MRO

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Delivering Power

Engine services report

A New Generation of Components

Q&A: Aircrafters Inc.

MRO News from around the world

People on the Move latest appointments

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Opinion

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Covid-19 will represent another challenge for MRO

Earlier this month, Alton Aviation Consultancy released an interesting report well worth reading about the implications of Covid-19 on the commercial aviation market. Since the beginning of the pandemic, the report says the number of scheduled flights were down by 65% in the first week of June 2020 as compared to the same week in 2019. That is an eye watering figure! Alton predicts global airline MRO spend will decline by 48% in 2020.

Likewise, experts at Oliver Wyman projected that based on the trajectory for fleet reductions and lower aircraft utilisation, global demand for MRO in 2020 would reduce by more than $48 billion, or 53% from their original pre-Covid forecast of $91.2 billion. Their experts reckon all regions of the world will experience declines of 40% or more.

Engine MRO is our big topic of the month and we have discussed the various strategies that are keeping engines turning during and after the current downturn. Several engine shops globally have had to suspend or reduce output during the pandemic and consequently having an impact on current and upcoming output. It has been stimulating to see and learn how the different MROs and aftermarket specialists are tackling the issues and the outlook for

the coming months. The second part of our Engine Maintenance Report will continue in the July edition.

Among other topics, we've also looked at the aircraft graveyard problem in America and Europe, the financial implications to the industry and aircraft leasing companies, the conventional ways of dealing with retired aircraft, and how to use out of service aircraft to advance a much more financially-sound, sustainable, environmentally-friendly and socially-conscious business model.

Happy reading and stay safe!

Keith Mwanalushi
Editor

Global airline MRO spend could decline by 48% in 2020
Photo: British Airways

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Hand sanitiser dispenser
Photo: HAECO

HAECO Cabin Solutions launches lavatory upgrades for hands-free operation

HAECO Cabin Solutions, a business unit of the HAECO Group with headquarters in Greensboro, North Carolina, U.S.A., has launched three devices to upgrade aircraft lavatories to hands-free operation. The pre-certified devices include an electric foot-controlled switch for flushing toilets, an infrared sensor-based waste basket lid for disposal of toilet waste and a refillable hand sanitiser dispenser, eliminating the need for disposable sanitising wipes and paper towels. The dispenser may also be used in other areas of aircraft interiors.

Colibri Aero and J&C Aero to develop cargo containers for Airbus and Boeing wide-body passenger cabins

Colibri Aero, an international supplier of aircraft parts and interior solutions, together with J&C Aero, an international aircraft design and production organization, have announced the development of cargo containers for wide-body passenger cabins thus allowing cabin conversion between passenger and cargo operations within just 24 hours. The Cargo Containers come in five different sizes and are designed for wide-body passenger cabins of Airbus A330, A340 and Boeing 767, 777 jets. Each equipped with its own smoke detector, the Cargo Containers are intended for temporal replacement of passenger seats while converting the aircraft's cabin for transportation of cargo of any type. The initial modification will be intended for use in cabins with the supervising cabin crew members. After certifying Cargo Container under EASA STC requirements, J&C Aero and Colibri Aero plan to upgrade the modification for other aircraft types and size variations. "While developing Cargo Containers, our main focus was safety, the volume of cargo, and the time required to change the seats with containers and vice versa. With one container being able to transport up to 850 kg (1870lbs.) of commercial cargo, a typical Airbus A330 cabin can be converted in just 24 hours fitting 36 containers. This means that almost 27 tons (58,640lbs) of cargo per single flight can be transported inside the passenger cabin. We see stable demand for this product not only in the nearest future but also in a longer perspective as the aviation industry adapts to the new, post-COVID-19 world," says Laurynas Skukauskas, Chief Commercial Officer,J&C Aero.

GKN Aerospace obtains FAA certification for aero-engine parts repair facility in Malaysia

The Federal Aviation Administration (FAA) has issued the base certification to GKN Aerospace's Johor facility in Malaysia for the repair of CFM56 aero-engine parts. The site will focus on servicing engine low-pressure compressor (LPC) components for the CFM56-5B, CFM56-7 and V2500. The facility will complement GKN Aerospace's existing component repair facility in El Cajon, California. In addition, the Johor site, in collaboration with other GKN Aerospace sites and local universities, will research the application of additive manufacturing technology into engine parts repair. Around 70 employees are currently on site in Malaysia to support the initial phase of the business. Strong growth in capabilities and people is expected over the coming years. GKN Aerospace has invested US$30 million in both the facility and its state-of-the-art equipment and technologies. The expansion to Asia is an important part of GKN Aerospace's long-term growth strategy and global operating model.

Photo: GKN Aerospace Johor site, Malaysia

Photo: Honeywell UV cabin system

Honeywell to introduce ultraviolet cleaning system for airplane cabins

Honeywell and Dimer LLC have announced a partnership to bring an ultraviolet cleaning (UVC) system to airlines that, when properly applied, significantly reduces certain viruses and bacteria on airplane cabin surfaces. The Honeywell UV Cabin System can treat an aircraft cabin in less than 10 minutes for just a few dollars per flight for midsize-to-large airline fleets. "This offering is a big win for our airline customers, which are seeking affordable ways to clean their cabins effectively and quickly between flights," said Mike Madsen, Honeywell Aerospace president and CEO. "Honeywell is working on a range of solutions to help make passengers more comfortable about flying." The Honeywell UV Cabin System is roughly the size of an aircraft beverage cart and has UVC light arms that extend over the top of seats and sweep the cabin to treat aircraft surfaces. Properly applied, UVC lights deliver doses that medical studies find reduce various viruses and bacteria, including SARS CoV and MERS CoV. Results vary based on UV dosage and application, and no testing has been done specifically on protection against COVID-19. Dimer and Honeywell have entered into a worldwide, exclusive license as part of a strategic partnership for Honeywell to produce, advertise and sell portable UV technology devices for use within the aerospace industry. Honeywell is currently in discussions with multiple airlines and service providers for the UV Cabin System. UVC has been used in hospitals, air and water filters, microbiology labs, and other applications.

AAR manages logistics of MRO services for BASF Deoxo™ ozone and VOC converters in compliance with new ACMMs

BASF has appointed AAR as a preferred distributor of Maintenance Repair and Overhaul (MRO) services for Deoxo™ aircraft cabin ozone/volatile organic compounds (VOC) converters in compliance with the new abbreviated component maintenance manuals (ACMMs) released earlier this month. As announced earlier this month, BASF has updated its ACMMs for the Deoxo™ portfolio for the Airbus A320, and A330/A340. The updated ACMMs redefine the test procedures and service methods for maintaining the converters to ensure continued industry-leading performance. Proper testing includes functional checks of both ozone conversion efficiency and change in air pressure through the converter. These functional checks are currently included in BASF's MRO services, which have been managed by AAR since April 2019.

Photo: Element Materials Technology

Element invests in aerospace capabilities in Montreal

Element Materials Technology (Element) has invested in aerospace testing capabilities at its Montreal, Quebec laboratory. Formerly known as Exova Pointe-Claire, the laboratory was traditionally used for transportation and industrials testing with a focus on rolling stock. Element recognized that the laboratory's proximity to other key players in the Quebec aerospace industry and converted operations in Q1 to provide customers with easier and more efficient access to Element's highly renowned testing expertise. One of the key benefits to potential customers in the sector is the option to place orders in Canadian dollars, while retaining Element's full suite of testing provisions across all of its North American locations. Element's Montreal expertise includes materials characterization, such as tensile and compression, impact, hardness, as well as metallography (microstructure, grain size, and microscopy); atmospheric corrosion testing (salt spray); failure analysis; and weld evaluation. Rick Sluiters, EVP of Aerospace at Element, said: "Given the strength of the aerospace sector in Canada, and the number of primes located in the Quebec region, we recognized the advantage of utilizing our Montreal laboratory for this industry. Not only does it allow for more efficient access, it also opens the full scope of North American capabilities to Canadian business. For example, customers can access Element's Cincinnati centre of excellence for fatigue testing, while placing the order within Canada and in that currency." Element Materials Technology is a leading testing, inspection, and certification supplier across both the commercial and military aerospace sectors. With 29 Nadcap-accredited laboratories – 13 of which are in North America – and more than 3,000 technicians, engineers and scientists dedicated to the sector, its customer approvals, technical expertise, and geographical footprint are unrivalled in the industry.

Aero Controls expands repair and overhaul capabilities

Aero Controls continues to expand its repair and overhaul capabilities with the addition of its Emergency Equipment Shop which has the capability to service and test charged cylinder assemblies, evacuation slides and rafts, aspirators and survival kits. The company has delivered its first A320 and 737NG evacuation slide hip-sets to customers. Aero Controls continues to invest in new capabilities to better support its customers.

Bombardier Aviation to reduce workforce by 2,500 employees

Bombardier Aviation will adjust its workforce to align with current market conditions reflecting the extraordinary industry interruptions and challenges caused by COVID-19. When the pandemic first arose, Bombardier Aviation responded quickly, suspending manufacturing operations to support local government efforts to slow the spread of the virus and to protect the health and safety of employees, partners and customers. Over the past month, Bombardier Aviation, guided by health professionals and industry best practices, implemented comprehensive procedures and safeguards to further protect employees and communities as manufacturing operations resumed. Now with business jet deliveries, industry-wide, forecasted to be down approximately 30% year-over-year due to the pandemic, Bombardier must adjust its operations and workforce to ensure that it emerges from the current crisis on solid footing. Accordingly, Bombardier Aviation has decided to reduce its workforce by approximately 2,500 employees. The majority of these reductions will impact manufacturing operations in Canada and will be carried out progressively throughout 2020. Bombardier's worldwide customer service operations have continued to operate largely uninterrupted throughout the pandemic. Bombardier expects to record a special charge of approximately CA$40 million (US$30 million) in 2020 for this workforce adjustment and will provide further information on its market outlook when it reports its second-quarter financial results on August 6, 2020.

