asset recovery and transition services market post-pandemic and the ongoing push for digital records management. An increasing number of senior airline executives accountable for managing the efficient transition of aircraft assets are leveraging the power of digitalisation according to many of the experts we have spoken to. From TrueNoord's perspective as a lessor, the ideal situation would be for all airlines to use the same standards, processes and systems for saving and managing maintenance records digitally as this would save a lot of work during transitions.

Keith Mwanalushi
EDITOR



A new Russian law could make it harder for lessors to repossess their assets.

Photo: Aeroflot

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TCI galleys will fly with Canada's newest airline, Lynx Air



Photo: TCI Lynx Air has contracted TCI for the design and manufacturing of its cabin interior products

Lynx Air (Lynx), Canada's newest ultra-affordable airline, has entered an agreement with TCI Cabin Interior (TCI) for the design and manufacturing of its cabin interior products. The airline, headquartered in Calgary, AB, will use the Galleys and Monuments produced by TCI in its fleet of 40 Boeing 737 MAX 8

aircraft. TCI, founded in 2010, is the joint venture of TA, Turkish Airlines and Turkish Technic. In line with Turkey's aviation goals and 2023 vision, it has been gaining ground in engineering, quality and certification since its foundation and completed its first Boeing and Airbus programme deliveries in 2014. By the end of 2015, TCI was listed in Boeing's Global Offerable list. Along with the projects conducted with Boeing, Airbus, and Stelia, TCI became the global supplier of many airlines and leasing companies such as Turkish Airlines, SunExpress, Jet Airways, SpiceJet, Azerbaijan Airlines, Donghai Airlines and Anadolu Jet. TCI operates in the MRO Center at Sabiha Gökçen International Airport with more than 160 employees. TCI has been increasing its expertise in the design, testing, certification and manufacturing of aircraft cabin interior products such as galleys, monuments, lavatories, overhead bins and windscreens. It aims to increase its product range in the near future with other industrial products like cargo containers, cargo pallets and trolleys, while continuing to export significantly with its domestic subcontractors in the aviation industry.

MTU Aero Engines now positioned to provide overhaul services for PW1500G and PW1900G engines

MTU Aero Engines and Pratt & Whitney have signed an agreement to grow the company's MRO capabilities for all Pratt & Whitney GTF™ engines in service today. MTU is now positioned to supply overhaul services for two additional engine models: the PW1500G for the Airbus A220 family and the PW1900G for Embraer E190-E2 and E195-E2 aircraft. The contract further expands MTU's role in the GTF MRO network beyond PW1100G-JM for the Airbus A320neo family. In the future, EME Aero, a maintenance joint venture between MTU and Lufthansa Technik that is based in Rzeszów, Poland, will perform shop visits for PW1900G in addition to PW1500G engines. Beyond that, MTU is also a part of the Pratt & Whitney network for repair services. The contract is set to run over the lifespan of the engine programme.

Bamboo Airways and AFI KLM E&M lay foundation for extensive cooperation



Bamboo Airways and AFI KLM E&M have strengthened their ties by signing an MOU, paving the way for future collaborations Photo: AFI KLM E&M

AFI KLM E&M and Bamboo Airways have set a basis for new cooperation over the long-term future, via an MOU outlining the MRO's potential deployment of adaptive support solutions across a range of domains. Following on from their initial contracts focusing on the maintenance of Bamboo Airways' fleet of Boeing 787, Airbus A320 and Embraer aircraft, the MOU outlines the possibility of extending commercial relation in the field of engine support, including taking on shop visits for the GE9x engines fitted on Bamboo Airways' Boeing 787 fleet and for the engines equipped on its A320 family. AFI KLM E&M may also be called upon for new C-Check maintenance visits for the Boeing 787s at its facilities in Amsterdam, as well as line maintenance operations across an extended stopover network based on the destinations Bamboo Airways flies to. The Vietnamese operator will also gain access to the capabilities of EPCOR, the AFI KLM E&M affiliate specialising in the maintenance of APUs, for support of its APS2300 (EJets) and APS5000 (Boeing 787) products.

Airbus partners with Spirit AeroSystems to develop wings of CityAirbus NextGen

Airbus has signed an agreement with Spirit AeroSystems through its subsidiary for the development of CityAirbus NextGen's wings. This partnership will support Airbus' exploration of disruptive aircraft design while complying with the most stringent regulations. Spirit AeroSystems will be responsible for developing and manufacturing CityAirbus NextGen's wings in Belfast, Northern Ireland. Both partners' ambition is to achieve a minimum weight solution while ensuring the highest levels of safety. The structural concept of the eVTOL's fixed wings will be able to transmit the related aerodynamic loads while being optimised for the right balance between hover and cruise efficiency. CityAirbus NextGen's distributed propulsion system will contribute to reducing the influence of air turbulence. "The partnership with Spirit AeroSystems is an important step for the development of CityAirbus NextGen and its wings are key structural components for flight efficiency," said Jörg Müller, Head of Urban Air Mobility (UAM) at Airbus. "To build this vehicle, we are proud to work with Spirit as a strategic partner who benefits from a proven track record in this field, and extensive experience in component quality and airworthiness." The fully electric CityAirbus NextGen is



Photo: CityAirbus NextGen

an eVTOL prototype equipped with fixed-wings, a V-shaped tail and eight electrically powered propellers as part of its distributed propulsion system. CityAirbus NextGen is being developed to fly with a 80km operational range and to reach a cruise speed of 120 km/h, making it perfectly suited for a variety of missions. Airbus is developing a UAM solution with eVTOLs not only to offer a new mobility service in urban areas and beyond but also as an important step in its quest to reduce emissions in aviation all over its product range.

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Aventure acquires second Copa Airlines Boeing 737NG for teardown



Photo: Aventure's second Copa Airlines Boeing 737NG at Roswell, New Mexico

Aventure Aviation has acquired a second Boeing 737NG, MSN 30460, recently retired by Copa Airlines. The teardown is currently underway in Roswell, New Mexico. Components include the landing gear set, APU and various ATA chapter parts. Aventure's first Copa Airlines 737NG was acquired in 2021. Aventure is in active discussions with owners, financial institutions, lessors and airlines to find revenue-generating teardown solutions for idle aircraft. Talks have increased due to the amount of early lease returns from Russia and conflict zones. "We have received much interest from owners facing the never-ending costs of keeping aircraft parked with recurring maintenance, insurance and parking fees," said Talha Faruqi, President of Aventure. "Our ability to offer immediate purchase or consignment options are valued by our clients."

The Sterling Group acquires West Star Aviation

West Star Aviation has been acquired by The Sterling Group, an operationally focused middle-market private equity firm from the previous investor Norwest Equity Partners (NEP), a leading middle-market investment firm. "Sterling's employee-focused approach to its business partnerships and its expertise in the general aviation space makes it the perfect fit for West Star," said Jim Rankin, CEO of West Star Aviation. "As we enter our 75th year, the combined efforts of our experienced employees, our founders and now the Sterling team, will allow West Star to continue to offer the best customer experience in the industry," Rankin continued. "We believe that our experience coupled with West Star's industry-leading customer service capabilities will make us a powerful combination," said Greg Elliott, Partner at The Sterling Group. "Jim Rankin has built a stellar leadership team, and we are eager to help accelerate their growth plans," Elliott continued.



