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MRO 360°

A Splash of Livery

Talking about aircraft painting

¿Hola, Qué Tal?
Exploring Iberia Maintenance

Farnborough 2024
Highlights From the Show

Aircraft Transition
Five Common Mistakes to Avoid

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Dear Colleagues,

Aircraft painting is a specialised craft that goes far beyond simply adding colour to metal. It is a delicate blend of engineering precision and artistic creativity, transforming aircraft into distinctive symbols of identity and pride. From the bold branding of commercial airliners to the sleek finishes of private jets, the paint on an aircraft serves not only as a protective layer but also as a powerful statement in the sky.

The process of painting an aircraft is both complex and demanding, requiring meticulous attention to detail at every stage. It involves the careful application of multiple layers, each serving a specific purpose—from corrosion protection to aerodynamic efficiency. The result must be flawless, durable, and visually striking, capable of withstanding the harshest conditions while turning heads on the runway. Swaati Keetkar reports.

In our “Expert Corner” column, we talk to Giovanni Renga about the five most common mistakes that prevent a smooth aircraft transition.

And of course we report on the highlights of the Farnborough Air Show 2024. Also interesting, what the actual history of the Airshow is.S

Enjoy this edition of AviTrader's MRO 360°.

Peter Jorssen
Publisher


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MRO 360

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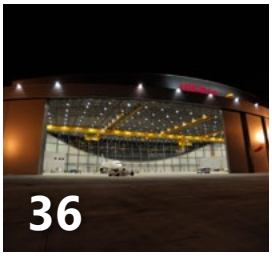
Talking about aircraft painting



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LHT to introduce AeroSHARK to Boeing 777-200ER aircraft

© Lufthansa Technik

In collaboration with Austrian Airlines, Lufthansa Technik (LHT) is set to introduce its fuel-saving AeroSHARK surface film to a new aircraft type. Beginning in winter 2024, four Boeing 777-200ER aircraft from the Austrian carrier's fleet will be equipped with the innovative sharkskin technology. This riblet film reduces frictional resistance during flight, leading to decreased kerosene consumption and lower CO2 emissions on long-haul routes. The modification of four out of Austrian Airlines' six Boeing 777-200ERs with Lufthansa Technik's AeroSHARK surface film will commence in December 2024. Over a service life of four years, these modifications are projected to yield total savings of approximately 2,650 metric tonnes of fuel and over 8,300 metric tonnes of CO2, equivalent to around 46 flights from Vienna to New York. "The rollout of the fuel-saving sharkskin technology on another aircraft type with Austrian Airlines is great news for other Boeing 777-200ER operators as well," emphasised Harald Gloy, Chief Operating Officer at Lufthansa Technik. "These are the first of what we hope will be many more aircraft of this type that, thanks to AeroSHARK, will have lower kerosene consumption and an improved carbon footprint." AeroSHARK is a cutting-edge surface technology for aircraft developed by Lufthansa Technik and BASF. It consists of riblets approximately 50 micrometres thick, mimicking the friction-reducing structure of sharkskin. By optimising the aerodynamics of key areas on the aircraft, AeroSHARK helps reduce fuel consumption and cut CO2 emissions. Applying around 830 m² of this riblet film to the fuselage and engine nacelles of a Boeing 777-200ER can lead to a reduction of about one percent in total fuel consumption per flight. To date, a total of 17 Lufthansa Group aircraft have been fitted with AeroSHARK, with more installations planned. The modified fleet currently includes a Boeing 747-400 from Lufthansa Airlines, 12 Boeing 777-300ERs from SWISS, and four Boeing 777Fs from Lufthansa Cargo. The modification of Austrian Airlines' four Boeing 777-200ER aircraft is expected to be completed by March 2025.

Batam Aero Technic widens collaboration with FTAI Aviation

© BATAM Aero Technic

Batam Aero Technic (BAT) has announced an enhanced collaboration with maintenance, repair and exchange (MRE) expert FTAI Aviation and its partner, Vortex Aviation, for in-situ CFM56 module replacements. BAT provides the support and facilities for replacing the LPT module and fan booster, enabling a swift turn-around solution for CFM56 engines, with both engines being serviced simultaneously. Recently, SpiceJet's VT-SLC, a 737-900ER aircraft, was ferried to Batam Aero Technic for in-situ CFM56 module replacements by Vortex Aviation and FTAI Aviation, completing the process, including a demonstration flight, in just two weeks. Strategically located in Batam, Indonesia, Batam Aero Technic is a world-class MRO provider dedicated to the highest standards of quality and safety. BAT operates 23 maintenance lines for B737-800/900ER, A330, A320, B737-8, and ATR72-500/600 aircraft, holding AMO certificates from various authorities including Indonesia DGCA, US FAA, and CAAs from Malaysia, Thailand, the Philippines and several other countries. FTAI Aviation simplifies CFM56 and V2500 engine maintenance, offering faster, more cost-effective, and environmentally friendly solutions.

Mammoth Freighters reaches milestone in 777 P2F conversion

Avia Solutions Group's first B777-300ER © *Mammoth Freighters*

Mammoth Freighters has announced a significant achievement in its Boeing 777 passenger-to-freighter (P2F) conversion programme, with the completion of the door cutting on AviaAM Leasing's first B777-300ER (MSN 35299). AviaAM Leasing, part of the Avia Solutions Group, is the launch customer for the 777-300ERMF type, with six conversions ordered. Mammoth currently has two of AviaAM Leasing's B777-300ER aircraft at its modification partner facility, Aspire MRO, in Fort Worth, Texas. Brian McCarthy, Mammoth's Vice President of Marketing and Sales, expressed excitement about the milestone and the upcoming operation of the aircraft via Avia Solutions Group's BBN Airlines in Turkey. Tadas Goberis, CEO and Chairman of AviaAM Leasing, also highlighted the significance of the door cutting ceremony and the anticipated benefits of the advanced freighters for their global network. In addition to the B777-300ERMF project, Mammoth recently installed the main cargo door on its B777-200LRMF, which is now undergoing cargo loading system installation before beginning flight testing. Mammoth Freighters LLC (Mammoth) was founded in December of 2020 – specifically to design, develop, convert and support the development of passenger-to-freighter conversions. The launch type is the Boeing 777 (both the 200 LR and 300 ER variants).

VAS Aero Services secures 17 more A320s for teardown

Global aviation logistics and aftermarket services provider VAS Aero Services (VAS) has secured an additional 17 Airbus A320 airframes for teardown and used serviceable material (USM) parts redistribution. This brings to 23 the total number of A320s that VAS has acquired in just the past six months as part of the company's growth initiative to support the increasing demand for critical A320 parts. VAS will manage the teardown of the North America-based aircraft at various locations in the United States over the next 12 to 18 months in an aggressive schedule designed to ease the shortage of critical parts for the worldwide A320 fleet. The harvested USM parts and assemblies will be marketed through VAS' global aviation aftermarket supply network, as well as Airbus and Satair customer support channels, to fulfil routine and urgent spares requirements. "This announcement underscores the valued role VAS plays in the aviation industry, from managing the end-of-life dismantlement of aircraft to providing new life for their salvageable USM parts through our marketing and redistribution services," noted VAS CEO Tommy Hughes. "Airlines and lessors look to us for turnkey retirement solutions that enable them to realise the maximum value of their end-of-service aircraft. And because we have access to these aircraft and the residual parts inventory, VAS is the go-to source for hundreds of thousands of USM parts for other operators needing vital material to keep their existing aircraft flying."

StandardAero partners with Avianca to support LEAP-1A engines

StandardAero has signed a non-exclusive agreement with Avianca to provide support for an undefined quantity of the CFM International LEAP-1A turbofan engines powering the carrier's fleet of Airbus A320neo aircraft, according to its operational demands. Avianca joins the growing list of operators relying on StandardAero's new LEAP-1A and LEAP-1B maintenance, repair and overhaul (MRO) line established at its San Antonio facility in Texas. Under the general terms agreement signed between the two companies, Avianca will benefit from the broad range of LEAP-1A capabilities offered by StandardAero, which last March became the first North American non-airline CFM Branded Service Agreement (CBSA) holder for the LEAP-1A and LEAP-1B. These services – which include MRO support, workscoping/forecasting, engine testing, programme management, component repair development, lease engine support, and module swaps – are provided seamlessly under StandardAero's Total Engine Asset Management (TEAM™) portfolio. StandardAero recently announced LEAP-1B correlation approval for the first test cell in its San Antonio test complex and will shortly add correlation approval for the LEAP-1A. These approvals will pave the way for the introduction of LEAP-1A and LEAP-1B performance restoration shop visit (PRSV) capability, which is expected to be attained by the end of the year. In addition to establishing overhaul capability for the LEAP-1A and LEAP-1B at its San Antonio facility, StandardAero will also offer an extensive portfolio of repairs for the LEAP family through its Component Repair Services (CRS) division's network of locations and its Repair Development Center of Excellence. To date, StandardAero's CRS team has industrialised more than 230 component repairs for the LEAP-1A and LEAP-1B. StandardAero also continues to grow its team of LEAP technicians through its in-house aviation mechanic training programme, located at its San Antonio site's Training Academy.