Photo: Bombardier


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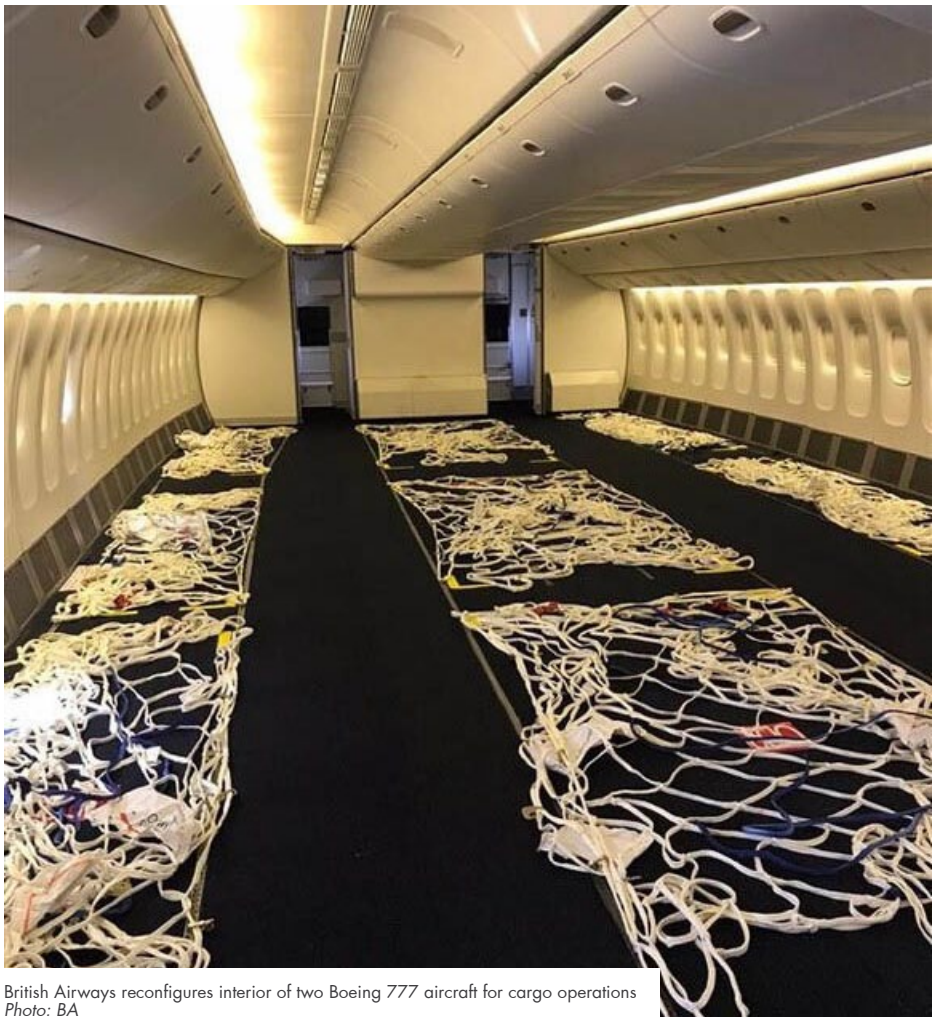


British Airways reconfigures interior of two Boeing 777 aircraft for cargo operations
Photo: BA

BA reconfigures Boeing 777 interiors to increase cargo capacity

British Airways has removed the seats and stripped the interiors of two of its grounded Boeing 777-200 fleet so the aircraft can operate as freighters and carry even more crucial cargo around the world. The first voyage of one of these aircraft in its new configuration will be to Beijing where it will collect PPE for the NHS. The aircraft will also be used to carry other essential goods like food and medicine to the U.K. where required, alongside regular commercial shipments. With demand for passenger travel still very low, working with IAG Cargo, British Airways is trying to use its grounded aircraft in creative ways to support in the global fight against Covid-19. In March, the airline began operating cargo-only services with no passengers, carrying cargo solely in the hold. In April, British Airways started carrying cargo on its seats, while these recent changes – removing all passenger seats and stripping the interiors – will mean these aircraft now have space for an extra 100 m³ of cargo on each flight.

Eirtech Aviation Services receives Cayman Island CAMO approval

The Civil Aviation Authority of the Cayman Islands (CAACI) has approved Eirtech Aviation Services as a Continuing Airworthiness Management Organization. This additional approval further increases the range of Eirtech's CAMO services available to customers from aircraft airworthiness management and ARC recommendations for lease transition aircraft to supporting airlines and operator CAMO requirements. Eirtech Aviation Services is an EASA Part M (Subpart G and Subpart I) approved CAMO organization. Its team of expert and highly experienced CAMO personnel are available to provide CAMO support for aircraft on EASA, 2REG, IOMAR, Bermudan registrations and now also the Cayman Islands register.

EFW delivers A330-300P2F freighter to DHL

EFW has delivered another A330-300P2F converted freighter to customer DHL. This will be the first High Gross Weight (HGW) converted A330-300 with a gross payload of more than 62 tons on the market. Two more 330-300P2Fs will be delivered to DHL in the course of this year with up to 12 additional A330s to follow for this integrator. EFW is the center of excellence for Airbus freighter conversions, with more than 20 years of experience and over 200 wide-body converted freighters delivered to over 40 customers worldwide. During the past months, the company has enjoyed increasing requests to convert an A330, but also concerning A321 conversions. The A330 program started at EFW in 2017 with the delivery of the first express cargo-optimized A330-300P2F to DHL. The A330-200P2F conversion from passenger-to-freighter aircraft is the sister product and was certified in 2018. In February 2020, EFW received supplemental type certification for its A321P2F conversion from the European Union Aviation Safety Agency (EASA).

EFW delivers another A330-300P2F frighter to customer DHL
Photo: EFW

Photo: Boeing Renton production facility

Boeing resumes 737 MAX production at Renton, Washington factory

Boeing has resumed production of the 737 MAX at the company's Renton, Washington factory. The 737 program has restarted at a low rate as the planemaker implements more than a dozen initiatives focused on enhancing workplace safety and product quality. "We've been on a continuous journey to evolve our production system and make it even stronger," said Walt Odisho, vice president and general manager of the 737 program. "These initiatives are the next step in creating the optimal build environment for the 737 MAX." During the temporary suspension of production that began in January, mechanics and engineers collaborated to refine and standardize work packages in each position of the factory. New kitting processes will also ensure that employees have everything they need at their fingertips to build the airplane. "The steps we've taken in the factory will help drive our goal of 100 percent quality for our customers while supporting our ongoing commitment to workplace safety," said Scott Stocker, vice president of 737 Manufacturing. The 737 program will gradually ramp up production later this year.

GA Telesis announces expansion and branding of newly created Flight Solutions Group

GA Telesis' Component Solutions Group (CSG) has recently completed a five-year expansion and transformation, becoming a global leader in integrated aviation aftermarket solutions including aircraft and engine teardown, parts sales, distribution, flight hour services, inventory leasing, APU management, and repair management. With the business growing nearly 300% over the recent span, CSG has become an integral part of the global airline and MRO supply chain. "Our product line growth, customer growth, job creation, and subsequent revenue and margin growth have been outstanding over the last five years," said Jason Reed, President CSG. "Much credit goes to this entire team for the hard work and talent growth we have exhibited over the period. The best part is that we have only just begun, and I am excited to announce the creation of the newly branded Flight Solutions Group (FSG)." FSG will encompass all the Component Solutions Group, as well as two newly created divisions. The integration and product line expansions are being demanded by CSG's customers around the world. These two new business units will manage both logistics and warehousing solutions, as well as all tooling and ground support equipment (GSE). The new groups will be branded as GAT Logistics Solutions Group (LSG) and Tarmac Solutions Group (TSG), respectively. They will initially be based out of Fort Lauderdale, Florida. The newly created Flight Solutions Group will be able to leverage GA Telesis' global presence, customers, access to capital, experience, and range of aftermarket services to more than double revenues of the newly created FSG group size by 2023. FSG's customers will now have the option to manage all aspects of their supply chain and maintenance needs, ensuring the highest level of operational efficiency available in the market.

Finnair signs ten-year Global Maintenance Agreement with ATR

ATR and one of its long-standing customers, the Finnish airline Finnair, have signed a ten-year Global Maintenance Agreement (GMA). Through this package, Finnair and Nordic Regional Airlines (NoRRA) – who operates Finnair's regional ATR traffic – will benefit from a customised support from ATR, which will help the airline better anticipate maintenance costs while enhancing the dispatch reliability of its fleet of 12 ATR 72-500. This pay-by-the-hour contract covers the repair, overhaul and pooling services of Line Replaceable Units, along with its door-to-door delivery and an on-site leased stock of spare parts. Finnair will also benefit from blades maintenance and availability, and maintenance recommendations based on ATR's expertise to enhance aircraft reliability.

Finnair signs ten-year GMA with ATR for Nordic Regional Airlines' fleet of 12 ATR 72-500
Photo: ATR

A220 FAL, Mobile, Alabama
Photo: Airbus

Airbus inaugurates A220 final assembly line in Mobile, Alabama

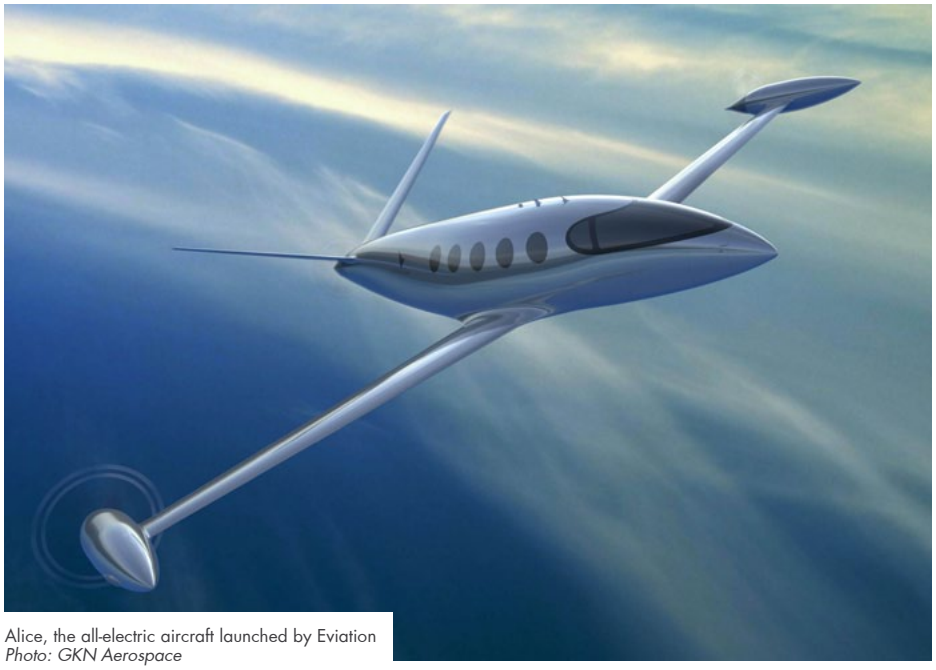
Airbus' U.S. production capabilities has begun with inauguration of the completed A220 commercial aircraft final assembly line (FAL) in Mobile, Alabama. The 270,000-ft² facility – which can produce both the A220-100 and A220-300 versions – houses five primary assembly stations where major airframe component assemblies come together for a completed aircraft. Airbus' production team in Mobile, Alabama also marked another milestone, welcoming the first component assemblies destined to become an A220 for JetBlue. This low-cost carrier will be the second airline customer receiving U.S.-built A220s when the aircraft is delivered in late 2020. Airbus announced plans in October 2017 for the addition of A220 manufacturing at Mobile – which is situated on the edge of Mobile Bay along the Gulf of Mexico. The company began producing A220s at Mobile in August 2019 using space in an existing Final Assembly Line hangar for U.S.-built A320 Family aircraft, and in newly constructed support hangars. With the start of operations in the dedicated A220 final assembly line, Airbus' production site in Alabama has now officially doubled in size.