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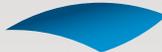


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SR Technics opens new six-bay hangar in Malta

MRO service provider SR Technics has announced the opening of a new six-bay hangar including significant back-shop facilities for its Centre of Excellence (CoE) for aircraft maintenance in Malta. This project will enable SR Technics to continuously provide high-quality aircraft maintenance and cabin modification services, now for up to six narrow-body aircraft of the B737 and A320 families simultaneously. Besides offering new opportunities to customers located within the EMEA region in a very central hub for the aviation industry, SR Technics Malta will eventually employ around 500 highly trained professionals. The SR Technics Centre of Excellence for narrow-body aircraft maintenance in Malta has been offering efficient high-performance maintenance services since 2010 which are based on safety, quality and reliability. The attractive platform combines proven quality and technical excellence with advantageous commercial terms.



Official opening of SR Technics' new six-bay hangar in Malta

Photo: SR Technics



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Embraer spots gap in cargo market and launches the E190F and E195F P2F conversions



Photo: Embraer takes aim at the air freight market with the launch of E190F and E195F P2F conversions

Brazil's Embraer has announced the launch of its E190F and E195F Passenger to Freight (P2F) conversions with a mid-size jet that, capacity wise, fills a gap between turboprops and narrow-body jet freighter aircraft. The first of its converted aircraft, which is available to any pre-owned E-190 and E-195 jets, should be in service by 2024. With the changing demands of e-commerce that not only require rapid deliveries but also decentralised operations, right-sized jets can provide the necessary cargo economics and unbeatable flexibility. "Perfectly positioned to fill the gap in the freighter market between turboprops and larger narrow-body jets, our P2F E-Jet conversion hits the market as the demand for airfreight continues to take off and as e-commerce and trade in general undergoes a global structural transformation," said Arjan Meijer, President and CEO Embraer Commercial Aviation. Those earlier E-Jets that entered service around ten-plus years ago are now coming out of long-term leases and commencing their replacement cycle, which will continue over the next decade. The full cargo conversion will extend the life of the most mature E-Jets by a further 10 to 15 years, as an efficient, more sustainable and quieter aircraft. Embraer's E-Jet P2F conversions will deliver excellent performance and economics. The E-Jet Freighter will have over 50% more volume capacity, three-times the range of large cargo turboprops, and up to 30% lower operating costs than narrow-body jets. The conversion to freighter will be performed at Embraer's facilities in Brazil and will include: main deck front cargo door; cargo handling system; floor reinforcement; Rigid Cargo Barrier (RCB) – 9G Barrier with access door; cargo smoke detection system, including class "E" extinguishers in upper cargo compartment; Air Management System changes (cooling, pressurisation, etc); interior removal and provisions for hazardous material transportation. The E190F will be able to carry a payload of 23,600lb (10,700kg) while the E195F will be able to carry up to 27,100 lb (12,300 kg).

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GKN Aerospace successfully tests new lightweight Turbine Rear Structure concept

GKN Aerospace engineers in Trollhättan, Sweden, have successfully tested a new lightweight demonstrator of a Turbine Rear Structure (TRS) as part of the Clean Sky-2 Engines research Programme. The purpose of a TRS is to manage the flow from the engine's low-pressure turbine and maximise the axial thrust. It is a key component in improving the efficiency of an aeroengine. Innovative design and state-of-the-art manufacturing methods resulted in a shorter and lighter structure compared to a traditional TRS. This was achieved by using a novel metallic alloy with higher temperature capability, as well as both metal casting and 3-D-printed technology. The optimised balance between aerodynamic performance, weight and

mechanical properties demonstrates a significant (14%) weight reduction potential, contributing to lower carbon emissions of the engine. The complex component was manufactured with laser-welded assembly methods and additive manufacturing technology at GKN Aerospace's Global Technology Centre in Sweden. Collaboration partners include the regional manufacturing technology centre PTC/Innovatum, while aerodynamic validation took place at a unique test facility at Chalmers University, funded by Vinnova through the SE NFFP programme. Brogren Industries (SME), also funded by Vinnova in the national SE Innovair programme INTDEMO MOTOR, provided supporting activities.

ATSG enters commitment with EFW for 29 A330P2F conversions



Air Transport Services Group (ATSG) has committed to a total of 29 Airbus A330 Passenger-to-Freighter (P2F) conversions
Photo: EFW

Air Transport Services Group (ATSG) has committed to a total of 29 Airbus A330 Passenger-to-Freighter (P2F) conversion slots with Elbe Flugzeugwerke (EFW), centre of excellence for Airbus freighter conversions and a joint venture

between ST Engineering and Airbus. The commitment reflects a strategic step by ATSG to diversify its existing in-service fleet of 117 aircraft with the addition of next-generation wide-body freighters. The A330P2F conversions

for ATSG will be performed from mid-2023 through 2027 mainly at EFW's facility in Dresden, Germany and at a new conversion site to be set up in Shanghai, China. Multiple conversions will be carried out in parallel. Similar to the latest conversion programmes, the A321P2F and A320P2F, the A330P2F programme is a collaboration between ST Engineering, Airbus and EFW, which is leading the overall programme as well as marketing and sales efforts. To meet the rising demand for freighter conversions, ST Engineering and EFW are setting up new conversion sites in China and the US this year and are ramping up conversion capacity for all their Airbus P2F programmes to about 60 slots per year by 2024.

Aero Controls adds 777 flap transmissions repair capability

Aero Controls continues to expand Boeing 777 component repair capabilities with the addition of the SB 777-27A0123 flap transmissions repair which includes inspection and replacement of the ratchet pawls. Customers may provide the top kits PN 005W0134-1 and Aero Controls will provide the labour to repair, service and test the units. In the event there is suspected damage to the pawls, further inspection and additional repairs may occur and the services will be charged on a time and material basis. Average turnaround time is ten days.

AAR signs exclusive distribution agreement with Collins Aerospace's Goodrich De-Icing & Specialty Heating Systems business

AAR has signed an exclusive distribution agreement with Collins Aerospace's Goodrich De-Icing & Specialty Heating Systems business. Through this agreement, AAR will provide airlines, other aircraft operators and MROs globally with de-icers and supporting products. Product offerings include patented technology and are predominantly used on general aviation aircraft, regional turbo-prop aircraft and most multi-engine piston business aircraft.





There is strong demand for A321 conversions.
Photo: 321 Precision Conversions

A sweet spot for conversion

As the global passenger-to-freighter market continues to gather momentum, **Keith Mwanalushi** talks to Zachary Young at 321 Precision Conversions about the latest agreement with HAECO and the booming A321 market segment.

Cargo conversions specialists 321 Precision recently secured an agreement with HAECO Xiaman to provide passenger-to-freighter conversion of the A321-200PCF. This extends an over 12-year relationship with dozens of converted aircraft with HAECO Xiaman.

Industry data shows the A321-200PCF can carry three more full main deck positions than the 737-800F and has an available volume equivalent to 95% of a 757-200 with a 19% fuel burn advantage over the 757. The A321-200PCF has also

significant volume and payload advantages compared to the 737-800F at similar on-ramp costs and the converted A321 converted has 31% additional containerised volume over the 737-800F when equipped with (10) LD3-45's in the lower hold.

Zachary Young, Director of Sales and Marketing at 321 Precision Conversions/Precision Aircraft Solutions says there are several moving pieces behind the strong demand for A321 conversion starting with COVID dampening passenger air travel that supercharged the demand for air cargo.