HAECO signs agreements with Airbus and GE Aerospace

HAECO Group (HAECO), the aircraft engineering and maintenance service provider, has inked new agreements with GE Aerospace and Airbus. HAECO and GE Aerospace have agreed to extend the GE-branded services agreement and offload agreement for GE90 engines through 2040. Additionally, a 15-year material service agreement for GE90 engines has been established, under which HAECO will continue to provide engine overhaul services for GE Aerospace and expand its external GE90 MRO market. HAECO Group and GE Aerospace also strengthened their longstanding strategic partnership by signing a memorandum of understanding that secures HAECO Engine Services (Xiamen)'s position in the MRO global network for the GE9X engine. Furthermore, HAECO has announced the extension of a contract between its composite services division and Airbus. This contract, covering radome repair services for a wide range of Airbus aircraft models including the A320, A330, A340, A350 and A380, reaffirms Airbus' confidence in HAECO's capabilities in composite structure repair. "We are extremely honoured to be the sole approved repair station for Airbus in the Chinese Mainland, providing radome repair services for a wide range of its aircraft," said Sandra Nieuwenhuijzen, HAECO's Group Director of Component and Engine Services. "With our cutting-edge composites facility in Jinjiang, our expertise in delivering top-of-the-line composite solutions to global customers and our unwavering commitment to safety, quality and excellence, HAECO is well-positioned to meet

Airbus' stringent standards of uncompromising workmanship and innovative tailored solutions.

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EFW expands services with CAMO approval

EFW is expanding its service offerings with CAMO approval © *EFW*

Elbe Flugzeugwerke GmbH (EFW), a joint venture of ST Engineering and Airbus, has received EASA continuing airworthiness management organisation (CAMO) approval from the Federal Aviation Office of Germany. This approval enables EFW to offer global airworthiness management and technical services for both passenger and freighter aircraft to lessors, owners and operators. EFW's airworthiness management services are underpinned by extensive technical expertise in aircraft systems, structures and regulatory compliance. This expertise has been cultivated over decades, particularly through EFW's experience in converting passenger aircraft to freighters (P2F) for its worldwide clientele. With EFW CAMO now responsible for ensuring aircraft remain airworthy, owners and operators can benefit from an efficient airworthiness review process for the import, export, and re-registration of aircraft. This process also offers fast, cost-effective aircraft registration during lease transitions, providing customers with enhanced convenience and operational uptime. The CAMO approval further complements EFW's existing services in aircraft design, production, and maintenance. As the only freighter conversion provider globally to hold CAMO approval alongside three major aviation certifications—Part 145 approval, Design Organisation Approval, and Production Organisation Approval—EFW is uniquely positioned to offer turnkey solutions in design development, freighter conversion, maintenance, aviation supply chain management, and CAMO support under one roof. Additionally, as part of the CAMO approval, EFW has received the airworthiness review privilege for Airbus wide-body and single-aisle aircraft from the Federal Aviation Office of Germany. This enables EFW to conduct airworthiness reviews on Airbus aircraft, issue airworthiness review certificates and support 'permit to fly' issuance for maintenance check flights and repositioning flights. For P2F conversion customers, this means their aircraft can be returned to revenue service immediately after conversion with a valid airworthiness certification.

ATR and Ethiopian MRO partner to enhance maintenance and training capabilities

ATR, the regional aircraft manufacturer, and Ethiopian MRO, a maintenance and training provider and part of the Ethiopian Airlines Group, have signed a letter of intent aimed at developing Ethiopian MRO's ATR aircraft maintenance and training capabilities. This strategic agreement marks a significant milestone in expanding ATR's presence in Africa and the Middle East, enabling enhanced support to local operators and fostering market growth. The cooperation will cover the development of Ethiopian MRO's maintenance capabilities for ATR aircraft types and the establishment of a local spares stock to reduce response time for ATR operators in the region. It will also explore collaborative ways to train new ATR pilots with the Ethiopian pilot academy. With its extensive aircraft maintenance and repair capability, an international network for seamless spare parts delivery, multiple hubs across the continent, and an aviation training university, Ethiopian MRO is a key player in the aftermarket and the ideal local partner to cater to the needs of the 36 airlines operating 131 ATR aircraft across Africa and the Middle East.Ato Mesfin Tasew Bekele, Ethiopian Airlines Group's Chief Executive Officer, said: "This partnership aligns with Ethiopian Airlines Group's vision to become a leading aviation reference for the African continent and the Middle East. We aim to share our expertise and benefit the entire African and Middle Eastern aviation community. This collaboration reinforces Ethiopia's positioning as a key hub, and the fact that an established OEM such as ATR approaches us to leverage our capabilities for their fleet and operators is a testament to the recognition we have earned." While some parts of Africa and the Middle East have flourishing regional aviation networks, with turboprops playing a key role for local businesses, goods transport, and tourism, the region remains widely under-connected: 67% of the routes under 500NM are operated once daily or less, representing only 11% of seats. Most traffic is concentrated on a few well-served trunk routes, while connectivity from secondary cities is declining. Flying turboprops offers a reliable, cost-effective solution for domestic and sub-regional connectivity, eliminating the need for expensive and environmentally disruptive ground infrastructure development. With its unrivalled versatility, fuel efficiency and low operating costs, ATR aircraft are the ideal platform to serve the growing connectivity needs of the region's communities. As part of its strategy to empower customer satisfaction and regional expertise, ATR also established a regional field service representative in Ethiopia at the end of 2023, as a key initiative to create more intimacy with its customers.

AJW Group and Ascend Airways sign power-by-the-hour contract

AJW Group, the independent provider of aircraft component parts, repair, and supply chain solutions to the commercial and defence aviation sectors, has announced the successful launch of a comprehensive power-by-the-hour (PBH) contract with Ascend Airways, which went live last month. The multi-year agreement will see AJW Group support Ascend Airways' Boeing 737MAX and 737NG aircraft with a tailored support programme, including components and maintenance, repair and overhaul services provided by AJW Technique in Montreal. The company's extensive global network of repair contracts is expected to expand by an additional two to five aircraft per year over the duration of the contract. Ascend Airways, part of the Avia Solutions Group family, was established in early 2024 to provide locally based aircraft and crew to meet the needs of UK-based airlines, tour operators, charter brokers, government departments, and NGOs.

Ascend Airways Boeing 737 MAX aircraft *© AirTeamImages*

"We are delighted to embark on this journey with Ascend Airways," said Scott Symington, Chief Commercial Officer at AJW Group. "This partnership underscores our dedication to providing top-tier support that drives operational reliability and efficiency. By offering solutions that optimise their fleet's performance and ensure passenger safety, we are committed to supporting Ascend Airways' growth and operational success."

Turkish Technic and Citilink sign component support agreement

Citilink Airbus A320 © *Turkish Technic*

Turkish Technic, the maintenance, repair, and overhaul (MRO) company, has signed a component support agreement with budget airline Citilink, based in Indonesia. This new component support agreement covers Citilink's Airbus A320 fleet. The cooperation will allow Citilink to benefit from Turkish Technic's component support and solution services, including component pooling, repair, overhaul, modification, home base kits and logistics services. Turkish Technic has been providing component support and solution services to Citilink for many years. Additionally, Turkish Technic has added landing gear overhaul services to the list of services it provides for the operator, further solidifying the long-standing partnership. Commenting on the agreement, Mikail Akbulut, CEO of Turkish Technic, said: "This agreement is a testament to Citilink's trust in our expertise and capabilities. We are excited to consolidate our long-standing partnership with our comprehensive component support services for their Airbus A320 fleet. We are confident in our ability to continue providing reliable and high-quality component services for the operator. We thank Citilink for trusting us as their solution partner over the years and look forward to many more successful years together." Operating as a one-stop MRO company with high-quality support, competitive turnaround times, and comprehensive in-house capabilities at its state-of-the-art hangars, Turkish Technic provides maintenance, repair, overhaul, engineering, modification, tailor-made component support, and reconfiguration to many domestic and international customers at five locations.

J&C Aero modernises Boeing 757-200 cabin

Maksim Jurkov, Head of Design at J&C Aero
© *J&C Aero*

J&C Aero, an EASA-certified international cabin interior hub, has completed a full cabin modernisation of a Boeing 757-200 by developing, producing and installing brand-new, modern interiors. Two additional Boeing 757s operated by a Central Asian airline will be modernised by winter 2024. Over the past nine months, J&C Aero designed, produced and installed new single-class cabin interiors that included new-generation seats, modern passenger service units (PSU), dynamic LED cabin lighting, as well as completely refurbished lavatories, cabin attendant stations and galleys. The renewal of seats and other systems decreased the overall weight of the aircraft by almost 1000 kg, providing the operator with extra fuel savings, in addition to an improved flight experience for passengers. During the project, the company also provided new floor covering and PL floor path marking systems, refurbished sidewalls, overhead and ceiling panels, repaired and restored damaged cabin parts, developed a new emergency equipment layout and introduced a new cabin appearance quality programme for more efficient cabin interior maintenance. Cabin interior elements were designed, refurbished and produced by J&C Aero at its cabin interior hub in Vilnius, Lithuania, while the installation works were completed by the company at the customer base. The modernisation of the remaining two aircraft will require no more than three months and is due to be completed by December 2024. "The air travel is blooming again, but the market lacks the capacity. Considering the backlog for new aircraft and growing scarcity in the secondary aircraft market, airlines turn their glaze on older-generation aircraft. For instance, the Boeing 757 – it was designed more than 40 years ago, but it can still show efficiency in terms of capacity and range. However, it can hardly meet the expectations of today's passengers when it comes to the comfort, technologies, and aesthetics of the cabin," commented Maksim Jurkov, the Head of Design at J&C Aero. "This was an extraordinary project for us – we needed to carefully design and integrate next-generation interiors into legacy cabins. We also required a solution that would minimise the production of OEM parts in order to avoid potential supply chain delays, particularly considering that historical Boeing 757 supply chains basically ceased to exist once the production of these aircraft ended. The solution was to design, produce and install almost all cabin elements in-house – something we were able to do thanks to our expanded capabilities. We are very pleased with the results and hope that the passengers will soon be able to enjoy comfortable and modernized Boeing 757s on their way to holiday destinations around the world."