DC Aviation Group receives contract to overhaul Challenger 605 including 48-month check

DC Aviation Group have been awarded a contract for the comprehensive overhaul of a Challenger 605 including a 48-month check, a cabin refurbishment as well as a Proline 21 Advanced Upgrade. The work will be carried out at DC Aviation's Stuttgart Maintenance Centre. The Proline 21 Advanced Upgrade includes the installation of Automatic Dependent Surveillance-Broadcast (ADS-B) equipment. This surveillance technology is already mandatory in the U.S.A. and the UAE since January 1, 2020 and will be mandatory in Europe from June 7, 2020. With this system, the aircraft can be tracked as it determines its position via satellite navigation and periodically broadcasts it. The upgrade also includes the implementation of the TOSE (Take-Off Safety Enhancement) system. Furthermore, a software upgrade of the 3rd VHF transceiver will be carried out to meet the Eurocontrol Link 2000+ mandate.

GKN Aerospace and Eviation sign collaboration agreement for all-electric aircraft Alice

The collaboration agreement GKN Aerospace and Eviation covers the design and manufacture of wings, empennage and electrical wiring interconnection systems (EWIS) for Alice, the ground-breaking regional electric aircraft recently launched by Eviation. The aircraft is aiming to change the way people travel, by making journeys of distances up to 650 miles more sustainable. GKN Aerospace is the world's multi-technology leader in design and manufacturing of lightweight aerostructures and EWIS systems, as well as being a key partner in the Airbus 'Wing of Tomorrow' program and market leader in lightweight business jet empennages. As part of GKN Aerospace's collaboration agreement with Eviation, design and manufacturing activities are already ongoing on-site at Eviation (Israel) and in several GKN Aerospace engineering centers across Europe. GKN Aerospace is using its world-leading capability in the design and manufacture of advanced lightweight aerostructures and EWIS - as proven on the Airbus A220, A320, A330, A400M, A350 XWB, Boeing 767 and 787, Dassault F6X, F7X, F8X Gulfstream G550, G650, G700 and the Lockheed Martin F-35 - to mature the design of the empennage, wing and EWIS of Alice.



Alice, the all-electric aircraft launched by Eviation
Photo: GKN Aerospace

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GAMECO starts first PTF conversion on a Boeing 737-800
Photo: GAMECO

GAMECO starts first B737-800 PTF conversion

On May 18, 2020, a B737-800 was towed into GAMECO hangar, marking the inauguration of its first B737-800 PTF (passenger to freighter) conversion after half-year preparation. Nowadays, under the pandemic prevention and control activities going on around the world, a serious shortage of capacity has been exposed in the air cargo market. With a surge in demands for all freighters, the opening of this GAMECO PTF production line can meet the increasing air cargo transportation demands home and abroad, as well as contribute to the capacity expansion of global air cargo market. It is the first time GAMECO has carried out a PTF conversion on a B737-800, a leap in GAMECO's maintenance capacity and a solid step forward to become a top-class MRO in the world. It is reported that the second B737-800 PTF conversion production line will be put into action in the second half of this year.

C&L Aerospace signs distributor agreement with ACR ARTEX

C&L Aerospace has signed a multi-year worldwide distribution agreement with ACR ARTEX for the company's entire aviation product line. This agreement, which includes over 50 different line items available for all aircraft types, encompasses survival products such as emergency locator transmitters (ELT) replacement batteries, ELTs, personal locator beacons, antennae, and more. C&L Aerospace specializes in supplying aircraft parts for regional aircraft such as the ATR, ERJ, Saab, and Beech 1900D, and corporate aircraft such as the Challenger, Global Express, Hawker, and BeechJet.

AKKA and Avianor join forces to offer EASA-approved Passenger-to-Freighter solution

AKKA Technologies and Avianor, the majority-owned affiliates of DRAKKAR's Aerospace & Ground Transportation Division, have signed a collaboration agreement for Avianor's Passenger-to-Freighter conversion solution, certified by the Canadian civil aviation authority (TCCA), and already embodied on several wide-body aircraft. In order to promote this solution to international markets, AKKA Technologies and Avianor have signed a framework agreement to certify the solution with the widely adopted European Union Aviation & Safety standards. As a leading global aerospace MRO & Cabin Modification player, AKKA Technologies is among the few companies able to provide comprehensive certification services by delegation to support the aerospace industry and its operators. Avianor, an aircraft maintenance and cabin integration specialist, developed an engineering solution and associated kits to remove passenger seats from an airline's aircraft and designate cargo loading zones for lightweight boxes restrained with cargo nets. For a Boeing 777- or Airbus A330-type aircraft, such modifications can be embodied within four days, providing the aircraft with additional cargo capacity of up to 19 tons. This modification can be easily extended to other aircraft types, providing most airlines and operators with an easy and comprehensive solution. The agreement between AKKA & Avianor will also give AKKA the 'rights to use' this engineering solution in order to respond to the urgent cargo conversion demand worldwide. While AKKA will support airlines requiring EASA certification, Avianor will continue to support airlines requiring TCCA certification and supply conversion kits for both EASA and TCCA customers.

Pratt & Whitney appoints new designated maintenance facilities on four continents

Pratt & Whitney has appointed five new Designated Maintenance Facilities (DMFs) in Europe, North America, South America and Asia to provide line maintenance for many of its engines operating around the world.

The new DMFs are Rijnmond Air Services B. V., Rotterdam, Netherlands (PT6A, PW500 engines), Alidaunia S.R.L., Foggia, Italy (PT6B, PT6C, PT6T, PW200, PW210 engines), ALE Service Center S de RL de CV, San Nicolás Tolentino, Mexico (PT6A, PT6B, PT6C, PW200, PW300 and PW500 engines), Central Aerospace S.A.S., Bogota, Colombia (PT6A, JT5D engines) and AVIC China Flying Dragon GA, Harbin, China (PT6A-135A, PT6A-27 engines).

"Today's announcement brings the number of Pratt & Whitney DMFs serving helicopters and the general and business aviation industries to 13, located in North and South America, Europe and Asia," said Satheeshkumar Kumarasingam, vice-president, customer service, at Pratt & Whitney. "Our global DMFs are effectively delivering local and personalized line maintenance and mobile repair services to our customers. DMFs are part of our broader efforts to ensure we provide the right engine maintenance solutions to meet our customers' needs in an efficient and timely manner while ensuring our high technical standards are met. Further, these DMFs help improve the availability of parts in the desired country and the rapid deployment of service."

S7 Technics extends scope of EASA Part-21J certificate

S7 Technics' DOA (Design Organisation Approval) has received an extension of Part-21J certificate scope to perform design works on water and waste systems (ATA 38), which provides the opportunity to design modifications and repairs for all components of these systems: pipelines, water systems of galleys and toilets, water tanks, waste tanks and other. The certificate extension required the necessity to pass an EASA audit, which included staff competence checking, as well as the checking of the ability to perform this type of works. With the opportunity to design modification and repairs under its own design approval, S7 Technics reduces the time for repair of damaged components. S7 Technics' DOA can develop modifications and repairs for all types of transport category aircraft certified by EASA.

FAA approves Shadin fuel flow meter on Robinson R66 turbine helicopters

Robinson Helicopter Company is now offering Shadin Avionics' fuel flow meter on new R66s equipped with Garmin GTN 6xx or 750 GPS navigators. The fuel flow meter provides real-time fuel flow data to the GTN which in turn displays the fuel consumption rate along with fuel range rings on a moving map. Fuel used, fuel remaining, fuel to destination, and other real-time information is also available on accessory pages. The installation adds approximately 2 lbs. to the aircraft's empty weight.

ACC Aviation partners with air ambulance systems specialist AeroMedical

ACC Aviation Group has announced a commercial agreement with U.S.-based air ambulance systems specialist, AeroMedical. Founded in 1979, AeroMedical pioneered the production of specialist emergency medical services (EMS) equipment for rotary and fixed-wing aircraft and the organization has continued to lead the field in designing, certifying and manufacturing custom-built air ambulance systems. The partnership will see ACC act as AeroMedical's commercial representative, utilizing its worldwide presence and established airline and industry relationships to capitalize on new market opportunities. ACC's President – Americas, Jamie Harris, comments: "With the on-going situation surrounding the COVID-19 outbreak, we have seen an increase in demand for air ambulance capabilities, with a number of operators transitioning aircraft to support critical medevac and patient transportation efforts during the pandemic."

Nordic Aviation Capital to inject US$60 million of new equity into company

Proactively and in light of the COVID-19 pandemic, shareholders of Nordic Aviation Capital (NAC), the regional aircraft lessor, agreed to inject US$60 million (€53.5 million) of new equity into the company. Separately, the company has had constructive discussions with its largest lenders over a possible debt standstill and deferral to counteract the negative impact that COVID-19 has had on the business and to ensure stability as the aviation market gradually recovers. As a result of these discussions with lenders, the company has applied to the High Court in Dublin, launching a Scheme of Arrangement (the Scheme) under the Irish Companies Act. If approved, the Scheme would be an agreement between NAC and its lenders to standstill and defer the payments of interest and principal on its borrowings, covering the next 6-12 months. It is a mechanism available under Irish law that allows solvent companies to implement arrangements with lenders. It requires court approval and the agreement of lenders voting in classes representing 75% by value and more than 50% by number. NAC has entered the current global crisis in a strong liquidity position, having recently posted its strongest first-half financial performance to date. It has delivered 23 years of consistent profitability and growth. It owned 500 aircraft as of January 1, 2020 and had shareholders' equity of US$1.8 billion at June 30, 2019. As a result of the COVID-19 outbreak and the consequent unprecedented depression of demand for air travel, NAC, in common with its peers, has encountered a large number of lessees deferring lease payments. As a result of this, the company has been liaising with lenders concerning the standstill and deferral of its debt obligations. The long-term equity shareholders in NAC, EQT Partners, KIRKBI Invest, GIC (the sovereign wealth fund of Singapore) and Martin Moller, its founder and Chairman, have committed US$60 million of new equity as a signal of their confidence in the prospects for the business and their support for its strategy.

SMBC Aviation Capital posts full-year results – defers deliveries of 68 MAX aircraft

Aircraft leasing company SMBC Aviation has reported its results for the financial year ended March 31, 2020. The company reported profit before tax of US$364.5 million, an increase of almost 5.8% y/y. Total aircraft operating lease assets grew by 3.7% to US$10.6 billion – a lower-than-anticipated level of asset growth due to the grounding of the B737 MAX aircraft and Airbus A320neo delays. Core lease rentals increased by US$55.8 million to US$1.1 billion – a 5.5% increase. The company reported EBITDA of US$1.1 billion with EBITDA to interest coverage remaining strong at 3.6 times. SMBC will defer deliveries of 68 Boeing 737 Max aircraft until 2025-2027. At the end of the fiscal year the company had available liquidity of US$6.3 billion due to diversified funding sources and unrestricted cash balance.