"New A321 conversion programmes are in their infancy stages and the demand is many times what is currently redelivered. Only eight A321 freighters have been redelivered across all available programmes to-date."

Certainly, lower acquisition costs can mean lower on-ramp costs, but if freighters are in short supply and high in demand the higher market values of converted freighters should be supported.

With nearly 95% of the available volume of the 757F while burning 20% less fuel, Young reckons the A321 freighter



Zachary Young, Director of Sales and Marketing at 321 Precision Conversions

is the future narrowbody freighter king. He explains that when factoring in the containerised lower hold of the A321, the containerised volume is almost 12% greater than the 757 – “Looking into a future where e-commerce is strong, and ESG issues become more prominent, the A321 simply makes the most sense. Lessors and operators are stepping in line for conversion slots over 12-18 months in advance, which rarely happened in the past.”

The bottleneck in the freighter supply chain now is the availability of conversion slots with various providers. If freighters remain in high demand, the freighter values and lease rates should not decrease.

In the latest agreement with HAECO, the A321 conversion work is being performed at HAECO Xiamen’s facility, which began in February 2022. Meanwhile, HAECO Americas commenced provision of conversion service to 321 Precision Conversions at HAECO’s Lake City, Florida facility starting from January 2022.

The two geographical locations will bring benefits and flexibility to the programme while more choices are available for operators. “Both facilities are excellent, and we need the capacity of each to fulfil our commitments. We work with our customers to determine which facility is a better fit geographically and has capacity to meet their in-service requirements,” Young adds.

Since 2009, HAECO Xiamen has partnered with 321 Precision Conversions on the 757-200PCF programme and expanding to the A321-200PCF was an easy decision as they continue to expand conversion kit capacity to meet high customer demand.

Recently, some converters have highlighted the increasing level of complexity with freighter modifications

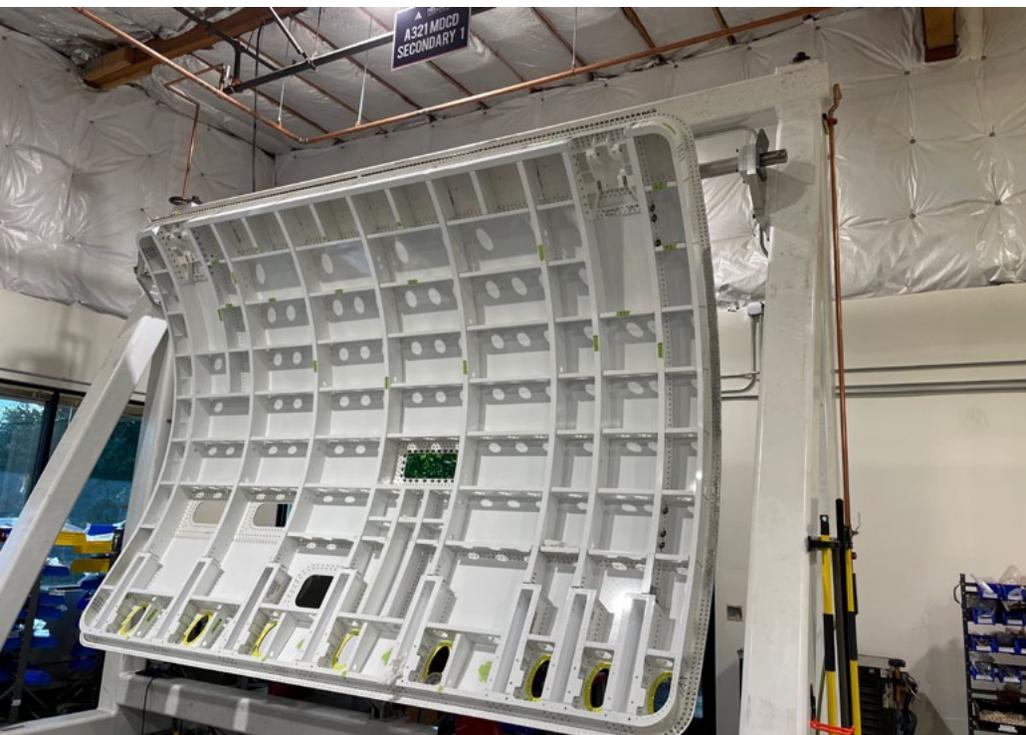
“Lessors and operators are stepping in line for conversion slots over 12-18 months in advance, which rarely happened in the past.”

**Zachary Young,
321 Precision
Conversions**

coming from OEMs and regulators. Newer generation aircraft such as (but not limited to) the A321, A330, and 777 certainly have more complex challenges than previous generations of aircraft that have been granted conversion STCs. Young explains that newer aircraft structures are more optimised for efficiency and systems have been upgraded over the years for enhanced safety, passenger comfort, and crew situational awareness. Conversion STC holders are equally held responsible by regulatory authorities for ensuring their new associated structure and systems is compatible with these modern aircraft.

“Recent events in aviation history, such as the 737-MAX crisis has put further pressure on regulatory authorities and new certification projects. Precision has always endeavoured and succeeded at optimising our conversion designs to yield the highest standard payload, lowest operating empty weight- along with simple, robust, and reliable designs. It is a fine balance which takes research, strong talent, and experience.”

Currently, Precision offers two narrowbody conversion products- the A321-200PCF and 757-200PCF. In addition to this, it offers turn-key engineering and manufacturing solutions and continued airworthiness and AMOC repairs/upgrades outside of SRM/AD/SB scope, 3&4 axis CnC machining, B757-200 FQIS SB AMOCs, high altitude operations modifications, cold cabin SBs, and other solutions.



Cargo door during the conversion process.
Photo: 321 Precision

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Joramco marked a successful participation at MRO Middle East 2022.
Photo: Joramco

Joramco takes centre stage as regional recovery accelerates

MRO provider Joramco revealed several agreements at the recent MRO Middle East 2022 tradeshow. **AviTrader MRO** looks back at the company's successful participation in Dubai.

This year's instalment of MRO Middle East in February came at a critical time as airlines and aircraft operators work diligently to get back to regular flying operations. The emphasis on MRO solutions to support the return to service effort was even more prominent at the event in Dubai.

Joramco had a particularly good showing announcing several agreements in Dubai and reporting remarkable performance despite the COVID-19 pandemic. Chief Executive, Fraser Currie took part in a panel discussion to assess where the regional market was in the recovery phase, focusing especially on

how leaders have responded by ramping up their teams and operations, and increasingly working with partners to meet accelerating demand.

Joramco announced the extension of their maintenance agreement with GetJet Airlines, a Lithuanian charter service, aircraft management and leasing agent. Their collaboration began in summer 2021 with the successful delivery of a C check on GetJet Airline's Airbus A330. The new agreement covers six-year nose to tail checks on another three of the airline's A320 fleet, which started in December 2021 and will continue through March 2022.

"A trusted MRO partner enables us to plan business processes, including aircraft checks, more accurately than before. We are delighted with the new possibilities we have already discovered and we are looking forward to having another fruitful collaboration with Joramco," said Darius Viltrakis, GetJet Airlines CEO.

Dubai Aerospace Enterprise (DAE) and Joramco also announced their continuing maintenance agreement with leisure operator Corendon Airlines. The agreement follows a previous agreement first signed in 2019. This contract covers a C check which was performed over 17

days in February on one of the airline's Boeing 737NGs.