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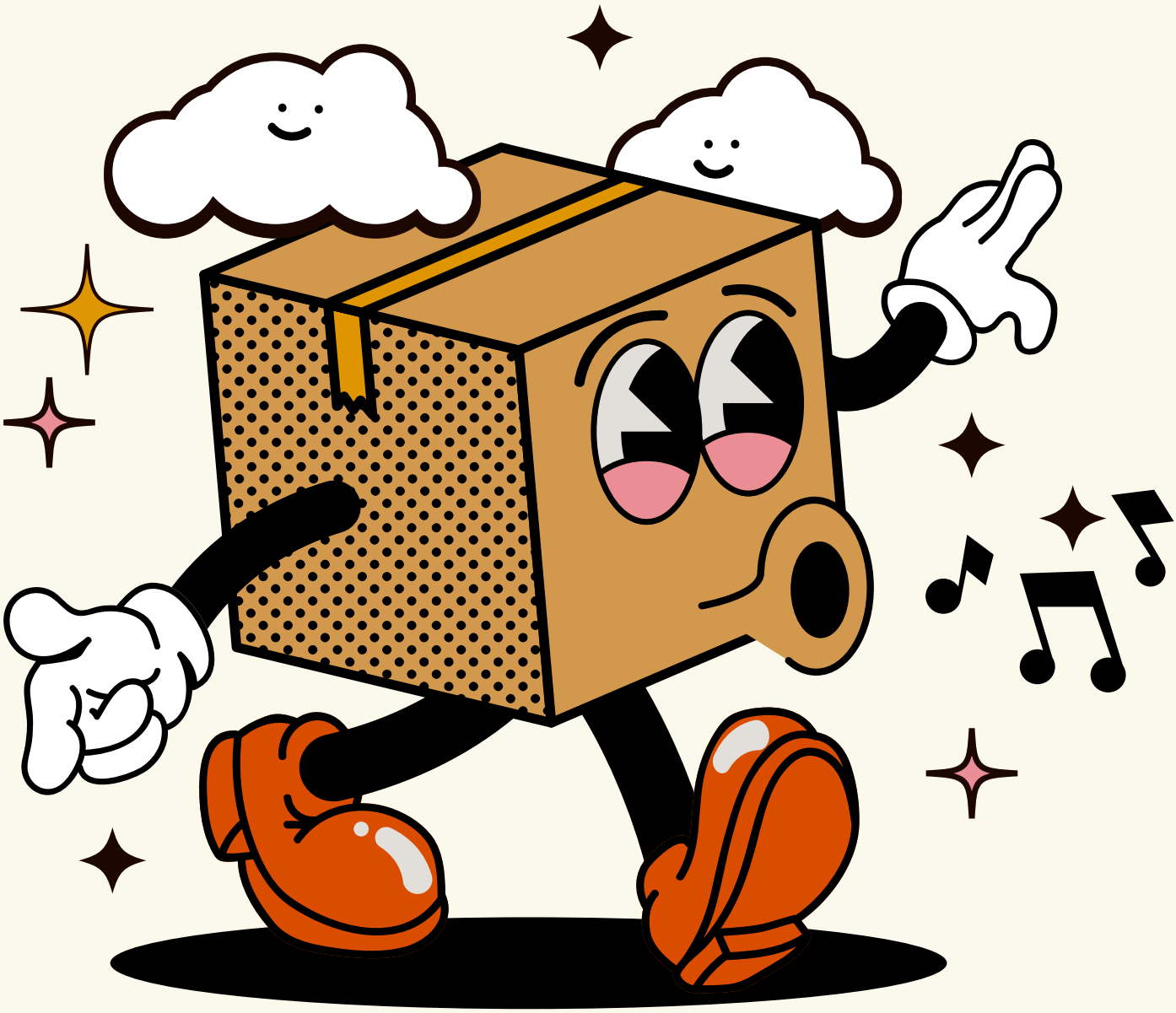

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EirTrade Aviation to disassemble Boeing 777-300ER at Knock, Ireland

EirTrade Aviation, the global aviation asset management and trading company headquartered in Dublin, has commenced the disassembly of its first Boeing 777-300ER in Knock. The aircraft, MSN 32643, will be disassembled, and the harvested material repaired to support EirTrade's Boeing 777 customer base. "There is a shortage of B777-300ER material in the market," says Lee Carey, VP Origination & Trading at EirTrade. "We are experiencing strong demand, and the aircraft comes with a freshly overhauled APU and landing gear with over 9 years of green time remaining. Operators and maintenance facilities of the aircraft, who are looking to source used serviceable material (USM) for the 777-300ER to reduce the cost of maintenance, will be able to access the material quickly as we anticipate the teardown taking just 30 days." The disassembly process will be coordinated in Knock, with stock located at EirTrade's facilities in Dublin and Knock, Ireland, and Dallas in the U.S. Carey confirms that EirTrade will be managing the inventory of assets with a view to selling, leasing, or exchanging material removed from the aircraft. "EirTrade has acquired multiple A320, A330 and E190 aircraft already this year, together with several commercial aircraft engine types. In addition to this aircraft, EirTrade has several other B777 aircraft in the pipeline that are expected to be disassembled in Q3 and Q4 this year."

The Boeing 777-300 lands in Knock for disassembly *© EirTrade*

ITP Aero extends MRO contract with Pratt & Whitney Canada

© ITP Aero

ITP Aero has extended its maintenance, repair, and overhaul (MRO) services contract with Pratt & Whitney Canada, an RTX business, for the mid-turbine frame (MTF) and low-pressure compressor (LPC) modules of the PW800 engine. This agreement, effective until 2028, aligns with ITP Aero's strategic focus on expanding its presence in the MRO market and enhancing aftermarket capabilities for key engine platforms currently in operation. The extension builds on the contract signed in 2021, which marked ITP Aero's first MRO contract with civil programmes as a risk and revenue sharing partner (RRSP). This earlier contract also established ITP Aero as the exclusive supplier of original equipment MRO services for the MTF and LPC modules of these engines. For the PW800 engine family, ITP Aero is responsible for the design, development, production, and assembly of the LPC and MTF modules. The PW800 engines power the Gulfstream G500 with the PW814GA, the Gulfstream G600 with the PW815GA, and Dassault's 6X with the PW812D. The PW812GA will also power the Gulfstream 400 aircraft. The PW800-engine family represents the latest technological advancements and is the most modern, efficient, and environmentally responsible engine in its class. It delivers double-digit improvements in fuel consumption, emissions, and noise compared to the current generation of engines, and offers 40% less scheduled maintenance and 20% fewer inspections than other engines in its class.

Alaska Airlines to retrofit B737-800 and MAX 8 with RECARO seats

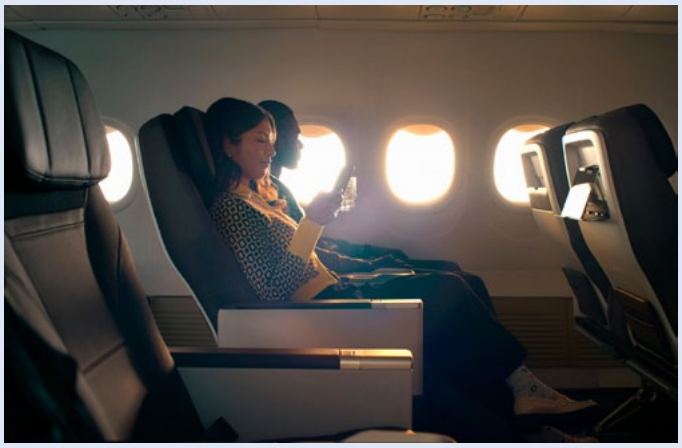

Image of R5 business-class seats © *Alaska Airlines*

RECARO Aircraft Seating has been selected by long-term partner Alaska Airlines to retrofit its Boeing 737-800 and MAX 8 aircraft with the R2 economy-class seat and R5 business-class seat. This retrofit will cover 79 aircraft in the Alaska fleet, totalling 12,719 PAX, with deliveries scheduled to begin in Q4 2024. As the launch customer for the R5 in 2017, Alaska Airlines will enhance passenger comfort significantly by upgrading the seats. The seating will prioritise passenger comfort with a six-way adjustable headrest and calf rest. It will also feature a BYOD holder integrated into the seat back and USB-C connectivity. Additionally, Alaska Airlines will transition one row of its Economy Class to Premium Class with the assistance of the RECARO Customer Service Team and the modification packages offered. The retrofitted cabins will also feature the R2 seat, a lighter and more modern version of the seat currently in flight, equipped with a comfort-plus cushion. The lightweight design of the R2 will allow for a more efficient cabin layout without compromising passenger space. This change will help reduce cabin weight and support the sustainability initiatives of both RECARO and Alaska Airlines. "After 12 years of partnership, we are honoured that Alaska Airlines has once again trusted RECARO Aircraft Seating in elevating the cabin experience with our premium seating solutions," said Dr Mark Hiller, CEO of RECARO Aircraft Seating and RECARO Holding. "Our R2 and R5 seats will also support Alaska Airlines' commitment to a modern, efficient and eco-friendly fleet." For years, RECARO seats have been synonymous with our industry leading First Class product. As we continue to grow our premium offerings to meet guest demand, we're excited to bring on the R5 and R2 seats on our 737-800 and MAX8 aircraft. Packed with features like calf rests and footrests in First Class, to ergonomic device holders and USB-C power throughout the cabin, these new seats are a pillar in our ability to deliver a premium experience to our guests," said Todd Traynor-Corey, MD Guest Products.