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Thoma Bravo signs agreement to acquire Exostar

Thoma Bravo, a private equity investment firm focused on the software and technology-enabled services sector, has announced an agreement to acquire Exostar, a leader in trusted, secure business collaboration for the highly-regulated aerospace and defense, life sciences and healthcare industries. Thoma Bravo's strategic investment is expected to help Exostar accelerate business growth and broaden its existing customer base. The transaction is subject to customary closing conditions and regulatory approvals. Terms of the transaction were not disclosed. Exostar's unique platform creates trusted communities where companies can manage the complexity and mitigate the risks associated with collaborating with external partners. Thoma Bravo plans to leverage its expertise in enterprise software solutions for complex industries to partner with Exostar's existing management to further develop and expand the company's current capabilities, particularly in cybersecurity, to position the company for further growth. Exostar was developed as a joint venture between some of the world's leading businesses, including BAE Systems, Boeing, Lockheed Martin, Raytheon, Rolls-Royce and, more recently, Merck. Initially formed as a B2B aerospace and defense industry exchange, the company's secure platform now serves over 150,000 organizations worldwide in not only aerospace and defense, but the life sciences and healthcare markets as well. Exostar's former shareholders plan to remain actively involved as customers and advisors offering guidance on the product roadmap and strategic platform investments.

HEICO Corporation reports net income of US$197.3 million in first half of fiscal year 2020

HEICO Corporation has reported that net income increased 22% to US$197.3 million in the first six months of fiscal 2020, up from US$161.1 million in the first six months of fiscal 2019. In the second quarter of fiscal 2020, net income decreased 8% to US$75.5 million as compared to US$81.8 million in the second quarter of fiscal 2019. Operating income increased 1% to US$219.2 million in the first six months of fiscal 2020, up from US$217.1 million in the first six months of fiscal 2019. In the second quarter of fiscal 2020, operating income decreased 9% to US$108.2 million, as compared to US$119.2 million in the second quarter of fiscal 2019. The company's consolidated operating margin improved to 22.5% in the first six months of fiscal 2020, up from 22.1% in the first six months of fiscal 2019. The company's consolidated operating margin was 23.1% in both the second quarter of fiscal 2020 and 2019. Net sales decreased 1% to US$974.4 million in the first six months of fiscal 2020, as compared to US$981.8 million in the first six months of fiscal 2019. In the second quarter of fiscal 2020, net sales decreased 9% to US$468.1 million, as compared to US$515.6 million in the second quarter of fiscal 2019. EBITDA increased 1% to US$262.7 million in the first six months of fiscal 2020, up from US$259.8 million in the first six months of fiscal 2019. In the second quarter of fiscal 2020, EBITDA decreased 9% to US$130.0 million, as compared to US$142.2 million in the second quarter of fiscal 2019.

Embraer posts first-quarter 2020 net loss of US$292.0 million

Embraer has delivered five commercial jets and nine executive jets (five light / four large) in the first quarter of 2020, and the company's firm order backlog at the end of the quarter was US$ 15.9 billion. EBIT and EBITDA as reported were US$-46.9 million and US$9.3 million, respectively, yielding EBIT margin of -7.4% and EBITDA margin of 1.5%. This compares to EBIT of US$-15.2 million (-1.8% EBIT margin) and EBITDA of US$30.9 million (3.8% EBITDA margin) in the first quarter of 2019. The first-quarter results include special items due to the impacts of COVID-19: 1) US$22.2 million in negative fair value changes on the company's stake in Republic Airways Holdings, and 2) US$33.4 million in bad debt provisions on accounts receivables, as the company adopted a more conservative approach in the context of the COVID-19 pandemic. Adjusted EBIT and EBITDA were US$8.7 million and US$64.9 million, respectively, yielding adjusted EBIT margin of 1.4% and adjusted EBITDA margin of 10.2%. Net loss attributable to Embraer shareholders and Loss per ADS were US$-292.0 million and US$-1.59, respectively. Adjusted net loss (excluding special items and deferred income tax and social contribution) for the first- quarter was US$-104.0 million, with Adjusted loss per ADS of US$-0.57. The adjusted net loss in the first quarter of 2019 was US$-61.8 million, for an adjusted loss per ADS of US$-0.34 in the quarter. Embraer reported free cash flow of US$-676.5 million, in line with free cash flow of US$-665.3 million reported in the first quarter of 2019, which is historically negative due to seasonal working capital consumption.

AeroCentury reports first-quarter net loss of US$10.2 million

AeroCentury, an independent aircraft leasing company, has reported a first-quarter 2020 net loss of US$10.2 million, compared to a net loss of US$1.3 million for the first quarter of 2019. Results for the quarter ended March 31, 2020 included impairment losses totaling US$6.7 million, arising from revised estimated sales proceeds for three regional jet aircraft and an older turboprop aircraft that is being sold in parts. Results also included a US$1.2 million bad debt allowance related to two of the company's aircraft that are subject to finance leases and a US$1.9 million non-cash charge related to the company's interest rate swaps, which is included in interest expense. The results for the first quarter ended March 31, 2019 included $1.4 million of impairment provisions related to the write-down of two older off-lease turboprop aircraft and a spare engine to their estimated sales values, and a non-cash charge of $0.4 million related to the company's interest rate swaps, which was included in interest expense. On May 1, 2020, the company and its credit facility lenders entered into a Fourth Amended and Restated Loan and Security Agreement, which converted the company's revolving credit facility with MUFG Union Bank as Agent, into a term loan with an initial principal balance of US$83,689,900. The amendment provides for a forbearance of the existing defaults and events of default under the company's indebtedness to at least June 29, 2020, which is the milestone for the company entry into a written agreement for a strategic transaction that would enable repayment of the MUFG indebtedness.

Bombardier concludes sale of CRJ Series regional jet program to Mitsubishi Heavy Industries

Bombardier has closed the previously announced sale of the CRJ Series aircraft program to Mitsubishi Heavy Industries, for a cash consideration of approximately US$550 million, subject to post-closing adjustments and the assumption of liabilities by MHI related to credit and residual value guarantees and lease subsidies amounting to approximately US$200 million. Under the agreement, the Corporation's net beneficial interest in the Regional Aircraft Securitization Program (RASPRO), which is valued at approximately US$170 million, has been transferred to MHI. Through this sale, MHI acquires the maintenance, support, refurbishment, marketing, and sales activities for the CRJ Series aircraft, including the related services and support network located in Montréal, Québec, and Toronto, Ontario, and its service centers located in Bridgeport, West Virginia, and Tucson, Arizona, as well as the type certificates. Bombardier will continue to supply components and spare parts and will assemble the remaining 15 CRJ aircraft in the backlog as of March 31, 2020 on behalf of MHI until the complete delivery of the current backlog, expected in the second half of 2020. Bombardier retains certain liabilities representing a portion of the credit and residual value guarantees totaling US$288 million as of March 31, 2020. This amount is largely fixed and not subject to future changes in aircraft value and is mainly payable by Bombardier over the next four years.

Rolls-Royce to reduce workforce by 9,000 jobs

Having already taken action to strengthen the financial resilience of its business and reduce its cash expenditure in 2020 to cope with the impact of the COVID-19 crisis, Rolls-Royce is proposing a major reorganization of its business to adapt to the new level of demand it is seeing from customers. As a result, the company is expecting the loss of at least 9,000 jobs from its global workforce of 52,000. In addition to the savings generated from this headcount reduction, Rolls-Royce will also cut expenditure across plant and property, capital, and other indirect cost areas. The proposed reorganization is expected to generate annualized savings of more than £1.3 billion, of which the company expects headcount to contribute around £700 million. The cash restructuring costs related to these actions are likely to be around £800 million, with outflows incurred across 2020 to 2022. The proposed reorganization will predominantly affect the company's Civil Aerospace business, where it will carry out a detailed review of its facility footprint. It will also have implications for its central support functions. Rolls-Royce's Power Systems business and ITP Aero are currently developing, negotiating and executing extensive measures to deal with the current situation. The defense business, based in the U.K. and U.S., has been robust during the pandemic, with an unchanged outlook, and does not need to reduce headcount. As part of the reorganization, the company will ensure that its internal Civil Aerospace supply chain continues to support the defense programs and explore any opportunities to move people into its defense business. (£1.00 = us41.22 at time of publication.)

INFORM GmbH (INFORM), a global provider of advanced optimization software for the aviation industry, has entered into an agreement with Indian low-cost carrier **IndiGo** (InterGlobe Aviation Limited) to provide its comprehensive optimization software suite GroundStar (GS), to enhance the airline's workforce management processes. With a fleet of over 250 aircraft, IndiGo is India's largest passenger airline and holds approximately 47.5% of the market share in India as of December 2019. The airline offers over 1,500 daily flights and connects 63 destinations in India and 24 destinations outside India. Specifically, IndiGo will be using INFORM's GS Planning, GS WorkforcePlus and GS RealTime modules, which provide a strong value proposition by supporting aviation companies to optimally plan, schedule and allocate its manpower and equipment resources.

Amerijet International Airlines, the U.S.-based cargo airline has signed a contract to use the **FLYdocs®** Aircraft Records Management Platform to manage its maintenance records. Under the five-year agreement with FLYdocs, the partnership will elevate the digital migration of aircraft records as well as an ERP integration to allow Amerijet to benefit from full digital aircraft compliance on-demand. With more than 45 years of experience in the cargo industry, Amerijet operates its own dedicated freighter fleet of B767 aircraft from its primary hub at the Miami International Airport to destinations throughout the Caribbean, Mexico, Central and South America, and Western Europe.

Pro Star Aviation, a premier innovative aerospace modification facility, has completed the first installation of the new **Gogo** AVANCE L5 into a Pilatus PC-24 aircraft. The Gogo AVANCE L5 was an upgrade from the factory-installed ATG-2000, delivering high-speed 4G aircraft connectivity enabling passengers and crew access to video streaming, web/email, voice/text, and more. Pro Star Aviation was able to complete the installation in under two weeks using FAA-approved data. Pro Star Aviation has a team of in-house engineers and a DER which allowed them to create a custom engineering package specifically for the PC-24 aircraft. The Gogo AVANCE L5 is a single unit configuration, with a 4G network that allows for up to 40 devices to connect simultaneously. The AVANCE L5 provides broadband connectivity to keep passengers and crew connected while in the air. Browsing and secure connections such as corporate VPN access, adds value to the aircraft.

Other News

For the first time in Turkey, **Honeywell** has supported channel partner **MNG Jet** in installing Honeywell's JetWave satellite communications hardware on MNG Jet's Bombardier Challenger 605. This satellite communications installation enables high-speed cabin Wi-Fi, via Inmarsat's Jet ConneX service, for a better passenger connectivity experience. Additionally, it provides pilots with a better internet connection to support flight planning and management. Honeywell's JetWave hardware enables a connection to the fastest broadband available in business aviation. Whether working in the air, staying close to family and friends on social media, or streaming their favorite video series, passengers will benefit from reliable connectivity at speeds like those found at home. This is enabled by the CNX-900, one of the most advanced routing software application suites offered today.

DC Aviation Group has been contracted for the upgrade of a Global 5000 with a **Gogo** Elite Smart Cabin System (SCS Elite), an Inmarsat SwiftBroadband High Data Rate Service as well as a new satellite communication system. The SCS Elite package is a highly integrated smart cabin system that allows passengers to control the cabin environment with a single interface. Since 2017 DC Aviation is a full-service maintenance, repair and overhaul provider for Gogo Business Aviation and participates as a partner for hardware sales and installations on various types of business aircraft for Gogo's portfolio of products.