Fraser Currie said, "Joramco is always keen to maintain our successful long-term relationships, which are built on our consistently high-quality end product and flexible response to customers' needs. This new step will open the door for future cooperation with Corendon and for further opportunities in the Turkish market."

DAE and Joramco also used the Dubai platform to announce the continuation of another maintenance agreement with DHL, which commenced in 2017. The new deal covers heavy checks on four of DHL's Airbus A300-600s. The first freighter aircraft arrived in Amman in February 2022 and will be followed by three more scheduled for nose to tail checks starting May 2022.



Joramco and Satair have extended their consumables and expendables agreement.
Photo: Satair

numbers of the type.

The momentum continued with another extended agreement with Satair, an Airbus services company covering the supply of consumables and expendables for the support of Boeing and Airbus aircraft. The contract secures solid regional spares availabilities for Joramco and brings the benefits of costs savings, relieving the supply chain and minimising the risk of AOGs.

Terry Stone, Satair's Managing Director and Head of Sales and Support, EMEA said the agreement was an important step in further developing the support to MROs in the Middle East and to increase material availability for a long-trusted partner. Currie added that extending the long-term cooperation will enable Satair to continue to be a reliable partner in sourcing and procurement activities by ensuring and sustaining Joramco's access to parts and reducing lead times.

In the spares support segment, Joramco and Proponent, an independent aerospace parts distributor, inked

an agreement to support the supply of consumables and expendables. Proponent will also be exploring value-added services such as kitting and consignment to further develop and expand support for Joramco.

Despite the name, expendables are an important aspect to any operators' overall inventory strategy, for a low-cost fastener can ground an aircraft as surely as a \$750,000 flap assembly. Consumables are items that are frequently replaced, and they cannot be restored back to their original state. Aviation consumables often come in the form of bulk-type materials, common examples being lubricants, fuel, chemicals, paints, patches, dies, coolants, and other similar items.

The Joramco brand was a prominent presence and ended the event with ambitious future growth plans for the company and the facilities and capacities at its Queen Alia Airport base constantly expanding.

"Joramco is always keen to maintain our successful long-term relationships, which are built on our consistently high-quality end product and flexible response to customers' needs."

**Fraser Currie,
CEO Joramco**

Interestingly, the A300-600 Freighter continues to be a popular workhorse in the cargo market. According to data from *ch-aviation*, EAT Leipzig (which operates DHL-branded parcel and express services) has 25 A300-600 Freighters in the fleet while UPS and FedEx are also operating significant



Joramco is performing heavy checks on four of DHL's A300-600s.
Photo: Joramco

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Integrated supply chain key to understanding component needs

Growth opportunities exist in new generation aircraft components.
Photo: AFI KLM E&M

With the aftermarket focused on reliable and efficient supply chain solutions to maintain post-pandemic flying, **Keith Mwanalushi** highlights the trends in aircraft components and material services.

MRO and component solution providers are now seeing activity in this space spring back to life. For instance, Pakistani start-up airline Air Sial signing an exclusive long-term contract with EPCOR for maintenance of APUs on its three A320s, and OEMServices clinching a multi-year deal with Etihad Airways to provide around the clock component support with spare parts availability for A320 / A321s; these just being a few of the positive developments pushing the segment forward.

In the wake of the pandemic, at Kellstrom Aerospace, the growing demand for aviation parts and services is leading them to place a high priority on making sure that stock is available for immediate shipment or with a very short lead time. "Operators and MROs are focusing on having material ready to ship to accommodate passenger demand

as quickly as possible," says Michael Garcia, VP of Commercial.

Kellstrom Aerospace has prepared to support these substantial component



Michael Garcia, VP of Commercial, Kellstrom Aerospace

services contracts and planned strategies to swiftly identify which components to prioritise when dismantling aircraft, and then leverage partnership contracts to speed the certification process for quick and timely delivery.

Garcia sees data as an enabler for growth with component solutions. Kellstrom provides component management services, staging rotatable pools of components in strategic locations globally utilising historical data, data forecasting, and machine learning algorithms to optimise airline operations and MRO turnaround times. "Acquiring airplanes for dismantling will be a major emphasis for us in order to ensure that we have enough components available in our rotatable pools to meet our component management contracts."

Garcia adds that support initiatives will be distinguished by acquisitions, as well as the expansion of analytic software

COMPONENT MANAGEMENT AND SUPPLY CHAIN



MROs have prepared to support post-COVID component service contracts.
Photo: AFI KLM E&M



Jason Reed, President, Flight Solutions Group

tools and the integration of artificial intelligence into the planning process.

Over at GA Telesis, they see the need for reliable maintenance management services that offer more parts and more repair administration at a lower cost. "In addition, operators are looking for a way to finance those over a shorter time frame so that their costs are already mitigated long term, even during a downturn, allowing them to keep their CASM low," notes Jason Reed, President, Flight Solutions Group - a division of GA Telesis.

Reed reports that the 787/A350 and single-aisle AIM services are already paying dividends with operators who have switched over – "And to match, our logistics services are built-in, thus reducing the need for more extensive support staff to simultaneously maintain fleets and manage cargo," he states.

The engines team at Flight Solutions Group has been expanding product lines over the last few years, and Reed sees that trend continuing in 2022 with the addition of V2500 and GE90 lines. "In addition, we are continuing to expand our APU business significantly." Reed and his team have also driven a major new option for all PBH operators, mainly focused on 787 and A350 platforms and single-aisle fleets with the highly creative Aero Inventory Management (AIM) programme, tailored towards smaller single-aisle fleet operators.

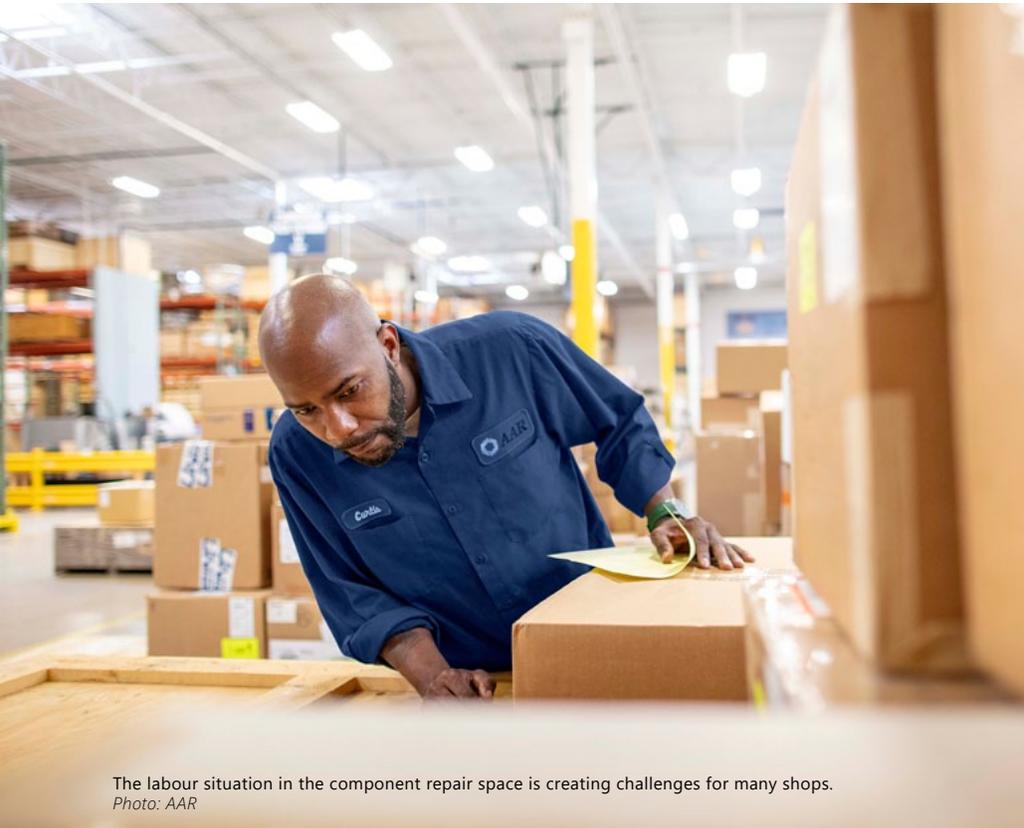
"Essentially, operators will get all parts needed for their operation at a fraction of the cost of a typical PBH programme.