ACIA to commence first ATR 72-600 LCD freighter conversion

ACIA Aero Leasing (ACIA), a provider of regional aircraft leasing and lease management services, will commence the first ATR 72-600 large cargo door (LCD) freighter conversion. This project was initially planned in 2022 but was postponed due to sustained demand for the passenger variant of the aircraft. ACIA acquired five ATR 72-600 passenger aircraft this year and is allocating one of them (MSN 1239) to the first conversion. The project will commence in August 2024 at Empire Aerospace, Idaho in the United States, and it is expected that the conversion and final certification will be completed by Q1 2025. "We are continuing to see very strong demand for the overall ATR 72 platform, as it is the most fuel-efficient regional aircraft in its class," commented Mick Mooney, CEO of ACIA Aero Leasing. Over the last 18 months, ACIA has delivered eight ATR 72 freighters to customers, including six LCDs. "The demand for the 72-600 LCD has been there for some time as operators have been looking to renew their fleets with the latest technology. Along with our sister company, IPR Conversions, which owns the ATR conversion STC, we have the experience and capability to meet this operator demand," Mooney added. ACIA has successfully placed a substantial number of ATR 72 freighters into the market. Its latest delivery was a second Bulk Freighter Conversion (BFC) to Thailand's Pattaya Airways, ahead of the airline's commercial launch. The company also delivered an additional ATR 72-212 LCD to Aerlink in Australia. "As the 72-500 variant becomes scarcer, it was only going to be a matter of time before the first ATR 72-600 underwent freighter conversion. It is strategic for ACIA and IPR as a group to be the first movers," Mooney continued. "We see strong opportunities for growth in the cargo sector and we are already in active discussions with several prospects, existing customers, and operators exploring new market opportunities, particularly in Asia Pacific," he concluded.

Work in progress of the conversion of a new large cargo door (LCD) © *ACIA*

WLFC posts Q2 pre-tax income of US$57.9 million

Willis Lease Finance Corporation (WLFC) has posted record second-quarter total revenues of US$151.1 million and record quarterly pre-tax income of US$57.9 million. The company also announced its first regular quarterly dividend of US$0.25 per share, expected to be paid on August 21, 2024, with a record holder date of August 12, 2024. For the three months ended June 30, 2024, aggregate core lease rent and maintenance reserve revenues were at an all-time high of US$118.8 million, up 32% compared to US$89.8 million in 2023. The growth was predominantly driven by core, recurring lease and maintenance revenues associated with a strong, resurging aviation marketplace, with airlines leveraging the Company's leasing, parts, and maintenance capabilities to avoid protracted engine shop visits. Lease rent revenue was a record US$55.9 million in the second quarter of 2024, an increase of 2.7% compared to US$54.4 million in the second quarter of 2023. During the three months ended June 30, 2024, WLFC purchased equipment (including capitalised costs) totalling US$258.8 million, which consisted of three aircraft, 11 engines, and other parts and equipment for our lease portfolio. During the three months ended June 30, 2023, the company purchased equipment (including capitalised costs) totalling US$55.8 million, which consisted of nine engines and other parts and equipment for its lease portfolio. WLFC reported maintenance reserve revenue of a record US$62.9 million in the second quarter of 2024, an increase of 77.6% compared to US$35.4 million in the same quarter of 2023, reflecting the high level of usage of our assets by our customer base. Engines on lease with "non-reimbursable" usage fees generated US$45.9 million of short-term maintenance revenues in 2024, compared to US$28.6 million in the prior year. There was US$17.0 million of long-term maintenance revenue recognised in the three months ended June 30, 2024, compared to US$6.8 million long-term maintenance revenue recognised for the three months ended 30 June 2023. As of June 30, 2024, and June 30, 2023, there were US$24.6 million and US$19.8 million, respectively, of deferred in-substance fixed payment use fees included in unearned revenue associated with engines on short-term leases. These deferred in-substance fixed payment use fees represent portfolio utilisation beyond the maintenance reserve revenues reflected in our unaudited consolidated statements of income. Spare parts and equipment sales increased to US$6.2 million in the second quarter of 2024, compared to US$4.6 million in the second quarter of 2023. The increase in spare parts sales for the three months ended June 30, 2024, reflects variations in the timing of sales. Gain on sale of leased equipment was US$14.4 million in the second quarter of 2024, an increase of 223.4% compared to the comparable period, reflecting the sale of seven engines, eight airframes, and other parts and equipment from the lease portfolio. During the three months ended 30 June 2023, two engines and other parts and equipment from the lease portfolio for a net gain of US$4.5 million were sold. The WLFC generated a quarterly record of US$57.9 million of pre-tax income in the second quarter of 2024, compared to pre-tax income of US$19.0 million in the second quarter of 2023. The Company paid a special dividend of US$1.00 per share in the second quarter.

© WLFC

BOC Aviation achieves record profit and Expands Aircraft Portfolio in First Half of 2024

BOC Aviation has announced its unaudited results for the six months ending June 30, 2024. The company achieved a record net profit after tax (NPAT) of US$460 million, surpassing the previous first-half record of US$323 million set in 2020. This significant growth is attributed to the continued expansion of its core business and successful aircraft recoveries. The company's balance sheet remained strong, with assets exceeding US$24 billion and total equity surpassing US$6 billion for the first time. BOC Aviation committed to acquiring 14 additional aircraft, ending the period with a total committed capital expenditure of US$12 billion and an order book of 219 aircraft. As of June 30, 2024, BOC Aviation's fleet consisted of 680 aircraft, either owned, managed, or on order. The average age of the 429 owned aircraft was 4.9 years, with an average remaining lease term of 7.9 years. The company served 93 airlines across 47 countries and regions and executed 113 transactions in the first half of 2024, including commitments to purchase 14 aircraft, delivery of 18 aircraft, sale of 15 aircraft and 55 lease commitments. All aircraft in the order book are scheduled for delivery by December 2025, with placement already secured with airline customers. The owned portfolio achieved an aircraft utilisation rate of 99% for the period.

GE Aerospace investing US$1 billion to expand MRO facilities worldwide

GE Aerospace plans to invest more than US$1 billion over five years in its maintenance, repair and overhaul (MRO) and component repair facilities worldwide. These investments will help GE Aerospace create capacity to meet growth in both the widebody and narrow-body installed base by adding additional engine test cells and equipment. The funding will also add cutting-edge technology, including enhanced inspection techniques, to reduce turnaround times for customers and expand component repair capability within its overhaul shops.The largest portion of the investment will support growing demand for CFM LEAP engines as the fleet continues to mature and expand, with more than 3,300 LEAP-powered aircraft in service and more than 10,000 additional engines currently in backlog, increasing the global commercial airline fleet by thousands of planes in the coming years. Many of these investments are being made as a result of employees working to improve safety, quality, delivery, and cost through FLIGHT DECK, GE Aerospace's proprietary lean operating model – a systematic approach to running the business to deliver exceptional value as measured through the eyes of customers. A major part of the MRO funding this year provides for the construction of a new Services Technology Acceleration Center (STAC) near Cincinnati, Ohio. Opening in September 2024, STAC will help accelerate the deployment of innovative services approaches, including inspection technologies that detect emerging issues sooner and reduce airplane downtime for customers. In total, GE Aerospace regional repair and overhaul facilities across the globe will receive US$250 million in 2024 of the US$1 billion planned five-year investment to help fund facilities expansion, new machines, tooling, and safety enhancements. This includes: United States: ~US$65M (Cincinnati, Ohio; McAllen, Texas; Lafayette, Indiana; Dallas, Texas; Winfield, Kansas) South America: ~US$55M (Petropolis, Brazil), Europe and Middle East: ~US$60M (Budapest, Hungary; Prestwick, Scotland; London, England; Cardiff, Wales; Wroclaw, Poland; Doha, Qatar; Dubai, United Arab Emirates). Asia Pacific: ~US$45M (Singapore; Taipei, Taiwan; Kuala Lumpur, Malaysia; Seoul, South Korea), GE Aerospace's MRO facilities keep more than 40,000 commercial aircraft engines flying. Customer services include engine disassembly and reassembly, maintenance, repair and inspection, as well as testing.

Spirit AeroSystems reports Q2 2024 financial results

Spirit AeroSystems Holdings (Spirit) has reported its financial results for the second quarter of 2024. Spirit's revenue in Q2 2024 increased from the same period in 2023, primarily due to higher production activities on most commercial programmes and increased Defence and Space revenues, partially offset by lower production volume on the Boeing 737 programme. Overall deliveries decreased to 336 shipsets during Q2 2024 compared to 342 shipsets in the same period of 2023. Spirit's backlog at the end of Q2 2024 was approximately US$48 billion, including work packages on all commercial platforms in the Airbus and Boeing backlog. Commercial segment revenue in Q2 2024 increased from the same period of the prior year, mainly due to higher production across most programmes, partially offset by lower production volume on the Boeing 737 programme. Operating margin for Q2 2024 decreased compared to Q2 2023, primarily driven by higher changes in estimates. In Q2 2024, changes in estimates for the segment included US$212 million of net forward losses and US$49 million of unfavourable cumulative catch-up adjustments. Additionally, during Q2 2024, the Commercial segment included excess capacity costs of US$44 million. In comparison, during Q2 2023, the segment recognised US$102 million of net forward losses, US$16 million of unfavourable cumulative catch-up adjustments, excess capacity costs of $52 million, and strike disruption charges of US$7 million. Defence & Space segment revenue in Q2 2024 increased from the same period of the prior year, mainly due to higher activity on the Sikorsky CH-53K programme, partially offset by lower production on the Boeing P-8 programme. Operating margin for Q2 2024 increased compared to Q2 2023, primarily due to higher activities on the Sikorsky CH-53K, partially offset by higher costs on the Boeing P-8 programme. Aftermarket segment revenue in Q2 2024 increased from the same period of the prior year, primarily due to higher spare part sales. Operating margin in Q2 2024 decreased compared to Q2 2023, mainly due to sales mix. Operating loss for the second quarter of 2024 was higher compared to the same period in 2023, primarily driven by the more unfavourable changes in estimates during the current period. Total change in estimates in the second quarter of 2024 included net forward losses of US$214 million and unfavourable cumulative catch-up adjustments for periods prior to the second quarter of US$52 million. The Boeing 787 programme drove US$173 million of forward losses, primarily due to schedule changes, as disclosed as a subsequent event in the first quarter of 2024, as well as higher estimated supply chain costs. The Airbus A220 programme recognised US$25 million of forward losses, primarily resulting from production performance and supply chain cost growth. Unfavourable cumulative catch-up adjustments were primarily related to the Boeing 737 and 777 programmes of US$28 million and US$19 million, respectively. The Boeing 737 programme cumulative catch-up adjustments were driven by the delivery delays related to the product verification system as well as a higher cost profile maintained for a planned rate increase that has been delayed. The Boeing 777 programme cumulative catch-up adjustments were primarily driven by schedule changes and higher production cost estimates. Excess capacity costs during the second quarter of 2024 were US$46 million. In comparison, during the second quarter of 2023, Spirit recognised US$105 million of net forward losses, US$22 million of unfavourable cumulative catch-up adjustments, and excess capacity costs of US$53 million.