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Power up for recovery

There are significant changes to engine MRO strategies. *Photo: Patrick Delapierre*

Keith Mwanalushi looks at the engine maintenance and service sectors and the strategies being implemented to keep shop visits moving during and after the Covid-19 crisis.

Engine shops are grappling with the realities of the current market. At several locations globally, MRO providers suspended or reduced output due to the slowdown caused by the Covid-19 pandemic. "The impact of the pandemic on StandardAero has varied from division to division and we have seen a direct impact to our commercial engine MRO volumes," Roger Ross, President - Airlines and Fleets at StandardAero reports. He says despite steep declines in certain turbofan engine volumes, the regional jet engine activity has experienced a more moderate impact, reflecting the relative health of the domestic market in many regions, and that the turboprop engine MRO has also been steadier, reflecting the broader mix of the turboprop customer base – "All of our facilities remain fully operational and ready to service our customers with overhauls and field support," he notes.

Roger Ross, President - Airlines and Fleets at StandardAero

While it is difficult to forecast in the current environment, Ross agrees with the conclusions coming from industry experts which suggest that commercial traffic will take two to three years to fully recover to 2019 levels. "That said, we are seeing a large number of operators planning a partial restart to operations this summer, and we remain optimistic that the regional aircraft segment will benefit from the immediate focus on domestic operations."

The most significant recent capability addition has been the investment in setting up full RB211-535 overhaul capability at the San Antonio facility in Texas. StandardAero entered a life-of-type maintenance services partnership with Rolls-Royce in 2018, with responsibility for RB211-535 in-service support being transferred from the OEM's Derby, UK location to the 810,000 sq. ft. facility in San Antonio.

Ross explains that the introduction of the new RB211 capability in San Antonio was undertaken in close cooperation with the OEM and incorporates the application of lean manufacturing best practices in laying out a cell-based production area to maximise efficiency. "Our RB211-535 engine line features a wide main service aisle way to facilitate the movement of engines and modules, with overhead hoist coverage throughout. Even with this increased capability, we still have the infrastructure and capacity in San Antonio to add two or three more engine overhaul lines going forward."

Neil Russell, Chief Operating Officer at Aero Norway

After working on securing FAA

MRO initiatives to ensure efficiency and effectiveness are vital.
Photo: Patrick Delapierre

and EASA certification for the RB211-535 engine disassembly, cleaning, inspection, repair, and assembly and test activities during 2018-19, StandardAero attained full capability on the engine last October, following the receipt of acceptance testing approval for the first of two test cells. "This milestone, which followed a test cell correlation effort undertaken in partnership with Rolls-Royce, paved the way for our initial customer engine deliveries in late 2019."

StandardAero is now supporting operators of the Boeing 757 which remains popular with cargo and charter operators and is expected to remain in service until the year 2040.

At the other end of StandardAero's engine portfolio, the commercial turboprop MRO facility in Summerside, PE, Canada last year completed a significant expansion effort which saw the facility grow its shop floor area to over 226,000 sq. ft of leased space. Ross: "Our Summerside location, which is a Pratt & Whitney Designated Overhaul Facility (DOF) for the PT6A and PW100 turboprops as well as the JT15D turbofan, has also introduced full capability for the PT6A-68 series engine, helping the facility achieve a record total of over 1,000 engine inductions in 2019," he says.

At Aero Norway, the CFM56 engine MRO specialist, they were quick to react to the market. "We changed our strategy within a week," recalls Neil Russell, Chief Operating Officer. "We had a large backlog in our facility of -5B and -7Bs, so we worked with our suppliers and customers immediately to help get engines through the shop and back to our customers."

Aero Norway did not shut down operations but instead created procedures, plans and protocols using guidelines from the Norwegian health institute to protect their people and that also kept the business going. "Our strategy continued to look for -5 and -7s with more intensity, but we knew this wouldn't fill the production gaps, so we turned to the legacy -3 engine, which established our strong reputation. We could see within the first weeks that our customers globally flying freight were burning up hours much faster than ever on their -3s."

Martin Friis-Petersen, SVP MRO Programmes at MTU Aero Engines

In response to the demand, Aero Norway quickly sourced and purchased five -3 unserviceable engines that they could rebuild and sell as a means of filling slots in production. "Over time this means a drop in volume, so we have budgeted for a drop in our output. We want to keep all our employees so that we can ramp up, or induct faster, if the need arises. We will use these months to improve all aspects of our business to become stronger on the other side," Russell states.

Aero Norway has made several investments in 2019 and 2020 that are completed or in the process. The Stavanger-based MRO recently installed and commissioned a factory new Danobat high speed grinder for grinding HPC and HPT rotors. This project had been going on throughout 2019 and was operational for Q1 2020. "The next large investment we are making is to totally replace our plasma machine with a state-of-the-art new machine with additional capability of HVOF. This is the start of reinforcing our current internal repair capabilities and building on them throughout the next few years. The delivery and installation of this machine will be December 2020."

In addition to this, Russell says Aero Norway has also invested time and license into a project to look at the necessary modifications and investment needed to perform LEAP 1A and 1B at the current site. This evaluation is still on going through 2020.

Martin Friis-Petersen, SVP MRO Programmes at MTU Aero Engines says above all, the company temporarily reduced capacity to minimum staffing levels for a three-week period in April. "Nonetheless, AOG and on-site services continued, and engines and parts continued to be accepted into our facilities and delivered to customers to reduce any impact for them. In turn, avoiding operational disruptions for system critical cargo operators."

Clearly, MROs will have to adapt to smart new ways of working and at MTU Maintenance they intend to flexibly adjust shop capacities to meet demand going forward. Friis-Petersen: "We have the largest engine MRO portfolio worldwide and service several programmes at multiple locations, so this ensures our availability to service our diverse customer base and meet their needs and requirements. We are monitoring the supply chain situation, Covid-19 developments and different regional trends daily."

Since the situation is continually evolving, Friis-Petersen is awake to the complexity of predicting the market in the months ahead. "However, it is notable that the flight data has stabilised on low levels with slight improvements regionally – mainly supported by increase in domestic travel. Recovery of international travel will depend on how long regulatory travel restrictions are upheld. Nonetheless, we believe that all industry stakeholders need to come together and support the perception that flying is safe."

During April, not surprisingly, MTU ramped down operations to emergency staffing level at its facilities in Hannover and Berlin for a three-week period. The measures were taken to both protect employees and as a direct result of disruptions in the supply chain. Despite the current pandemic, Friis-Petersen anticipates that the mid and long-term prospects of the industry are good and the need for mobility and travel will return. As such, MTU has continued to invest in facilities. "For instance, construction work on a 22,000 square meter production hall has continued in Hannover. Also, construction work that will enable a 50% capacity increase at MTU Maintenance Zhuhai in China; a facility that focusses on the narrowbody engines CFM56, V2500 and the recently introduced LEAP-1B."

Mike Cazaz, President and CEO at Werner Aero Services

Similarly, at Air France Industries

KLM Engineering & Maintenance (AFI KLM E&M) they had to adjust capacities to match customer needs. "The crisis is a key opportunity to show how we put our motto 'Adaptiveness' into practice. We have adjusted our shift patterns, tweaked our shop layouts and accelerated some other lean initiatives to ensure we maintain efficiency and effectiveness in these challenging times. And we are in close exchange with our customers, as well as evaluating the evolution of the wider market, to align our capacity ramp-up post-crisis," says Michael Grootenboer, SVP AFI KLM E&M Engines Product.

AFI KLM E&M launched their initial 'Quick Turn' capability for the LEAP with a view to increasing capabilities over time – "The Covid-19 crisis has not changed this," Grootenboer declares. He says they will continue to invest in key repair capabilities such as fan midshaft repairs (e.g. GEnx, GE90) and combustor liner repairs, for example for the GEnx-1B, where there is now a brand-new drilling centre.

Mike Cazaz, President and CEO at Werner Aero Services predicts that in the next two years or so, there will be a significant reduction in engine shop visits. He says airlines will defer engine visits for as long as possible by utilising other engines from their fleet, buying, or leasing green time engines, or grounding aircraft. "As a result, the demand for engine material is projected to go down sharply which will put pressure on the pricing of this material. There could be a double impact here, on the sale of the material and the cost of the shop visits. For those who will still be putting engines through shop visits, they may be able to use used serviceable material from the surplus market and help reduce the cost of the engine repair and those who own the material will see a reduction in revenue."

Prior to the pandemic, MRO shops were busy and sometimes even overloaded with airlines waiting in line for available slots observes Alexey Ivanov, Executive Sales Director at Magnetic MRO." Of course, the pandemic brought a decrease in the demand, but since the shops were not working for some time due to the lockdown, they are still busy and will be for the next six to 12 months."

Following this period, Ivanov predicts demand might decrease considering the global grounding of fleets and all planned repairs postponed or even cancelled. "On the other hand, we expect even increased demand to partial, and hospital repairs of the engines as the airlines and asset owners will be under financial pressures, and they will be motivated to perform cheap possible repairs to return the engines to service instead of doing full overhauls like previously."

Magnetic MRO has had CFM56 engine repair capability since 2018. This year they had significantly increased the capability list for CFM56-5B and -7B engines. Magnetic has added capability on hospital repair in the engine's hot section [replacement of combustions chamber, replacement of HPT NGVs and LPT STG 1 NGVs, replacement of HPT shrouds, HPT blades, replacement of LPT major module and partial repair of LPT major module, replacement of fan modules. Etc]

Alexey Ivanov, Executive Sales Director at Magnetic MRO

"From now, we can support most possible hospital repairs on those engine types and provide airlines and asset owners with a fast and efficient repair solution. We have invested around 1M USD into the tooling adding this to our list of capabilities. We are also working on adding individual engine parts repair to our capability to become more competitive," Ivanov tells.

Some MROs have seen a direct impact on engine MRO volumes. *Photo: StandardAero*

An eye for the aftermarket

At Magellan, they have seen significant reductions in spare parts demand from engine MRO customers since March of this year. "OEM aftermarket spend is down as engine utilisation is down and only previously-booked engine MRO work is likely to be taking place," informs David Rushe, Sales and Marketing Director - EMEA at Magellan Aviation Group.

Rushe feels that global work-stoppages and travel restrictions have not helped with shop visit throughput. He says operator-affiliated MROs in Europe, Asia and North America are likely to have seen drastic reductions in the passenger flight operations of their main customer. "We have seen entities such as AFKLM and LHT gain significant footholds with third party work across all global regions, which are also suffering due to the impacts of Covid-19. Independent MROs are most likely to be securing more ad-hoc work from operators and lessors outside of OEM contract agreements."

As Rushe observes, the last few years have seen a global shortage of high value, high demand engine parts such as LLPs, HPT blades, accessories and fan blades for CFM56-5B/7B and V2500-A5 engines. "This led to a necessity for engine MROs to plan for pipeline shop visit inputs ahead of time and move towards speculative purchasing to fulfil supply chain requirements. This hunger has abated amidst the Covid-19 downturn as engine MROs lose visibility on spare parts demand amidst reduced fleet utilisation."