The needs and changes we see already from operators in this area are in high demand. And finally, our logistics business is further ramping up, driven by operators focusing more on flying the aircraft rather than managing supply chains," Reed tells.

COVID created some upheaval in the component services space as many agreements were revealed to be overexposed to the risks of unprecedented reduction in global flying, observes Chris Fiddes, AAR VP Commercial Programmes, Consumable

“Coming out of the pandemic the market is figuring out how to balance risks for both operators and providers which creates opportunities for partnering rather than a traditional operator and supplier relationship.”

Chris Fiddes, AAR Corp



The labour situation in the component repair space is creating challenges for many shops.
Photo: AAR

time, making their incumbent team more efficient.

He says further, another benefit of incorporating such a system is that it becomes much easier to scale up and down depending on changes in air travel demand than always trying to balance the right level of labour resources.

Brakmann reckons the biggest trend currently is the continued digital transformation of the airline industry, which is especially impactful for aircraft component and parts management having been traditionally very labour-intensive and a manual process.

At SkySelect, they have highlighted one such technology: eProcurement-as-a-Service (ePaaS). Brakmann explains that the ePaaS service is poised to become an increasingly important commercial strategy for airlines and ePaaS is a technique and long-term management strategy that ensures that financial resources are used at the highest level of efficiency. "The most important feature of ePaaS is increasing efficiency and saving time. This allows airlines to stay resilient even during the most turbulent times," says Brakmann.

With operators having gone through two years of hardship, falling margins and mounting losses, now must maximise

and Expendables. He says coming out of the pandemic the market is figuring out how to balance those risks for both operators and providers which creates opportunities for partnering rather than a traditional operator and supplier relationship. "With the uncertainty that surrounds the pace of recovery opportunities exist for suppliers who can offer flexible arrangements that minimise the contract [re]negotiation that might have to take place if flying doesn't return at a pace or volume that matches expectations."

Fiddes is certain growth opportunities exist in the new generation of aircraft that continue to dominate the orderbooks. AAR is focused more on the narrowbodies (737MAX, A320Neo) than the widebody space.

Erkki Brakmann, CEO at SkySelect notes that one of the major lessons taught from the pandemic is that airlines need to become more adaptable, agile, and efficient. He says one of the best ways to do this is by leveraging digital tools such as 'Recommendation Engine' which automates much of the parts procurement

process by leveraging sophisticated algorithms – "Instead of hiring more people to search for suppliers of specific parts manually, airlines can now let machines aid in the work and match the right RFQ to the right supplier at the right



“ Instead of hiring more people to search for suppliers of specific parts manually, airlines can now let machines aid in the work and match the right RFQ to the right supplier at the right time. ”

Erkki Brakmann, SkySelect

Erkki Brakmann, CEO SkySelect.



Barry Swift, SVP Operations, AJW Group

their revenue and margin as the sector recovers - Barry Swift, SVP Operations at AJW Group says MRO solution providers who can provide high levels of availability and consistency will thrive; because like cash; repair delivery performance and materials availability is king.

Swift indicates that the conflict of supply chain constraints and increasing delivery expectations, mean that solution providers must think 'integrated supply chain'. "This involves working far closer with customers and supply chain partners, to understand the supply chain vulnerabilities that exist, and how to overcome them."

The key area of growth or focus at AJW is in ensuring that they can meet and exceed operator expectations, as they start to return to pre-COVID flight levels.

Swifts says the needs of the operators to have full component availability at a time when the supply chain is heavily challenged, post-pandemic, initially looks like an undeliverable balancing act.

"It's causing us to have to get our magnifying glass out and work with our suppliers in a far closer way than we may have done previously, for example not just understanding which components need to be carefully managed, but also

really getting down to a level of detail in us understanding sub-component supply. Effectively we are at the forefront in managing one of the largest aviation volume ramp ups in history."

Consequently, Swifts adds AJW must leverage and work with the OEM partners closer than ever before – "If our partners have parts supply issues, then we collaborate and agree temporary alternate sources, whilst they get their inventories under control."

Swift also reminds that the ability to shift geographical component repair supply, to meet the demands of the different regions is another balancing factor.

Pete Allwood, VP Business Development EMEA at APOC stresses that now more than ever cost is the biggest factor and not only the cost of the part itself, but also the other costs associated with procurement, especially shipping. "Of course, service is an important factor too, but there is a lot of competition in the marketplace, so everyone is being pushed to keep overall costs as low as possible."

With the price of shipping going through the roof, Allwood feels one way to manage this is to make sure you have the right parts in the right place, at the right time. "Having dedicated stock hubs close to your key customers around the world, as we do at APOC, is without a doubt a huge advantage saving our customers both time in receiving stock as well as money on shipping."

APOC also offers a range of solutions including exchange pool support, consignment agreements, repair-on-hold agreements etc – "All of which drive down the initial cost of acquisition but still ensure availability of the parts they need at any given time," says Allwood.

One of the key areas of growth in the sector are consignment programmes. At APOC they have noted a significant increase in interest from customers asking for consignment agreements and repair-on-hold support, for instance.

Allwood says end users (airlines) or companies that provide airlines

directly with support contracts, are also increasingly looking to loan stock rather than buying outright. "This isn't a new approach, as it has always been an attractive way for businesses to reduce large upfront investment and maintain cashflow, but it is becoming increasingly popular."

As the industry slowly returns to more normal levels of activity, APOC is also seeing demand for high value items, such as APUs, nacelles, etc., increase again. Repair or replacement of these components, which could have been delayed for some time due to uncertainty over COVID, are starting to reignite, Allwood notices. "Along with this, we see an increase in demand from brokers looking to stock up on these hot items, and from repair shops wanting to ensure they have enough material to support the incoming flow of repairs from their customers."

Partnerships are a win-win situation

Reed from Flight Solutions Group feels the OEM and aftermarket will continue to converge further in the coming years. He notes that to maintain service levels with operators on service-based products, turnaround times are the single most critical item to keep costs low as a service



Pete Allwood, VP Business Development EMEA, APOC

provider. "Therefore, we are driven more towards a smaller base of partners, producing a more significant value in the overall capabilities required for our services. This allows us to negotiate a more efficient contract that includes no-cost exchanges and enables the partner to increase their short and long-term business."

The increased consolidation of the aftermarket and OEM is a win-win and can be managed with the OEMs going forward, Reed believes. "Those entities are also looking to grow their repair businesses post-COVID and readily have spares available for exchanges due to the overall airframe contract requirements when they signed up for the production line," he says.