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Highlights from Farnborough Air Show 2024

Avolon orders 310 new engines for Airbus A320neo fleet

Global aviation finance company Avolon has announced orders for 310 new engines to power 155 Airbus A320neo-family aircraft in its order book. The order consists of 160 GTF engines from Pratt & Whitney and 150 LEAP-1A engines from CFM International. The combined orders, announced at the Farnborough Airshow, are valued at over US$5 billion at current list prices. The agreement also includes options to purchase a further 160 Pratt & Whitney engines and 150 CFM International engines. The orders represent Avolon's largest ever engine commitment. Both engine types help to lower carbon emissions by delivering at least 15% reduced fuel consumption compared to previous-generation engine technology, and also reduced noise levels. Transitioning the global fleet to new-technology aircraft is the biggest near-term action that can be taken to reduce aviation emissions, and Avolon is committed to a target of having over 75% of its fleet comprising the youngest, most fuel-efficient aircraft by the end of 2025. Beyond its 2025 target, the evolution of its fleet will be supported by deliveries of the A320neo-family aircraft out to 2032 that these engines will power. Avolon currently has 115 A320neo-family aircraft in its delivered and managed fleet, of which 39 are powered by Pratt & Whitney engines and 76 by CFM International engines. Following its order for 100 A321neo aircraft in December 2023, Avolon now has an order book of 279 A320neo-family aircraft.

Avolon has ordered 160 GTF engines from Pratt & Whitney and 150 LEAP-1A engines from CFM International © Avolon

NAC orders ten LEAP-1A engines for Airbus A321neo fleet

Lessor Nordic Aviation Capital (NAC) has placed an order for ten LEAP-1A engines to power five Airbus A321neo-family aircraft. The agreement also includes options for two additional LEAP-powered A321neo-family aircraft. Norman C.T. Liu, President and CEO of NAC, commented, "We are pleased to sign our first direct order with CFM, further strengthening our relationship with the leading engine supplier for the A320neo/A321neo family." NAC's portfolio includes Airbus A320ceo family aircraft with CFM56-5B engines, Boeing 737NG aircraft with CFM56-7B engines, A320neo aircraft with LEAP-1A engines, and 737 MAX aircraft with LEAP-1B engines – all of which reflect the company's recent investment in the narrow-body market. The CFM LEAP engine family delivers 15 to 20% lower fuel consumption and CO2 emissions, as well as a significant reduction in noise, compared to previous-generation engines. With more than 3,300 LEAP-powered aircraft in service, the engine has allowed CFM customers to avoid 35 million tonnes of CO2 emissions. The engine has been the most successful new product introduction in CFM's 50-year history, achieving the fastest ramp-up of engine flight hours ever in the industry – surpassing 50 million hours in just eight years.

Representatives from NAC and CFM International © *NAC*

SKY Airline selects GTF engines for Airbus A321XLR fleet

Chilean-based SKY Airline has entered into a memorandum of understanding to select the Pratt & Whitney GTF engine to power ten firm Airbus A321XLR aircraft, with options for 29 Airbus A320neo and A321neo aircraft. With this selection, the airline becomes a first-time Pratt & Whitney customer. "This selection is a testament to SKY Airline's confidence in the GTF engine over the long term," said Rick Deurloo, President of Commercial Engines at Pratt & Whitney. "These engines and aircraft will enable SKY to continue its route expansion while delivering industry-leading fuel efficiency and low CO2 emissions." Pratt & Whitney plans to provide long-term maintenance services via an EngineWise™ comprehensive service agreement. Founded in Chile in 2001, SKY is a low-cost airline that operates a modern fleet of Airbus A320/A321neo aircraft, becoming the first full neo-operator worldwide, flying to more than 40 domestic and international routes in the Americas through its subsidiaries in Chile and Peru. SKY Airline becomes a first-time Pratt & Whitney customer © Pratt & Whitney

SKY Airline becomes a first-time Pratt & Whitney customer

© Pratt & Whitney

© GE Aerospace

GE Aerospace signs engine orders with American and EVA Air

GE Aerospace and American Airlines (American) have finalised an order for 180 CF34-8E engines, plus spares, to power American's fleet of 90 new Embraer 175 regional jets. "The CF34 engine has a long track record of success with American Airlines, and we're grateful the American team is putting its trust in us again," said Russell Stokes, President and CEO of Commercial Engines and Services, GE Aerospace. "This order, along with the CFM deals announced this spring with American, highlights our continued success at providing our customers industry-leading products and services." Furthermore, following EVA Air's recent deal to purchase four Boeing 787-10 Dreamliner aircraft, the airline has placed an order for GEnx engines to power the new aircraft. "EVA currently operates 15 GEnx-powered Boeing 787s, and they have demonstrated outstanding fuel burn, performance, and reliability," said Clay Sun, President of EVA. "The additional engines will help us further expand our fleet to manage our growing route schedule." The GEnx-1B engine powers two-thirds of all 787 aircraft currently in operation. Engineered with cutting-edge materials and advanced design techniques, the GEnx represents a significant advancement in propulsion technology. Like all GE Aerospace engines, the GEnx can operate on approved SAF blends. With reduced weight, enhanced performance and decreased maintenance requirements, it has been established as the optimal engine for long-distance flights.

AAR signs multiple long-term distribution agreements with Ontic

AAR CORP. (AAR) has signed multiple long-term distribution agreements with Ontic, expanding the companies' existing commercial and defence partnerships. The two companies signed a long-term global exclusive commercial agreement for a specified list of parts for multi-channel satellite communication systems utilised on various platforms. Collectively, these agreements enhance AAR's robust offerings while leveraging Ontic's growing global presence to reduce lead times and increase the availability of parts for customers. Ontic is a global aerospace OEM, providing complex engineered parts and repair services for established aircraft in the defence and commercial market. Boasting a portfolio of 8,000+ top-level assemblies, Ontic is working with customers around the globe, with its team of experts delivering a wide variety of critical technologies, including fuel measurement systems, as well as a range of avionics, cockpit instruments and controls.

Rolls-Royce and Vietjet sign TotalCare agreement

Rolls-Royce has signed a TotalCare service agreement with Vietjet for the fleet of 40 Trent 7000 engines that will power 20 Airbus A330neo aircraft. The engine order was announced at the Singapore Airshow in February this year.The agreement will complement the airline's existing TotalCare coverage of its Trent 700-powered A330ceo fleet. TotalCare is designed to provide operational certainty for customers by transferring time on wing and maintenance cost risk back to Rolls-Royce. This industry-leading premium service offering is supported by data delivered through the Rolls-Royce advanced engine health monitoring system, which helps provide customers with increased operational availability, reliability, and efficiency. With a laser focus on sustainability, Vietjet has committed to the A330neo/Trent 7000 combination as it delivers a 14% better fuel burn per seat, whilst significantly lowering emissions. The reduction in emissions will allow the airline to avoid more than one hundred thousand tons of CO2 over the lifetime of each aircraft. Rolls-Royce is investing more than £1 billion (US$1.29 billion) in a programme that will deliver further improvements to the Trent engine family. For the Trent 7000, a durability enhancement package has been introduced which more than doubles engine time on wing and a second package of hot-section enhancements will deliver a further improvement of up to 30%. The engine is certified to operate on a 50% sustainable aviation fuel (SAF) blend today and has been proven to be compatible with 100% SAF for the future.

Vietjet has signed a TotalCare agreement for its fleet of 40 Trent 7000 engines © Rolls-Royce

Deutsche Aircraft concludes successful week at Farnborough Airshow

The team of Deutsche Aircraft © *Deutsche Aircraft*

Deutsche Aircraft, the German original equipment manufacturer (OEM), has concluded a successful week at the Farnborough International Airshow. The highlight of this year's event was the unveiling of the first fuselage cut for the inaugural test aircraft of the D328eco™ programme. The Farnborough International Airshow began on a momentous note for Deutsche Aircraft, as the OEM announced the initiation of the first fuselage cut for the D328eco test aircraft. This significant milestone sets the stage for the test aircraft's maiden flight. With over 95% of suppliers already on board, the D328eco programme has made remarkable progress over the past four years. In addition, Deutsche Aircraft welcomed two additional suppliers during the week, further strengthening the programme's robust supply chain network. These include SASMOS HET for the design, development and fabrication of the electrical wiring interconnection system (EWIS) and Triumph for the precooler. The prominent presence of Deutsche Aircraft at the 2024 Farnborough International Airshow was highlighted by its exclusive location at Chalet 328, a number synonymous with the OEM and its associated aircraft type. The construction of the chalet's Experience Centre was designed around the placement of the immersive D328eco mock-up, which was presented as a single cabin and cockpit experience. Anastasija Visnakova, Vice President Sales and Marketing at Deutsche Aircraft remarked: "Our successful participation at the Farnborough Air Show this year underscores our dedication to advancing the D328eco programme and solidifying our position as a leading player in the aviation industry. With major milestones achieved and an expanding network of suppliers and business partners, the future looks promising for Deutsche Aircraft and our innovative aircraft."