The grounding of the world's fleet due to the coronavirus has caused a plummet in passenger aircraft utilisation, it comes as no surprise to Oliver James, AerFin Trading and Leasing Manager that despite the short term increase in air cargo, airlines across the board will delay all but

David Rushe, Sales and Marketing Director - EMEA at Magellan Aviation Group.

James Bennett, Director Sales and Marketing, AerFin

necessary maintenance events in their efforts to maintain liquidity and conserve cash.

"The reduction in air travel has had a direct impact across all aspects of the industry; we have seen many operators defer new engine deliveries till 2021 and expect to see an accelerated retirement of older generation equipment.

As a result, we can expect to see a short-term increase in lease engine activity as airlines continue to preserve cash and avoid costly maintenance events," says James.

James Bennett, AerFin Director Sales and Marketing adds that in addition to looking to the market for engine lease opportunities, airlines will also be using green-time engines from retired aircraft to support their existing operations as they look to maximise assets efficiency during this challenging period.

At Magellan, the other core business stream from Engine MROs is the provision of engine lease coverage for engines which are undergoing shop visits. Rushe explains that with shop visit counts down across all engine types, the requirement for spare engine cover is also reduced. Most industry observers have given projections, as ephemeral as they may seem (given the lack of a comparative historical event) of a return to pre-Covid-19 passenger levels in 2023, he notes. "As a result, engine MRO lease demand will be somewhat underwhelming for the remainder of this year. Where we will see a quicker recovery is demand for green-time leases to avoid shop visits, particularly in the mature phase for engines."

Taking the example of the three PW4000 core models, mature shop visit costs can be a multiple of the market value of a serviceable engine. "It makes clear sense for operators, already cash-strapped, to try and avoid putting an engine through the shop. Depending on the level of LLP replacement required, this can also be the case for mature CFM56-5B/7B and V2500-A5 engines," Rushe points out.

Magellan offers support for regional operators with a comprehensive lease pool of Pratt & Whitney Canada PW100 and CF34 engines, a lot of which comes via engine MROs. Rushe says there are signs that this sector of the engine leasing market will recover earlier than the narrowbody and widebody market, hopefully to something resembling pre-Covid 19 levels.

An additional impact to Magellan's daily engine part sales and leasing activities due to the pandemic has been the extended credit terms requested by many engine MROs, particularly those affiliated with operators as they struggle to manage in an environment of reduced cash-flow.

Speaking on the engine disassembly market James at AerFin says Covid-19 has exacerbated the pre-existing MRO backlogs –

"Many shops have put work on hold either voluntarily or due to government orders and those that are still in business have had to implement both temporary and or permanent workforce cuts.

"With an increase in retirements of older generation equipment we can expect to see increase in engine disassembly activity."

Bennett continues saying airlines will likely seek the support of innovative and bespoke cost saving solutions from aftermarket partners when it comes to managing fleet operations and expensive shop visit maintenance events.

AerFin has already worked with a number of operators in the development of such solutions, by not just supporting with the engine disassembly activity at its 150,000 sq. ft facility, but adding value to their supply chain in managing the component repair process, the logistics cycle and storage solutions. These "Reduce to Produce" (RTP) engine programmes have proved successful for AerFin's partners looking to maximise residual value of their assets, whilst supporting their maintenance materials demands.

"We expect demand for such engine disassembly solutions to increase as operators continue to navigate the short to medium-term challenges. Bennett states.

AerFin has had engine disassembly capability at their facility for the past eight years – this capability has been largely to support the disassembly of their own acquired assets, supplying the engine material into of global supply chain of airlines and MROs.

MROs have had to adjust capacities to match customer needs. *Photo: Patrick Delapierre*

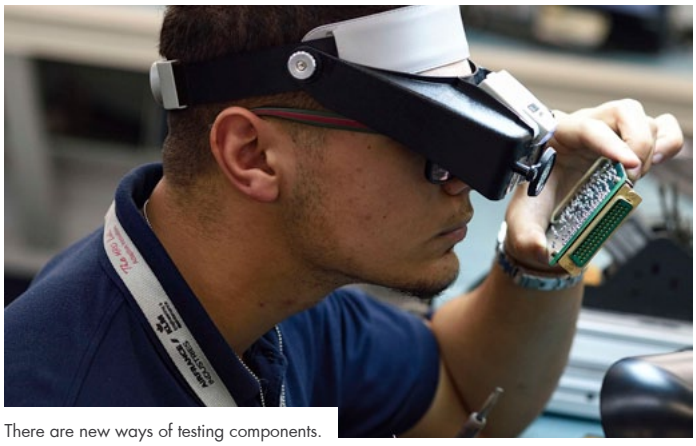
A new generation of components

Component repair for new aircraft come with the use of electronic technologies.
All photos: Patrick Delapierre

Support for new generation aircraft will become increasingly crucial as the aviation sector recovers and importantly, the repair of components. **Keith Mwanalushi** reports.

Since the advent of the Covid-19 crisis airlines around the world have seen a significant shake up of their fleet strategy. Several older aircraft are being prematurely retired to cut costs. Virgin Atlantic for instance immediately withdrew its entire fleet of 747-400s leaving the airline with a less fuel guzzling twin-engine fleet post crisis.

Consequently, parts dealers and component repair facilities are expected to see a greater focus on new generation aircraft component repair services, supposedly. "I think we would normally see cyclically, a branch of bespoke shops remaining in the industry," says Martin Ward, Director of Material Management and Supply Chain at Vallair. "These would continue to supply the market with specific services for specific older-type components because not all such shops are able invest in a wide array of new benches and capabilities for new gen aircraft." Ward reckons only the major players have that luxury.



There are new ways of testing components.

Ordinarily, Ward says there is normally room for everyone while the demand is there. "Covid-19 will inevitably change that dynamic and those older shops that have been supplying the market with component MRO services for mid-to-older 'work-horse' aircraft may see work drying up. Let us hope this is not the case, but I see many older fleets being parted out, meaning the newer [15 years and younger] airframes, will become the new enduring hardy ones," Ward foresees.

Sajedah Rustom, CEO at AJW Technique points out that these new fly-by-wire platforms bring next generation material primarily into aircraft structures. "The majority of the components remain fundamentally similar to existing component repair and overhaul processes." Rustom explains that the key differences lie with the use of electronic technologies, for example electro-hydraulic pumps replace purely mechanical engine driven pumps which can make the repair process more complex. "For avionics, the challenge is more on the test side, where the component OEMs control the market through limited distribution of test equipment and software upgrades to third parties. Thankfully, AJW Technique holds strong relationships with the key component OEMs to ensure we have a diverse portfolio of offerings that are complimentary and unconstrained," she states.

Olivier Boina, AFI KLM Engineering & Maintenance Head of Industrial Projects for Components also indicates that in terms of OEM relation-

Licensed agreements with OEMs for parts repair are necessary on types like the 787.

ships, the major difference with mature aircraft relates to the I.P. (Intellectual Property rights) requested by the OEMs on technical documentation and/or spare components, through licenses or royalties, which have a non-negligible impact on the repair costs and spares investments. "Indeed, on these new aircraft, the investment to develop repair capability will be limited as the investment is huge and the possibility to be licensed is limited to a few MROs. Those aspects are strategic at AFI KLM E&M and we already have licensed agreements with several OEMs like Collins, Parker, Moog on 787 and 350 for example, and we work actively with several other OEMs on other perimeters."

Boina says in terms of initial provisioning, more than ever, the pooling of spares becomes mandatory for the airlines to keep control of their maintenance costs, as it allows each airline to take advantage of scale effects.

In addition, preventive aircraft maintenance is a key tool. At AFI KLM E&M, they have implemented and developed a predictive solution called Prognos which is a prognostic tool.

Mike Cazaz, President and CEO at Werner Aero Services does not feel that repair processes will change any time soon because these platforms are heavily controlled and guarded by the OEMs. "I think that as time progresses, the change that we will see will be in greater reliance on predictive maintenance. That will become more of the norm, especially with the newer generations. Data is the key element here and most likely PBH or pooling agreements will depend more on predictive maintenance than in the past."

New fleets have a larger reliance on electronic monitoring and technologies. Historic ATA chapters (where component operation was measured through a 'go/no go' of the system, in conjunction with the MEL) are becoming more advanced in terms of monitoring and feedback at a component level, mentions Justin Blockley, Commercial Director at Bii.aero.

Blockley says this in turn requires a different way of testing components which typically did not have electronic system monitoring or feedback built in. "Interface with such software during MRO changes both the equipment required and also dictates a closer relationship with OEMs to ensure the integrity of the software required. Obviously, this is not the case for all components but for a greater number it is the new norm."

At Spairliners GmbH, they are currently offering component support exclusively for the Airbus A380 and the Embraer E-Jet Family, which are not necessarily the latest generation aircraft, but François de Larambergue, Head of Engineering, AOG Desk and Procurement is fully aware of the changes taking place in the market. He observes that the documented repair processes for new generation aircraft, the Component Maintenance Manuals (CMMs) seem to become slimmer every year, limiting the repair solutions to the very minimum. "The OEMs associate this development with next generation technology and design improvements leading to higher reliability and a reduced need of repairs. Airlines and MROs might suspect that OEMs are taking the opportunity of new platform introductions to change the playing field and are trying to reduce competition."

Mr de Larambergue feels the development of PMA piece parts or DER repairs have become even more necessary for MROs to bypass the OEM list prices to provide a competitive offering and are common practice already. "However, this requires the acquisition of new skills into your organisation for the different aircraft which takes time and investment. We see the U.S. market ahead in that field and Europe currently catching up."

Recovery for wheels and brakes is expected post pandemic.
Photo: Aircrafters, Inc.

In the hot seat.....

Greg Coffield, VP/General Manager at Aircrafters, Inc.

AviTrader MRO: What attracted you to this business?

Coffield: I grew up in a small town near the BFGoodrich wheel and brake manufacturing facility. Several people in my hometown worked there and it was, and still is considered a great place. After college and flight school for the military I came back and was fortunate enough to start my civilian career at BFGoodrich. I left for a few years, stayed in-touch with the friends I made there and luckily found my way back into the industry.

AviTrader MRO: What does a typical day's work entail in your job?

Coffield: Most recently it is a quick scan of RFQ's that have come in overnight in hopes it continues to improve. Then just based on the operational tempo and sales I am able spend a little more time on process improvement. Pre-Covid, at Aircrafters we had doubled our sales in the past 5 years. Currently, we have the time and capacity to focus on all the issues in our operations that we can change, fix, or improve upon which is good for us and our customers. Internally everyone has an additional task ranging from improving our knowledge management, sharpening our KPI's, reviewing spares pools for customer support, inventory mould to gold efforts/purchase planning and then of course cost savings efforts. Externally, we have reviewed pricing strategies and matured our product marketing.

AviTrader MRO: How is the aftermarket for wheels and brakes performing?