At SkySelect, they see technology being the catalyst for a stronger and more visible supply chain, which includes real-time delivery tracking — where buyers and suppliers alike will benefit. "We are stronger together, and this automation will lead to more transparency and more inclusion throughout the process," indicates Brakmann. He feels this will grow and strengthen relationships by having more players involved, but also the right players.

It's clear that the last two years of sector turmoil has changed the dynamic in the industry, it's driving far closer strategic alliances between players like AJW and OEM partners, creating longer term strategic contractual relationships, driving them to step their game up, in terms of delivery performance.

Swift says the next tier down of suppliers are also seeing a more simplistic approach to delivery performance expectations, in summary, the market will not and cannot endure sub-optimal delivery performance going forward—"So this is causing us to make strategic decisions about a simpler and far more nimble supply chain, those supply chain partners that can deliver will thrive and those that cannot; despite our best joint supplier development efforts; will have to be deprioritised."

From a software perspective

Chris Clements, Sales Representative,
Swiss AviationSoftware

From an M&A software provider's view, it is primarily focused on integration. The AMOS community is using AMOS to manage their fleet and in turn their component planning. The high degree of control from a configuration perspective is well covered so they have a clear overview of when scheduled maintenance will be required on all components that are tracked in AMOS, whether they are installed on the aircraft or on the shelf in their stores. AMOS also takes the utilisation of the stock to another level by allocating stock to maintenance events using rule engine based logic. Available stock or parts on open orders will be allocated according to a variety of parameters such as ownership, contract conditions, shelf life and storage limits as well as the configuration of the aircraft. This means also having to consider the modification status of both the aircraft and component to ensure that the component issued to the aircraft is applicable.

By accurately managing the demand for components we then need to consider how to meet that demand and within AMOS, the material planners and procurement personnel have tools available that will propose the most ideal vendor and quantity to source and allow seamless exchange of data using SPEC2000 standards and dedicated APIs to transmit the demand to the vendors.

The requirements of our pure MRO customers are slightly different in that they are not managing components, instead they are often supplying the consumables and expendables as part of an MRO contract. The focus then turns to ensuring adequate stock without overstocking resulting in higher storage costs and risk of parts expiring on the shelf. AMOS has traditional ML algorithms in place to manage this and we now plan to implement AI to further enhance the material planning and procurement process. By taking into consideration additional parameters such as the aircraft age or even weather conditions, AMOS will forecast even more accurately the stock required allowing the procurement team to meet the demand of the business with ever greater accuracy and thereby managing cost.



Chris Clements, Sales Representative,
Swiss AviationSoftware



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This year will see a higher number of planned lease returns
Photo: Keith Mwanalushi

Managing **transitions** during periods of change

Keith Mwanalushi examines the asset recovery and transition services market post-pandemic and the ongoing push for digital records management.

Aircraft and asset transitions are a complex undertaking and even more so during times of crisis. For the aircraft lessors, the COVID downturn and the sanctions slapped on Russia by the EU, UK and US are a twofold blow as they scramble to reclaim leased aircraft out of Russia.

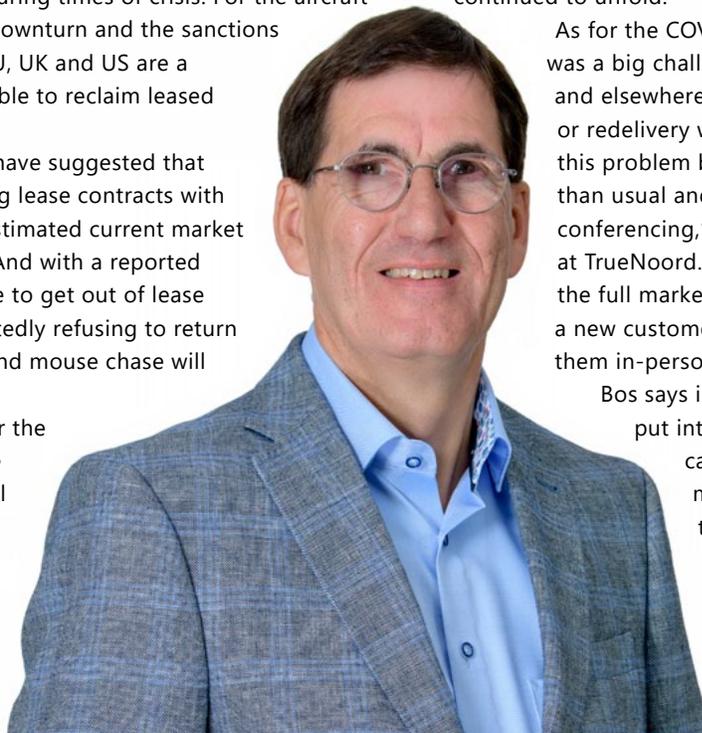
Experts at ACC Aviation have suggested that 597 aircraft are on operating lease contracts with Russian carriers worth an estimated current market value of just under \$15bn. And with a reported end of March 2022 deadline to get out of lease contracts, and Russia reportedly refusing to return the leased planes, the cat and mouse chase will likely drag on far longer.

This is not good news for the lessors as some of them are small time investors and will likely seek to offload their assets because they don't have the deep pockets to handle the crisis compared to the bigger players like AerCap who are reeling with the loss of revenues

from Russian customers. At the time of this writing, the saga continued to unfold.

As for the COVID scenario, during the pandemic, it was a big challenge to send inspectors from Europe and elsewhere to the country where a transition or redelivery was taking place. "We addressed this problem by hiring more local consultants than usual and making extensive use of video conferencing," recalls Jack Bos, Technical Director at TrueNoord. "In one case, we even completed the full marketing and delivery an E-190 aircraft to a new customer without having ever actually met them in-person," he mentions.

Bos says in some instances aircraft had to be put into storage after redelivery, but in those cases TrueNoord elected to perform monthly engine runs rather than put the aircraft in long-term storage. "This increases the monthly storage costs but is beneficial in preventing large amounts of component changes during the subsequent storage reactivation. This ensured that we could return the aircraft to service



Jack Bos - Technical Director, TrueNoord



Aircraft technical records are increasingly going digital.
Photo: AAR

missing documentation.

A transition is a highly data driven and complex process, where correct and accurate data is the key driver for a successful and smooth transition. "Unfortunately, such data quality is regularly missed as old operators and CAMO's have seldom prepared properly," notes Bernhard Meier, CEO AMROS Innovations and Managing Partner.

AMROS has recently launched its inhouse developed software solution LISA to manage the transition and redelivery documentation structured following the A2K standard as required by owners and operators. "This step has allowed us to improve the efficiency and effectivity of the transition processes to create an accurate dataset and assessed documentation by AMROS experts," Meier tells.

Meier further explains that traditional document management tools are storing documentation as they are provided by MRO's and stored accordingly in date and check sequence. "Due to the massive size of MRO provided documentation, the quality and quantity is rarely reviewed completely by airlines and therefore documentation and data gaps may not be detected in due time."

With a proper preparation of delivery documentation and its correct data combined with the status of the aircraft,

as quickly as possible when a new lease with a client was in place."