Leaders from De Havilland Aircraft and Pratt & Whitney Canada met at Farnborough to announce the launch of the certified refurbishment programme of the Dash 8-400 regional turboprop © *Pratt & Whitney*

De Havilland Canada launches new Dash 8-400 aircraft refurbishment programme

De Havilland Aircraft of Canada Limited (De Havilland Canada) announced at the Farnborough International Airshow a new OEM-certified refurbishment programme for its legendary fleet of Dash 8-400 aircraft. This programme will offer the option to equip refurbished aircraft with new Pratt & Whitney Canada PW150A engines. The PW150A engine, the most powerful civil turboprop in production, has recently demonstrated up to 30% increased time on wing. This achievement is a testament to 25 years of continuous investment through in-service product improvements, consistently bringing the latest technology to market and maintaining a 99.97% dispatch reliability over the last decade. The availability of a fleet of proven and modernised Dash-8 400 aircraft could not be more welcomed by the industry. "DHC and Pratt & Whitney Canada have a long history of leading aerospace innovation in Canada, and we are pleased to continue that collaboration through the OEM-certified refurbishment programme De Havilland Canada announced earlier this week," said Jean-Philippe Côté, Vice-President Programmes and Business Improvement. "There are thousands of DHC aircraft, powered by Pratt & Whitney Canada engines operating daily, from pole to pole and on all continents. Through this collaboration, we will continue to explore the best product solutions for our global customers." At a time when regional turboprop aviation is being hailed for its emissions, reliability and performance capabilities, De Havilland Canada and Pratt & Whitney Canada mark the 40th anniversary of the maiden commercial flight of DHC's Dash 8-100 aircraft powered by PW100 engines. This aircraft has helped transform regional aviation around the world and brought commercial air services to thousands of communities, helping to build social and economic capacity.

Boeing 787 cabin © *Boeing*

Lufthansa Technik becomes first BLSC for 787 Dreamliner modifications

Lufthansa Technik (LHT) is to become the first designated Boeing-licensed Service Centre (BLSC) for 787 Dreamliner cabin modifications, bringing additional choice and capacity to the market. As a BLSC, Lufthansa Technik is licensed to perform interior modifications on the 787 as an external MRO service provider. A joint announcement was made at the Farnborough International Airshow. Operators, lessors, and other companies with 787 cabin modification needs will now have the option to work with Lufthansa Technik. As a BLSC for 787 cabin modifications, Lufthansa Technik can design a new cabin interior, provide the associated engineering, and perform the integration in accordance with the customer's wishes. Along with the licence granted by Boeing, Lufthansa Technik will also cover certification of the modification projects. The cabin modifications on the popular long-haul wide-body will be performed at one of the MRO provider's global network facilities. Harald Gloy, Chief Operating Officer at Lufthansa Technik, said: "This is a great endorsement from Boeing of Lufthansa Technik's outstanding cabin modification services. Customers looking to modify the interior of their Dreamliner will be able to find the full range of services from us. As Boeing's licensed service centre for cabin modification of the 787, we are pleased to contribute our expertise in this area and to create additional capacity in the market as the world's largest MRO provider." Doug Backhus, Vice President of Boeing Cabins, Modifications and Maintenance, said: "We are pleased to bring additional interior modification capacity to 787 owners and operators by designating Lufthansa Technik as the first Boeing-Licensed Service Centre. Through this novel collaboration, customers will benefit from Lufthansa Technik's decades of MRO experience, and familiarity with the 787 platform." The two parties will continue to make the necessary preparations to enable Lufthansa Technik to start its first 787 cabin modification project in 2025. The BLSC will complement Boeing's existing 787 interior modifications offerings with additional capacity for the market. This agreement on 787 cabin modifications follows the completion of the first base maintenance event on a 787 Dreamliner this April at Lufthansa Technik Malta.

GKN Aerospace extends EWIS contract with Airbus for A220 planes

GKN Aerospace has extended its agreement with Airbus for the continued manufacture of all electrical wiring interconnection systems (EWIS) for the entire A220 aircraft. This multi-year contract extension reaffirms GKN Aerospace's role as a key EWIS supplier to Airbus. Having established itself as a long-term supplier to Airbus for EWIS on the A220, A320 and A320neo aircraft, GKN Aerospace's extended agreement highlights the company's expertise and reliability in delivering advanced electrical wiring solutions. The continued manufacturing of the A220 EWIS will be supported by existing GKN Aerospace teams based in the Netherlands, China and Turkey. Additionally, the extension supports the establishment of GKN Aerospace EWIS production in Mexico, ensuring seamless production and delivery and extending the GKN Aerospace global EWIS footprint. John Pritchard, President of Civil Airframe at GKN Aerospace, said:

© *GKN Aerospace*

"This contract extension reinforces our position as an industry leader in EWIS solutions, and builds upon our long and successful relationship with Airbus as a key supplier for the A220, A320 and A320neo aircraft. We are delighted to continue to provide cutting-edge EWIS technologies through our global network of sites to this important programme for the long term." GKN Aerospace is a renowned market leader in EWIS solutions for passenger planes, military aircraft, and aeroengines. A global network of sites, including those in China, India, Turkey, and Mexico, complements the company's state-of-the-art EWIS centre of excellence in the Netherlands. GKN Aerospace's cutting-edge electrical distribution systems power a significant number of today's commercial and military aircraft, underscoring the company's pivotal role in the aerospace industry.

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It All Started A Century Ago

The History of the Farnborough Air Show

The Farnborough International Airshow, one of the most significant events in the aerospace and defence industry, traces its origins back to the early 20th century. Over the decades, it has evolved from a modest trade exhibition to a global showcase of technological innovation and aviation prowess attracting everyone who is anyone in the aviation industry.

Origins and Early Years

The roots of the Farnborough Airshow can be traced back to 1920, when the Society of British Aircraft Constructors (SBAC) organised a small aviation trade exhibition in Hendon, North London. This event, focusing on British aviation, was held annually until 1932. After a brief hiatus during the economic hardships of the 1930s, the show returned in 1935, moving to de Havilland's airfield in Hatfield, Hertfordshire.

The Second World War paused many public events, including air shows, but after the War, the need to revitalise the British aerospace industry became apparent. In 1948, the event was relocated to Farnborough Airfield, home of the Royal Aircraft Establishment, marking the beginning of what would become a biannual event and a global phenomenon.

Why Farnborough?

Flying began at Farnborough in 1905 when the Royal Engineers' Balloon Section relocated from Aldershot in order to manufacture reconnaissance balloons and airships. Farnborough Common was the site in 1908 Samuel Cody where made the first official UK powered aircraft flight. The site grew rapidly with the formation of the Royal Flying Corps and the establishment of the Royal Aircraft Factory in 1912 to design and construct aircraft in big numbers during The First World War.

In 1918 the Royal Aircraft Factory (RAE) was renamed the Royal Aircraft Establishment (RAE); the majority of aircraft construction ceased, and the RAE concentrated on research and experimentation. The facilities and available resources attracted an exceptional diversity of highly skilled craftsmen, engineers and scientists, and led to its pre-eminent position among centres of aeronautical research and development worldwide through Second World War and afterwards.

The decision to move to Farnborough was strategic, given its central role in British aviation research and development.

Post-War Expansion and International Prestige

The 1948 Farnborough show was a major milestone, showcasing a wide array of post-war British aircraft, including military jets, bombers, and civilian planes. Among the highlights was the de Havilland Vampire, one of the first jet fighters to enter service with the Royal Air Force (RAF). This period marked the beginning of Farnborough's reputation as a showcase for cutting-edge technology, particularly in military aviation.

The 1952 airshow, however, was marred by tragedy when a prototype de Havilland

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DH.110 disintegrated during a display, resulting in the deaths of 31 spectators and the two crew members. However, despite this tragedy, the show continued to grow in stature. Safety measures were greatly improved, and the event solidified its place as a must-attend occasion for industry professionals.

By the 1960s, the Farnborough Airshow had firmly established itself on the international stage, attracting participants and visitors from across the globe. The show became a key platform for British manufacturers to exhibit their aircraft to potential buyers and government officials. During this time, iconic British aircraft like the Harrier jump jet and Concorde had made their debuts, generating worldwide interest and boosting the UK's profile in aviation.

Globalisation and Modernisation

In the 1970s and 1980s, the Farnborough Airshow underwent significant changes. The rise of globalisation in the aerospace industry meant that the show was no longer solely a British affair. International exhibitors became more prominent, with American, European, and later Asian manufacturers showcasing their latest developments. The 1974 show, for example, saw the participation of major international companies including Boeing and Lockheed.

Farnborough's significance continued to grow, and by the 1990s, it had transformed into a truly global event. The show became a key venue for the unveiling of new aircraft, ranging from commercial airliners to advanced military fighters. The event also expanded beyond aviation, incorporating exhibits on space technology, defence systems, and other related industries.