Coffield: There are two ways to answer this question I reckon. Before the pandemic hit, we were doing extremely well. The 737MAX investment was the worst of it, but it was manageable. We had to push out some of our scheduled orders. Our MRO customers were staying busy and it was not uncommon to see days with orders coming through with multiple line items, but right now we are in line with the rest of industry. As a distributor, we will lag slightly behind the industry upturn. But when the demand comes back, we anticipate seeing an initial wave due to

Greg Coffield, VP and General Manager at Aircrafters, Inc.

green time practices and delayed spend and then back to a steady demand flow.

AviTrader MRO: With several airlines currently expediting the retirement of some aircraft types (A380s, 777-200s, 747-400s) will this influence future demand for aircraft brake and wheel services?

Coffield: The A380 was not a platform we dealt with while on the 747-400 we scrapped out about 200 brakes last year. The 777-200 might end up seeing extended life in cargo and we have inventory to support. We saw more narrow body demand in the aftermarket, so the decline of the wide bodies for us should not result in as much of an impact. In addition, we are now able to support regional and business aircraft for Collins' products.

Various components support third party and and irline MRO customers.
Photo: Aircrafters, Inc.

AviTrader MRO: Tell us about your Advanced Exchange Programme (AEP).

Coffield: We try to make it as straight forward as possible. Our contracted customers request an assembly and we ship it same or next day. They have a period, typically 90 days to return a core. This provides OEM overhauled wheels and brakes for some of the smaller operators that may not have the volume that gets an OEM's attention. Some of the other features we can offer in an agreement are based on what the operator needs. It is not cookie cutter as each has their own way of doing things. The fleets we support range from 1 to almost 30 aircraft.

AviTrader MRO: In terms of current demand and supply which types of components are you shifting?

Coffield: Narrow bodies and regional aircraft structural and consumables to support our third party and airline MRO customers.

AviTrader MRO: As aviation businesses prepare to support the resumption of air services, what is the key priority at Aircrafters Inc?

Coffield: To ramp up slightly ahead of them and provide the same high level of service we did before Covid affected our industry.

Current demand is for narrowbody components.
Photo: Avion Express

Remote management

Access to a single, centralised source of all operational information is key. *Photo: WinAir*

The aviation industry is reeling from the Covid-19 pandemic, but despite facing unprecedented operational challenges, the show must go on. **Julian Tubb**, Director at Centrik provides an overview of the benefits of remote management.

The strict regulatory landscape of our industry means that, even in a world of social distancing and international lockdowns, maintenance must still be carried out, with audits completed, compliance evidenced, documents updated, safety and risks assessed, meetings carried out and training allocated.

The ability for an organisation, and its staff, to manage its operations remotely has become a differentiator, offering a way to at least try and carry on with 'business as usual'.

Many cloud-based systems offer the flexibility of remote access, but to seamlessly integrate many of the complex programmes we use in aviation is practically impossible. What businesses need is a way to manage their entire operation through a single point, with all information accessible, and actionable, from anywhere.

For MRO businesses, there is the additional challenge of connecting staff working at home with maintenance crews on the ground – in this instance, it's imperative that the operational management system is able to provide senior staff, management, and even the regulator itself, with the ability to remotely monitor, approve and audit all work being carried out.

Retaining a coherent working process, despite members of the team being geographically separate, becomes a lot easier if your management system has been designed from the outset with remote accessibility at its core, which was the driving force behind Centrik.

Phil Balmer, Director of Maintenance at TAG Aviation Asia, explains: "As a business that operates around the world, we have been using cloud-based systems and communication tools like Web Conferencing to keep our teams connected for some time; in some respects the lockdown didn't really change how we worked.

"However, for the complexities of the MRO side of the business, with some staff working remotely, having Centrik on board means we are able to provide every team member, wherever they are, with access to a single, centralised source of all operational information, which has been invaluable."

Tubb - Cloud-based systems offer the flexibility of remote access.

The ability to carry out audit checklists, complete risk registers and safety reports, initiate and track workflows, or monitor training activity, from any location, is a huge advantage for any business attempting to work as normal, but particularly when staff are spread far and wide.

"Our maintenance teams have continued working during the

Centrik dashboard in operation.

pandemic, therefore we needed a way to track that our engineers' training and licences remained current, as the certification approvals for the work they perform is based on the validity of their licences and training," says Balmer.

"With a percentage of our support staff working remotely at various times, monitoring the training, licences and certification approvals for our engineers was seamless thanks to Centrik. Its intuitive traffic light system gives everyone complete oversight across our entire operation – if a red traffic light were to display on our Centrik dashboard relating to an engineer's training, licensing or certification approval we can immediately address the situation, helping to avoid mistakes, and possible re-inspection and re-certification costs."

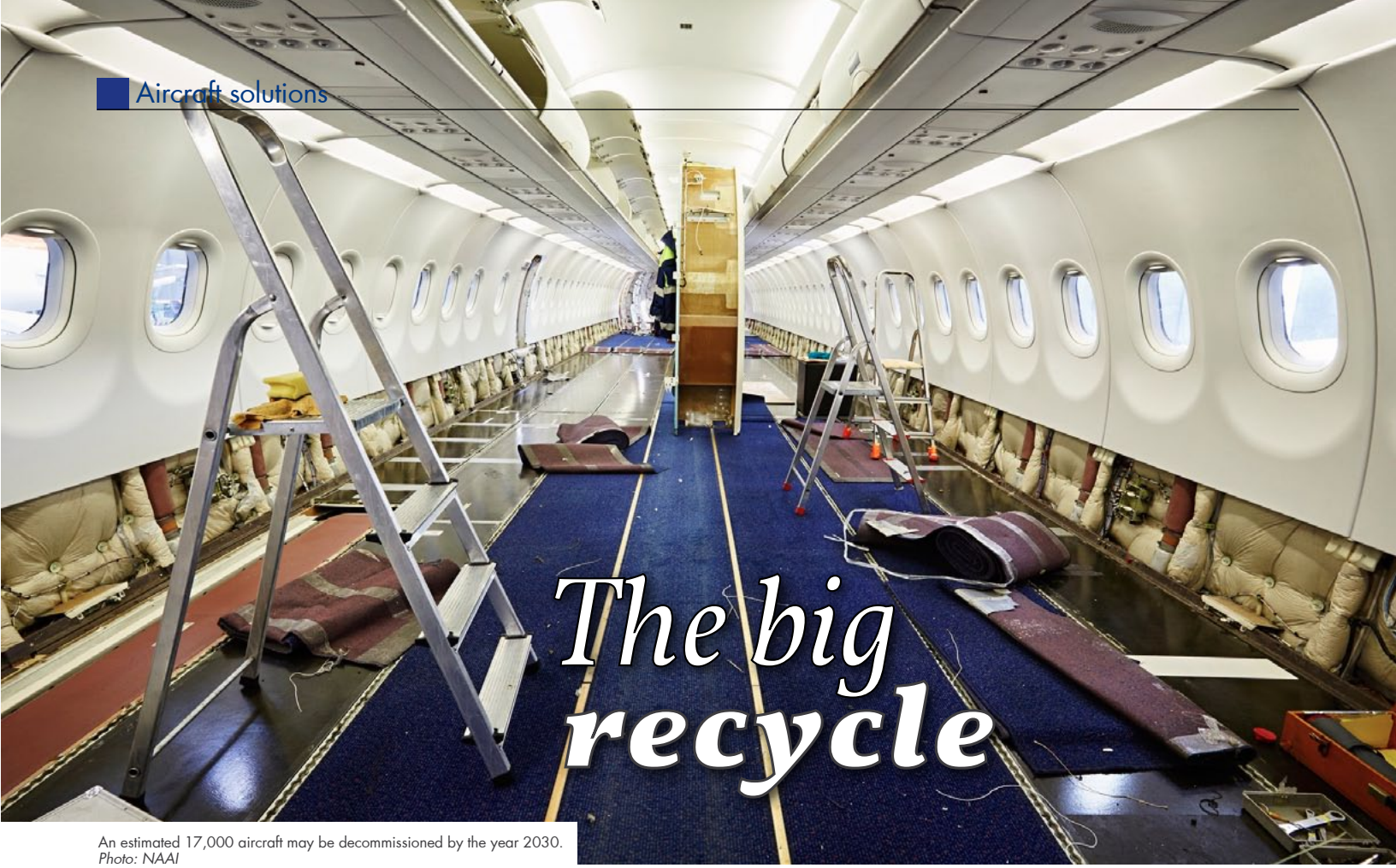
With thousands of aircraft currently grounded, maintenance crews have an essential care and maintenance role to play, ensuring those aircraft are kept airworthy and ready to fly. This process could be made more difficult with MROs having to reduce staffing levels within their facilities, in addition to support staff also working remotely. A suitable cloud-based system, accessible from anywhere in the world via any connected device, allows for seamless compliance oversight, helping to maximise efficiency.

For example, Centrik's remote capabilities allow the maintenance crews to establish complex workflows, with all related jobs allocated and updated in real time. Handovers are managed within the system, with all processes able to be tracked, checked and verified remotely. Risk assessments and any occurrence reports can be submitted and reviewed, with subsequent actions allocated to the relevant staff. As all this information is accessible from any connected device, subsequent audits are simple to complete and can even be done without a need for face to face contact.

Of course, when the aircraft is ready to return to service, full regulatory compliance must be evidenced to the appropriate authority. Through Centrik, the regulatory body can be granted access to all current audit checklists, updated hazard logs, training documents, safety reports, findings and subsequent corrective action plans, whatever it needs to sign off on regulatory compliance – this is the power cloud-based solutions can offer.

As the global impact on the industry comes into focus and we begin to look forward, now is the ideal time for businesses to adopt a new approach, to embrace new technology and embed new systems into their operation in readiness for anything the future may bring. Those that look forward now, will reap the rewards.

Maintenance teams at TAG have continued working during the pandemic. *Photo: TAG Aviation Asia*



The big recycle

An estimated 17,000 aircraft may be decommissioned by the year 2030.
Photo: NAAI

Sven Daniel Koechler, General Manager at North American Aerospace Industries Corporation highlights the benefits of aircraft recycling solutions in the current environment.

The Covid-19 pandemic has forced airlines to ground large portions of their fleets. Aircraft boneyards were already filled and pandemic-fuelled aircraft retirements have further created a shortage of locations to park, store and maintain these aircraft, therefore airlines are parking aircraft worldwide wherever they can find space. While newer planes are cared for in active parking arrangements or put into long-term storage, older models are being retired at a rapid pace, adding additional pressure to already overcrowded boneyards. With 56% of the worldwide fleet still in storage, and continuing uncertainties surrounding air travel demand, the problem is likely to persist. So, what is the solution to this ever-growing problem? Harvesting airplanes only for value parts and then leaving them to deteriorate under the open sky should no longer be an option. A new vision of what can be a way to use out-of-service aircraft to advance a much more financially-sound, sustainable, environmentally friendly and socially conscious business model is needed.