The pandemic left most of the airline operators with no choice but to adopt aggressive survival tactics to address the global downturn in passenger demand. Ian Davies, General Manager at London Stansted-based Gamit Ltd believes challenges will persist in 2022, with a higher number of planned lease returns as airlines opt out of extending or renewing lease agreements. "This is evident with older aircraft technology or with airlines modernising to more fuel-efficient assets. There is little doubt that airlines will want to transition surplus assets out of their fleets as quickly and efficiently as possible. This is all against a backdrop of a reduced skilled workforce to meet this spike in demand."

A growing number of senior airline executives accountable for managing the efficient transition of aircraft assets are leveraging the power of digitalisation to support the management of End of Lease (EOL) or Entry into Service (EIS), using new technologies in the market like ROAM to optimise project timelines. Davies highlights that the effective management of aircraft records is a critical component of any redelivery project. For example, a seven-year-old aircraft is likely to generate over 100,000 documents during its leased cycle period.

ROAM a solution by Gamit, an advanced online aircraft records archiving and end of lease platform which uses powerful automated search functions to present aircraft engineers with suggested compliance documents to support the build of end of lease status reports such as AD's, SB's, hard time, etc to comply with end of lease agreements. In fact, a recent study highlighted airline overspends relating to the redelivery of aircraft can exceed U\$2m, with a significant portion being attributed to



Ian Davies, General Manager, GAMIT

“A central, secure, and trustworthy aircraft records management solution is a critical part of any digital ecosystem. The ability to assemble, index, organise and validate airworthiness records to manage back to birth traceability, is no longer an arduous task of sorting through hundreds of pages of physical documents.”

Ian Davies, Gamit Ltd

Due to the massive size of MRO provided documentation, the quality and quantity is rarely reviewed completely by airlines and therefore documentation and data gaps may not be detected in due time.

*Bernhard Meier,
AMROS Innovations*

differences to contractual delivery and redelivery conditions become apparent and cost saving maintenance initiatives can be initiated well in advance of the transition, Meier suggests – “Such early document assessments are preventing airlines from costly activities at short notice prior delivery.”

Fresh from signing a new digital records management and technical services deal with Wizz Air, flydocs is working with operators to manage assets in line with lease return or transition requirements. André Fischer, Chief Executive Officer at flydocs throws light



André Fischer, CEO, flydocs



Bernhard Meier, CEO AMROS
Innovations and Managing Partner.

on the process saying through established API feeds to their digital records management platform, they receive aircraft configuration data from clients’ M&E platforms such as AMOS and TRAX and the flydocs machine learning and AI enabled software automatically matches M&E data with corresponding documents – “By doing this in real time, it removes the additional workload to support transitions on top of daily work or daily airworthiness compliance.”

Through continuous implementation of AI into multiple areas of the digital platform, Fischer is confident of getting closer to realising the vision of making an aircraft transition a ‘drag and drop’ exercise. He says if an operator is not signed up to one of the software packages, flydocs offers aircraft transitions as one-off projects supported by engineers either on-site, or remotely.

Russel Oehms, Magnetic MRO Fleet Airworthiness Controller in Australia adds that having a good understanding of the leasing companies’ requirements, and the differing regulatory requirements across multiple countries for export and import, is paramount in the successful planning and execution of this work. He says once all these conditions have been clearly identified, working through the Aircraft

Records and Dirty Finger Prints (DFP’s), to ensure compliance can be accurately demonstrated with documented evidence.

“The process of working through the end of lease transactions becomes very straight forward, in order to deliver aircraft that satisfy the leasing companies and operator’s requirements, and also meeting the regulatory requirements for transition to possible new aircraft operators,” states Oehms.

Oehms stresses that Magnetic MRO fully supports assisting operators with the introduction and use of modern digital aircraft records management systems – “With more options becoming available in the market for electronic records management, Magnetic is proactively and strategically aligning itself with several of the key players in the market, to be able to work with customers, both old and new, to provide practical advice that will assist them in finding the correct digital records system to suite their particular needs,” he says.

At The Aircraft Group – a division of Kellstrom Aerospace, they work directly with the asset owner prior to the transition in the planning and contractual phase to ensure redelivery requirements are well documented contractually and communicated to the technical and



Russel Oehms,
Magnetic MRO Fleet Airworthiness Controller



Navi Maharaj, Vice President, Head of Technical,
The Aircraft Group

commercial transition teams. Navi Maharaj, VP, Head of Technical feels that is invaluable when it comes to ensuring a smooth and efficient transition by leaving nothing left to the unknown or up to "interpretation" regarding actual delivery requirements.

Maharaj stresses that fully digitised records greatly relieve the risk of lost or destroyed historical trace documents. He indicates that the Aircraft Group was an early leader in developing its own in-house digital records archiving and tracking platform called Tag Fleet Online, which has a US patented search engine built in.

Ros from TrueNoord advises to start the process at least three months before redelivery with a detailed inspection of all maintenance records. "We request that lessees upload scans of their records to an internet application that has a directory structure in accordance with the IATA document [Guidance Material and Best Practices for Aircraft Leases]. Using this structure ensures that we receive all relevant records in the first instance."

He says special attention is required for any damages and repairs that are present on the aircraft and there should be damage and repair mapping provided that shows the exact location

of each area of damage and repair. Ros continues to say the aircraft should then be carefully inspected to guarantee that the mapping is complete. "For each repair that has been conducted, there should be approved data that describes how the repair was carried out and a signed work order that shows that the repair was performed in accordance with the approved data documentation - we use specialists who conduct the reviews of these repair files."

Another area of particular attention during the pandemic has been storage records – "Without adequate storage records that show that the correct OEM approved procedures have been followed during storage, it can be necessary to send engines for shop inspection and recertification. A costly process that can easily be avoided if the right procedures and records are in place from the start of any storage time," Ros adds.

Ensuring documentation meets all compliance standards

Having the records located in a central location is key to managing an end-of lease transition project, mentions Davies from Gamit. He says most airlines have now moved across to PDF (A) file storage systems but may continue to maintain paper record storage facilities until there is a global adoption and acceptance of digitalised records by regulators. "The

scale and complexities supporting the archiving of aircraft records has led to the development of solutions like ROAM which is able to automate and streamlines repetitive business processes to provide an on-demand and easy access to stored records as well as build compliance status reports to support contractual redelivery mandates - achieved in hours rather than weeks."

Davies indicates that ROAM's compatibility with most maintenance planning software solutions provides engineering teams with the assurance that all maintenance event documentation has been verified, quality checked and stored in ROAM – "As a consequence, mitigating the risk of missing or lost documents at the time of redelivery and protecting overrun on budgets."

The digital revolution is certainly upon us. Solutions by players like AMROS will no doubt also transform the documentation process into the digital transformation era. And as the future of digitalisation continues with e-log solutions in the cockpit, cabin and maintenance, a parallel operation considering both data sources will remain over a longer period – "However a standardised processing of data and the linking of original data sources will be the key for any future digital transformation," Meier concludes.



There are around 597 aircraft on operating lease contracts with Russian carriers.
Photo: S7 Technics



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Q & A

In the hot seat...

Joe Kuhn
CEO, Contrail

What attracted you to this industry?

I had been searching for a career for most of the 12 years since graduating high school in 1979, holding dozens of jobs, doing everything from running a lathe, CAD design and pre-press for a large printer to selling tool steel, glue dispensing equipment and bulk motor oil. In 1991 I was introduced to a couple of pilots flying for Midwest Express and I thought to myself, I can do this and two months later I obtained my private pilot's license with the idea of pursuing the additional ratings required to fly commercially. Well, that did not pan out, but I did end up interviewing with AAR, which led to my first job in this industry at Mitchell Aircraft in Cary, IL. I owe my entire career to Dick Sebion and Doug Raupp (who recently passed away). They were incredible mentors and had they not given me a chance, I do not know where I would be today.