The 21st Century and Beyond

Now we are in the 21st century, the Farnborough Airshow has continued to evolve, reflecting changes in the aerospace and defence sectors. The show now serves as a barometer for the health of the global aerospace industry, witnessing the rise of unmanned aerial vehicles (UAVs), environmentally sustainable aviation technologies, and commercial space ventures, alongside traditional aerospace and defence exhibitions.

The 2012 airshow marked the event's shift towards addressing contemporary challenges, such as sustainability, innovation, and the future of aviation. With over £55 billion) (US$72 billion) in orders announced that year, it highlighted Farnborough's role as not just an exhibition, but also a marketplace for the aerospace industry.

Orders from Farnborough International Air Show 2024 are worth £13 billion (US$17 billion) for the UK alone, while deals announced across the first four days of the 2024 Airshow were worth a total of £81.5 billion (US$106 billion), according to ADS Group, the trade association for the UK's aerospace, defence, security and space sectors.

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A Splash of Livery

Talking about aircraft painting

By Swaati Ketkar

When we see a plane with beautiful livery glide past us at an airport or fly past us when up in the sky, the colourful gleaming tails, or the images on an airframe that glitter in the airport lights, the breathtaking beauty and enormity of the plane leaves us mesmerised to the point we absorb that feeling and take a mental image to be remembered forever. For most of us who thought painting beautiful, complex livery on an aircraft was a piece of cake, it is far from just taking a paint brush and splashing paint all over a plane.

Painting may be a form of art, but painting an aircraft is a different story altogether. It is no longer about a piece of metal and some paint. Aircraft painters require special training involving specialised painting technics, different paint to watercolours and acrylics, and a host of other things.

> **"White is usually the go-to colour."**
>
> *Allen Neufeld, Director of Business Development, Ascent Aviation Services*

Let take a dip in the colourful world of aircraft painting and discover more about what goes on behind the scenes in an aircraft painting hangar, the different patterns and technics of aircraft painting, the types of paint, the sustainability quotient, and more

White or 'other' wise?

If we scan the airport while waiting for our flight to arrive, we can easily spot that majority of the planes are painted white, and there is an obvious high-school science behind it. White reflects the sunlight, keeps the large fuselage of the planes cooler thus minimizing heat damage. The effects of the sun combines with the heat generated by aerodynamic friction causing the aircraft to heat up when airborne, and the white colour helps to mitigate this effect to a considerable extend.

Allen Neufeld, Director of Business Development, Ascent Aviation Services

If we look closer into the history of aircraft, they were not painted white initially, but aircraft retained the sleek aluminium colour of their fuselage. This trend slowly began to change towards the 1970s when Air France introduced their Euro-white livery with 'all-white' fuselage which slowly gained widespread appeal.

Since then, most aircraft have been painted white, but the current trend is changing towards more a colourful livery. "White is usually the go-to colour based on heat reflection, maintenance visibility, cost-effectiveness, and branding visibility," says Allen Neufeld, Director of Business Development, Ascent Aviation Services. "Of lately, customers often like custom schemes that show the owner's personality or a specific theme to mark a particular occasion," adds Colleen Back,

> **"Aircraft are parked and deactivated in the hangar, then cleaned and masked for chemical or mechanical stripping."**
>
> *Richard Neath, Vice President Operations, Dean Baldwin Painting*

Richard Neath, Vice President Operations, Dean Baldwin Painting

Vice President Customer Programs for StandardAero's Business Aviation division. For example, Air Nippon Airways, Air China, Scoot, etc., wore special Pokémon liveries and that increased the popularity of the Japanese cartoon characters around the world. But does special livery require special care and maintenance? What about the time and costs involved? "For special colour, products such as metallic paint or clearcoat finishes are used which might lead to maintenance challenge down the road," Back advises. Speaking about the costs involved Neufeld points out that the more specialized the paint scheme, the greater the cost involved.

When asked about the maintenance challenges for specialised livery, Back goes on to explain that "Over time, should there be chips in the paint from normal wear and tear, it is very difficult to 'match' metallic paint, and tasks may require more labour hours and dollars to touch up paint after a maintenance inspection." Back further adds that "The seamless metallic look may have some variations after the touch up simply due to the nature of clearcoat and metallic products."

Richard Neath, Vice President Operations, Dean Baldwin Painting LLC sums up by telling us that "livery complexity adds a small amount to the overall process, but the main cost in refinishing an aircraft is in the preparation."

Painting an aircraft!

Once the colour, the livery design, painting costs and time to be taken has been agreed upon, then comes the actual process of painting an aircraft. Let us find out how it is done!

"Aircraft are parked and deactivated in the hangar, then cleaned and masked for chemical or mechanical stripping," says Richard Neath "After the stripping process, the remaining parts that will be painted are sanded and then the whole aircraft is rewashed. The aircraft is then masked, pretreated, primed and top-coated," he adds.

Neufeld goes on to explain the aircraft painting process by mentioning several key steps. "The painting process starts with thorough cleaning and preparation of the aircraft's surface, followed by priming to enhance paint adhesion and protect against corrosion." Once the paint adhesion is applied then comes the actual painting process in which several layers of paint are applied using advanced techniques like electrostatic spraying for even coverage, and then finishing with a clear coat for durability.

Timeframes and factors influencing aircraft painting

A paint job's primary task it to protect the aircraft from corrosion, but there are many aesthetic reasons for an aircraft to be painted, especially in the corporate and private aircraft segment. Back goes on to list several factors that lead to re-paining like length of time in service, the level of quality of the last paint job, and environmental factors that may affect the paint such as extended exposure to the sun, sand, or humidity.

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According to Back, the following factors eventually lead to aircraft painting –

- Its most common to re-paint in conjunction with a large maintenance inspection, avionics installation and/ or interior refurbishment work scope to minimize overall downtime for the aircraft.
- When an aircraft is changing hands, and the new owner wants to refresh the livery to their desired scheme.
- Corporate and private aircraft owners generally set a very high visual quality standard since these aircraft are a business tool and are frequently used with clients and business partners where the aircraft can be scrutinized closely on the ramp, as compared to an airliner that is seen from a jetway most times.
- Corporate and private aircraft typically have large inspections every 6-8 years, and this is often when aircraft are repainted.
- There is generally no set requirement for the paint interval, but is highly recommended to do with some regularity for corrosion control.
- When an aircraft is grounded for major scheduled maintenance, it is often dismantled to some degree during the inspection process, which can expose corrosion.
- Additionally, the removal of components and fasteners during inspection and maintenance tasks can lead to exposed skin on the aircraft.
- Although reputable maintenance facilities normally touch up such degradation, the aircraft paint and primer degrade over time from wear and tear from weather, large temperature and air pressure swings between ground operations and flight operations, and time spent in harsh climates vs in a hangar during its life cycle.

"Airlines may also choose to repaint their aircraft to reflect new branding, updated logos, or livery designs," adds Neufeld.

"Aircraft are generally repainted every 7-10 years, sometimes sooner as operators/ owners change and require a livery update," says Neath. Apart from these, he sides with Back in terms of several other factors that can impact the timeframe like airline's maintenance practices, the type of paint used, and environmental conditions.

Neath further breaks down the painting schedule based on narrow-body or wide-body aircraft. "Narrow-body jets or regional jets are painted more often than wide-body aircraft due to the stress of more ground-to-air cycles," Neath adds.

- Narrow-body aircraft – 8 to 10 years
- Wide-body aircraft – 10 to 12 years
- New composite aircraft – 5 to 6 years.

"Historically, aircraft need to be repainted every four to five years," says Richard Marston, Chief Commercial Officer, MAAS Aviation. "But, using the latest technology products coupled with our OEM-standard painting techniques and processes, we are seeing finishes that are still looking great and performing well seven and even eight years after being painted." On an average, Marston concludes that for MAAS aviation customers the average length a paint scheme lasts is now between six to eight years.

"All-in-all while general guidelines exist for repainting, the decision often depends on the specific needs of the aircraft and the operational requirements of the airline," Neufeld concludes.

> ***"Historically, aircraft need to be repainted every four to five years."***
>
> *Richard Marston, Chief Commercial Officer, MAAS Aviation*

But then again, protection and proper care of the aircraft with regular scheduled washes plays a vital role in extending the life of an aircraft's paint. Marston further explains that the use of UV technology in the latest basecoat clearcoat systems also have much better colour stability and gloss retention than the formerly used high-solids topcoat systems. "So, you don't see powdery, flat looking colours after time anymore, they stay bright, vibrant and shiny through the course of the paint scheme life," Marston adds.

Painting downtime

Another important factor in the painting process is the turnaround time (TAT) taken to paint the entire aircraft.

The TATs depend mostly on the following
- Type of aircraft
- Technology used for painting
- Livery selected

"The type of aircraft and the complexity of livery selected are crucial time-deciding factors," explains Neufeld. He further goes on to explain with the different aircraft models – "Larger commercial jets like the Boeing 737 or Airbus A320 may require 7-10 days and wide body aircraft, A330 or B747 usually require 14-18 days," he adds.

Agreeing with Neufeld in this analysis, Neath adds "A narrowbody typically takes 7 to 10 days, Widebody takes about 10 to 12 days to pain while a complex versus simple livery can add mostly two more days unless it is highly specialised like a mural which can add two to three weeks more to the process."

Back provides a pictorial representation of the average downtime required to paint based on the aircraft size. "StandardAero maintains, modifies and paints large-cabin corporate aircraft like Gulfstream, Bombardier Global/Challenger and Dassault Falcon Jet. (See item 3)

The complexity of the livery also plays a crucial role. Neufeld explains this with different livery examples like simple, single-color designs that can be finished more quickly while more intricate graphics and multiple colours can extend the process. Adding to Neufeld's explanation, Back further breaks down the downtime based on each large corporate aircraft scheme. The uniqueness of the theme decides the time. "Typical downtime is 32-28 calendar days for a typical scheme," says Back.