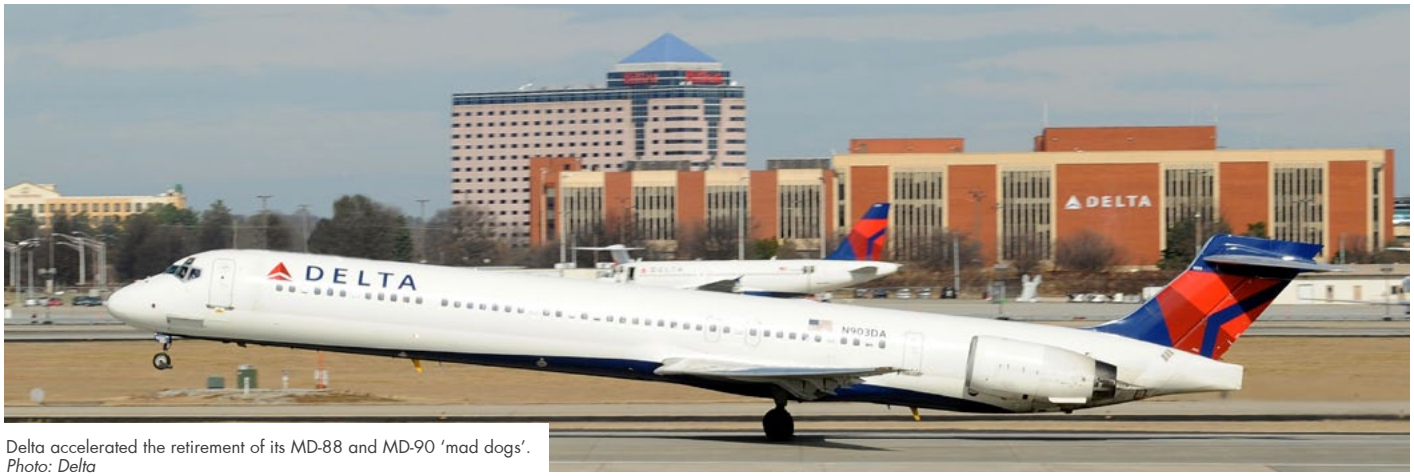
The scope of the problem

According to FlightGlobal, an estimated 17,000 aircraft may be decommissioned by the year 2030. The problem is now exacerbated by the pandemic which prompts airlines to retire older aircraft earlier than expected. In the U.S., an estimated 600 aircraft retire each year. For example, Delta Airlines has just accelerated the retirement of its MD-88 and MD-90 fleets to June 2020 and will retire its Boeing 777 aircraft by the end of this year. The worldwide trend to simplify and modernise existing fleets by downsizing overall operations and moving forward with more efficient aircraft is steadily increasing. Lufthansa is another example of how the industry will most likely move forward. The carrier has grounded all its Airbus A340s and is divesting from several its Boeing 747s and Airbus A380s. These airplanes will add to thousands of airliners already parked in boneyards around the globe without any prospects of ever being brought back to service.

Parking an aircraft and keeping it mission ready does not come cheap. Active parking costs can run an airline up to $35,000 dollars a month depending on the aircraft type, insurance and the required maintenance regimen. Adding to this are leasing fees if the operator does not own the aircraft. The American Airlines Group, for example, is the largest carrier in the world by fleet size and leases about 60% of its aircraft.

Long-term storage options also come with a big price tag. Preparing these aircraft for storage requires huge upfront costs. Although the aircraft does not need to be powered up while in storage to keep it airworthy, it must be brought back to operability. If the aircraft has been in storage for two years or more a short non-revenue flight must be conducted. It takes hundreds of man hours to get an aircraft out of storage and airworthy again. Even if demand for aircraft would surge tomorrow, it would take months for these airplanes to be back in service again. Given these facts, it is not surprising

Sven Daniel Koechler, General Manager at NAAI.



Delta accelerated the retirement of its MD-88 and MD-90 'mad dogs'.
Photo: Delta

that several owners eventually end up opting to sell the aircraft for its parts instead. What is surprising, however, is how long it takes owners to make that decision. The decision-making process could be vastly accelerated if an airplane could be a continued revenue opportunity which can be leveraged in multiple ways.

The traditional recycling scenarios

Increased operational costs, regulatory changes, high fuel consumption and the financial depreciation of an aircraft are the main reasons for owners to divest. Once that decision is made, the owner may decide to simply park the aircraft in an aircraft boneyard where it will eventually be stripped of its value parts such as the engines, landing gear and electronics. These parts will either be sold or repurposed in other aircraft. This process takes a long time and the aircraft is never fully recycled, instead left to deteriorate in an aircraft graveyard compounding existing space problems.

If the decision is to scrap the airplane right away, it will be transferred directly to a dismantling yard where engineers perform a full maintenance check before they clear the aircraft of all pollutants classified as hazardous waste materials and fluids. They then extract its most valuable and expensive components. Subsequently, the wings and fuselage are being torn down and loaded onto bulk tippers to be transferred to a metal processing facility. IATA estimates that by doing so, 40%-50% of an aircraft's weight goes back into the parts market with a total of 85% of the aircraft being recycled and 15% is entering landfills.

Both approaches are wasteful, burden the environment, do not optimise the value of the aircraft for its owners, and are not able to reduce the number of parked aircraft in a significant way. A new more streamlined, standardised, and environmentally friendly recycling approach is needed to recycle aircraft quickly and efficiently.

A new model for aircraft recycling

Applying this model, an aircraft continues to be an asset and not a liability. It is recognised for being able to generate multiple gains. Under this model, all aircraft components, parts and materials can be repurposed, generating the greatest possible benefit, best revenue opportunity and best environmental outcome. Adhering to best practices for aircraft recycling and regulations, while increasing the number of aircraft to be recycled is at the core of this model and will help reduce the number of parked aircraft. The process focuses on efficiency and speed which is gained by deploying specialised crews and applying standardised processes on a dissembling line. Multiple aircraft of the same type are placed into hangars to protect them from the elements and promptly remove all designated value components to be refurbished, sold or given back to the owners for use in their maintenance, repair and overhaul operations. All other materials found in the aircrafts' interiors can be up-cycled into other industrial or consumer products in production facilities located in the recycling site or in close proximity. Materials harvested from the subsequent expedient demolition of the fuselage and wings would be recycled into new products in those facilities as well. This holistic recycling approach considers the needs of aircraft owners, operators and the environment.

Benefits

There are many benefits derived from recycling aircraft as quickly and as comprehensively as possible. Owners and operators can realize quick savings by being able to cancel insurance payments for the aircraft once it arrives at the dismantling facility. Spare parts which are catalogued and reused immediately after an aircraft's final journey retain the highest value in the aircraft parts market. Owners are also able to tap into new revenue streams on the engine leasing markets, or to pass through savings to operators by providing them with the highest quality, low-cost spare parts.

Industrial and consumer products produced from recycled aircraft materials such as apparel and home building materials can also be used to help the poor and underserved communities. Additionally, these modern aircraft recycling facilities and their associated production facilities will help to provide jobs in the communities they will be located in.

This new vision for aircraft recycling will help radically reduce the number of decommissioned aircraft in airplane graveyards, create jobs and protect the environment, all while delivering both savings and new revenue opportunities to the aviation industry.

A 767-200 that flew for Ansett being cut open for scrap at Mojave Airport.
Photo: Alan Radecki


Gary Smith

Trenchard Aviation Group has appointed **Gary Smith** as its new Chief Operating Officer. With over 25 years senior management experience in Airline Engineering and MRO, Smith will be responsible for all operations across manufacturing, parts and repairs, and on-wing services. Gary has extensive knowledge of Trenchard Aviation customers' requirements, having been Head of Engineering and postholder at easyJet, and having lead MRO facilities at Rolls-Royce and Triumph Air Repair for over 10 years. Prior to joining Trenchard Aviation, Smith had a 30 year career in aviation, and most recently was Director of Operations Transformation at easyJet, responsible for formation and delivery of the airline's operations strategy, and for delivering its very successful 'Operational Resilience' program focused on reducing disruption and improving operational performance.


Paul Boyle

CDB Aviation, a wholly owned Irish subsidiary of China Development Bank Financial Leasing Co. (CDB Leasing), has announced the latest addition to its Dublin-based leadership team, **Paul Boyle**, who has been appointed as Head of Europe, the Middle East, and Africa (EMEA) Commercial, leading the lessor's commercial activity within the region. Boyle will drive commercial activity and outreach by engaging with airlines, aircraft manufacturers, and other industry participants to cement the lessor's strategic aircraft placement plan and path to growth in the region. Boyle will report to Chief Marketing Officer (CMO) **Peter Goodman**. With nearly three decades in aviation and aircraft finance, Boyle has led cross-functional deal teams in a variety of transactions, including remarketing, sale and leaseback, and orderbook placements. Boyle has cultivated senior executive relationships across a wide swath of the region's airlines. He has earned an industry-wide reputation for his ability to continuously dissect fleet requirements and shifting trends to tailor financing and fleet solutions that best leverage the operators' emergent opportunities and address their ongoing challenges.


Anand Stanley

Airbus has named **Anand Stanley** as President, Airbus Asia-Pacific, effective July 1, 2020. Based in Singapore, he will lead the strategy and future positioning of Airbus and its divisions across the region. In this role Stanley will have responsibility for commercial aircraft sales and customer affairs, group-wide government affairs, industrial and joint venture partnerships, as well as the local operations at Airbus sites across the region. Prior to joining Airbus, Stanley held senior positions in the civil aerospace, defense and helicopter markets, as well as in strategic management and M&A planning, having worked with the Linde Group, UTC, Pratt & Whitney, Lockheed Martin and Sikorsky. Over his career he has worked extensively internationally, with more than two decades of involvement in Asia and the Pacific region.


Gil Rivnai


Marc Bouliane

Universal Avionics (UA) has announced the restructuring of its executive team with **Gil Rivnai** appointed as Vice President of Engineering and **Marc Bouliane's** previous role as Vice President of Business Development expanded to include Marketing and Services. "We are focused on uniting, extracting synergies, and leveraging our competencies throughout the entire organization," said **Dror Yahav**, UA Chief Executive Officer. "The restructuring of our executive team was an important step in our effort to align the organization to achieve more innovation, product designs, and overall efficiency," he added. UA also announced the departure of **Dan Reida**, Vice President of Sales, Marketing and Support.


Josh Tremain

JetHQ is expanding its team of aircraft professionals with the addition of an experienced aircraft transactions specialist. The aircraft transaction and brokerage company has announced that **Josh Tremain** has joined as its Manager of Contracts and Business Development. Tremain comes to the company with more than 12 years of aviation experience as an escrow agent with Insured Aircraft Title Service based in metro Oklahoma City. He also serves as a Unit Training Manager for the Oklahoma Air National Guard on a part-time basis.

David Joyce, vice chair of GE and president and CEO of GE Aviation, will retire from the Company after 40-years of service. **John Slattery**, Embraer's president and CEO of Commercial Aviation, has been named president- and CEO-elect of GE Aviation, effective July 13. In order to ensure a smooth and thorough handover, Slattery will fully assume the role of president and CEO of GE Aviation on September 1, 2020, at which point Joyce will transition to non-executive chair of GE Aviation through December 31, 2020. He also will continue as GE vice chair and advisor to GE Research through December 31, 2020, and subsequently will serve as strategic advisor to GE Aviation into 2021.