What does a typical day involve in your role?

When we started Contrail 22 years ago, I managed everything but the accounting function. Purchasing, sales, quality, shipping and receiving and there were many long hours and seven-day working weeks. We did not have a part or even a single customer at the time. Today Contrail is an approved vendor to every



Contrail's warehouse facility.

CFM56 and V2500-A5 engine shop worldwide. Five years ago, the majority of Contrail was acquired by AirT and we have since created a successful whole asset leasing and trading platform that is aggressively building a portfolio of on lease engines and aircraft. I have a very experienced and competent team that manages many of the functions I previously performed myself. My main responsibility now is ensuring Contrail stays the course and executes our growth strategy.

Are you seeing much recovery in the market for your services?

Yes. During peak COVID, business had come to a complete standstill, it was extremely challenging. Contrail has always thought of our employees like family, so we hunkered down and avoided any layoffs. I am happy to say that we are seeing genuine signs of recovery both on the USM and leasing platforms. In fact, Contrail recently recorded a record USM sales month. Additionally, we are in the process of executing on the first acquisitions for our recently announced joint venture.

Briefly, what notable trend are you seeing in the trading and leasing sector?

Pre-COVID, there was a lack of strong on lease and teardown assets available for

engine. Then in 2008, we transitioned to the CFM56-3. Combined, we acquired and disassembled over 200 of those engines in addition to purchasing tens of millions of dollars' worth of USM to supplement our teardowns to meet our customers' requirements. The number of engines powering the current generation 737NG and A320ceo fleets exceeds the total production of the combined JT8D and CFM56-3 fleets. Contrail is very well positioned to take advantage of the opportunity being created by the intersecting increase of retiring aircraft



Contrail works with older mid to end of life engines.

acquisition. We anticipated there would be an event that caused an industry reset after years of record growth and profitability, of course we could never have anticipated COVID. Today there is no lack of on lease portfolios and teardowns coming to market, though we believe pricing is still on the high side, driven by seemingly endless amounts of capital entering the space.

What is the landscape for USM demand and supply on your engine platforms?

We are entering a period of record opportunity for the USM side of our business. When Contrail started, our focus was the Pratt & Whitney JT8D

and many years of robust demand for current gen CFM and V2500 USM.

Are you seeing a resurgence in demand for older engines following the pandemic?

Frankly, that is all Contrail works with are older mid to end of life engines, be they serviceable or teardowns.

What are your priorities for 2022?

Pre-COVID, in 2019, Contrail had achieved record profitability. For 2022, our short-term goal is to achieve similar results while at the same time identifying solid opportunities to deploy capital and grow our leasing platform on behalf of our investors.

»»»» → on the move



France Caissy and Patrick Ramsey

JMC Group, a trusted provider of aviation manpower and engineering services, headquartered in Southwest UK, is strengthening its North American activity, having launched in Canada in June 2021. Experienced Recruiter **Patrick Ramsey** joins the business in Montreal, bringing nearly five years' experience as a Senior Recruiter. Ramsey previously managed a team of recruiters supporting clients in Canada, the USA and Mexico. Customers included major global aircraft manufacturers and suppliers. He will be working with **France Caissy**, who leads JMC Group in the region. JMC Group founded in 2008, is a trusted global provider of recruitment and engineering services to the aviation and aerospace industries. It supplies fixed price, permanent and contract candidates to a portfolio of airlines, OEMs, MROs, leasing and asset management companies and component overhaul organisations. Headquartered at Exeter Airport, UK, with complementary bases in London Stansted, Canada, Malta, Budapest and Sofia, it is managed by highly experienced professionals with expertise in civil and military aviation, as well as the recruitment sector.

Mesa Air Group has named **Christian Daoud** as its new Vice President of Maintenance and Technical Operations. Daoud is currently Senior Director of Technical Operations at Mesa and first worked for Mesa as a Lead Aircraft Mechanic in 2006. He will be taking over from Chris Toro and reporting directly to Executive VP and COO **Brad Rich**. Daoud has progressed quickly in maintenance operations. After beginning his aviation career with Mesa in 2006 as a mechanic, he went on to Hawaiian Airlines as an engineer. He then moved on to Allegiant where he held progressive positions as engineer, Manager of Aircraft Systems Engineering and then Manager of Aircraft Deliveries.

After serving for several years at Allegiant, Daoud took on the role of Field Rep for Pratt & Whitney. He spent three more years in various managing roles back at Allegiant and then joined Airborne Maintenance and Engineering Services as the Director of Engineering. In 2021 Daoud finally returned to Mesa as Senior Director of Technical Operations.



Dirk Hoke

Dirk Hoke, former CEO of Airbus Defence & Space, has been named as Chief Executive Officer and Managing Director of Volocopter, the pioneer of urban air mobility (UAM) by the company's Advisory Board, starting September 2022. He will follow **Florian Reuter**, who has led Volocopter from a five-person start-up to a 500-strong global company with unicorn status over the past seven years. Hoke brings extensive experience in leading big tech entities within Airbus and

Siemens from a technical, strategic and commercial side. His strong track record in transformation and digitalisation made him the candidate of choice. Volocopter makes the dream of electric flight in cities come true and aims to be the first UAM developer to go to market.



Shawn Black

GKN Aerospace has announced the appointment of **Shawn Black** as President of Defence, bringing significant aerospace and defence leadership experience to the business. Black started his career as a United States Marine Corps Officer before moving into the industry 22 years ago. During that time, he has achieved a consistent record of strong financial and operational performance growth in senior leadership and operational roles across military and

commercial markets. His background includes senior roles with companies such as Leonardo DRS, Cobham Plc, and Cobham's Advanced Electronic Solutions (CAES) where he served as COO then CEO.



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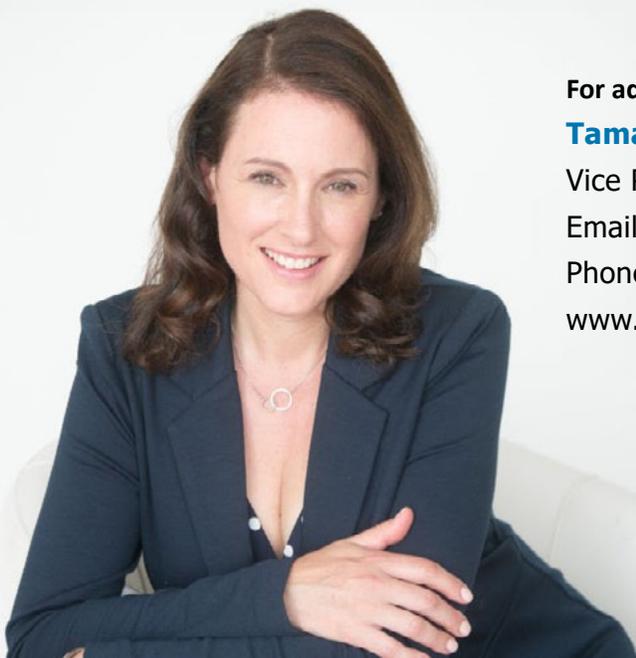
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