Hence she reasons that paint events are often paired with other major modifications such as interior upgrades so that the downtime is efficiently planned with that event."

Short-cuts in livery painting

Neufeld throws light on some short-cut methods used for livery painting that can reduce time and costs, but he also cautions that their feasibility depends on various factors.

Vinyl Wrapping – This allows for vibrant graphics and designs to be applied more quickly than traditional painting, while also being removable for easy updates

Selective painting - Specific sections of the aircraft are refreshed, saving both time and labour costs, however blending new paint with existing colours may pose challenges with this method.

Simplified designs with fewer colours – This can also expedite the process, offering a quicker way to refresh branding without the complexity of intricate graphics.

Electrostatic painting – Though this requires an investment in equipment.

Neufeld goes on to give a brief overview

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by comparing all of the above techniques with examples: "Vinyl wraps may not last as long as traditional paint, they offer flexibility in design updates." Neufeld also places emphasis on durability, aesthetic quality, and regulatory compliance.

Ultimately, while these shortcut methods can be effective, careful consideration of the desired outcomes and long-term implications is essential.

© *Ascent Aviation Services*

Difference between painting an old aircraft and a new one?

The process of painting a new aircraft differs significantly from that of repainting an old one. Nuefeld explains the difference.

Old Aircraft	New Aircraft
- older aircraft often necessitate extensive surface preparation, including stripping off old paint, repairing corrosion, and ensuring a clean and smooth base for the new paint	- The surface typically comes with a factory finish that requires minimal preparation, allowing the focus to be on applying paint over a smooth, unblemished surface.
- older aircraft may need multiple layers to achieve adequate coverage, particularly if the previous paint has degraded.	- When it comes to paint layers, new aircraft generally require fewer layers due to their optimal condition.
- older aircraft may experience extended curing periods due to additional repairs and environmental factors.	- Curing time - new aircraft benefit from controlled conditions.
- time-consuming and costly due to the extensive preparation and repairs.	- quicker and less expensive
- The priming process is also more critical for older aircraft, as it serves to protect against corrosion and ensure proper adhesion.	

When asked, Neath, he too is in agreement. "The difference is clearly visible on the composites and subsequent cracking," he says. Explaining in details, he expands: "For many years the industry would just scuff and paint and the paint thickness began to build beyond its ability to remain flexible. Now, the industry spends tens of thousands of man hours trying to restore the aircraft to the original specs."

Latest technologies in aircraft painting

Productivity developments in the aircraft paint application process have greatly enhanced efficiency and quality in recent years. If we were to go back in time and look at the evolution of aircraft painting technology over the years, we can see that the industry has evolved significantly. "The shift is more towards lighter and more durable paint formulations, including low-VOC options that are more environmentally friendly," Neufeld says.

Agreeing with Neufeld, Marston adds, "The biggest developments in recent years have been in the actual paint systems, where we have seen huge technical advances." Marston further reasons that this has led to a real shift in preferred materials and today the market predominantly uses basecoat clearcoat paint systems and the latest SRM (Structural Repair Manual) systems. Further explaining the process with examples like Socogel and Bogel, Marston throws light on how these products have replaced the chromated Etch/Wash primers and are a lot more reliable and give greater longevity of paint finish as well as being much more environmentally friendly.

Neath explains the pretreatment processes that provide an excellent surface for adhesion. "Old-technology pretreatments had very specific times and ranges that could cause catastrophic failure if dwell times or mixtures are precise. Basecoat clearcoat systems have also reduced the time between colours allowing for more complex liveries to be accomplished in less time."

Neufeld further points out various spraying and coating technologies which are a game-changer in aircraft painting.

- Electrostatic spraying technology further boosts productivity by using an electrostatic charge to attract paint to surfaces, improving transfer efficiency and reducing waste.

- High-performance advanced coatings, often requiring fewer layers for effective coverage and featuring faster curing times that allow for quicker turnaround between application and return to service.

- Lean manufacturing practices have streamlined workflows, optimized paint booth layouts, and minimized waste, contributing to overall efficiency.

- Additionally, digital tools for colour matching and application planning enhance accuracy and reduce errors.

- Investing in training programs for workers on the latest techniques and technologies has improved skills and efficiency, leading to higher productivity levels.

Together, these advancements have transformed the aircraft painting process, resulting in faster turnaround times, reduced costs, and improved quality.

Looking ahead, automation of certain parts of the painting process is likely to be the next big jump forward. Marston mentions about the possibilities for 3-D printing and aircraft wrapping that are currently being explored by all the OEMs, as they look at how the process can be enhanced. Neufeld also mentions about the introduction of automated systems, particularly robotic painting that has increased precision and consistency, allowing for even layers of paint while minimising overspray.

"But this is all still a long way off in my opinion as there are many challenges ahead, not to mention huge investment needed, before these advances become economically viable and a reality in the mainstream," Marston says.

He goes on to explain the way of working and technology inculcation at MAAS. "We actively track new technical innovations in the sector and are working with a number of partners to understand what could be coming available in the years ahead and how these developments might integrate into our facilities in the future."

However, he says that even today the actual painting process of an aircraft at MAAS is still a very manual process. "For us at MAAS, our present focus is on refining our in-house training programmes and continually fine tuning our methods to ensure we're always delivering the highest quality paint finish in the fastest turnaround times possible."

Glimpse of an aircraft painting hangar

A high-quality paint hangar is very different to a standard aircraft hangar. The hangar is often environmentally controlled by regulating the temperature, humidity and airflow to ensure that the temperature stays at optimum level as per the paint manufacturer's recommended metrics, despite the changing weather conditions outside.

Back emphasises the use of an efficient painting hangar with proper tools, to ensure best results. "Some paint shops reduce costs by not installing enough ventilation and filtration to accommodate the size of the hangar. Although the customer will pay less at those shops, they may also encounter issues with paint adhesion and visual imperfections in the paint itself from not having a high level of environmental control during the paint process," Back concludes.


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Changing Trends in aircraft painting

Advancement in technology, sustainability and branding strategies are driving the global trend in the aircraft paint industry segment. Back feels that "Paint schemes on corporate and private aircraft are becoming more personalized, and utilizing effect paints such as metallics, micas, and pearls."

Some of the latest market trends are –

- Use of custom schemes – Use of a different base colours apart from white. Custom schemes can range from the use of a different colour for the belly and top (split-base scheme), highly complex stripe layouts, fades or gradients, logos or patterns on large area.
- Innovative finishes – Like matte and satin textures, iridescent paints are becoming popular, allowing airlines to create visually striking branding.
- Eco-friendly products - Low-VOC paints and coatings align with the aviation industry and commitment to sustainability.
- Lightweight paint formulations – They are gaining traction as they help reduce overall aircraft weight, leading to improved fuel efficiency
- Digital printing – Enables intricate designs and custom graphics to be applied more quickly and precisely.
- Reflective, and heat-resistant coatings – They are gaining attention for their ability to improve energy efficiency.

With regulatory compliance becoming increasingly stringent, manufacturers are developing products that meet these standards, driving innovation in paint formulations. Neufeld adds that "airlines are increasingly opting for custom and complex designs to enhance their brand identity, while maintenance-friendly products that resist scratching and fading are in demand to prolong the appearance of the aircraft."

Overall, as airlines seek cohesive fleet branding strategies and a commitment to environmental responsibility, these trends are shaping the future of aircraft painting.

Qualifications/Training/ Standardisation for aircraft painting

Specialised qualifications, training, and standardisation procedures for aircraft painting are essential to ensure safety, quality, and compliance with industry standards. Painters often need certification from relevant aviation authorities, such as the FAA in the US or EASA in Europe, which typically requires completing a recognised training programme and passing examinations. Back gives the example of Standard Aero's Springfield, Illinois MRO facility that has an FAA-approved paint process. The process was reviewed by an FAA Designated Engineering Representative (DER). Back says that this approval ensures the company is using industry-accepted material and process standards. "The approved process is then implemented via

job cards which identify the tasks for each phase of the paint process, and each job card is signed off as the work progresses," Back further adds.

Many airlines and maintenance organisations offer specialised training that covers surface preparation, application techniques, material usage, and safety protocols.

> ***"Corporate aircraft paint projects require different skills than airline livery paint projects."***
>
> *Colleen Back, VP Customer Programs for StandardAero's Business Aviation division*

Speaking about specific skills Back says, "Corporate aircraft paint projects require different skills than airline livery paint projects." Every corporate and private aircraft has a unique paint scheme, which is quite different than an airline livery that utilizes the same scheme across a fleet. Back explains this with an example, "StandardAero does not use lasers for stripe layout assistance. This allows the technician team to make tape adjustments for components on the aircraft that are not depicted on the customer-approved rendering. The stripe layouts can be quite complex, and require a specific skill from the technician team."

Neufeld goes on to mention about the safety factor. "Given the hazardous nature of some materials used, safety training is crucial, including instruction on personal protective equipment (PPE) and proper handling of chemicals." He feels that additionally, painters must be trained in specific application techniques, such as spray painting and electrostatic painting, as well as understanding the properties of various aviation paints and coatings.

Quality control training is also vital, encompassing inspection methods and the ability to identify issues like adhesion problems. Familiarity with regulatory compliance, including standards set by aviation authorities, is necessary to meet safety and performance criteria. Neufeld stresses on continuous education to keep skills updated with advancements in technology and materials. In addition to upskilling, adherence to standard operating procedures (SOPs) and industry best practices is essential for maintaining clean work environments and ensuring safe painting processes.

Speaking about the new certification on the horizon, Neath excitedly talks about the one that is sponsored by SAE engineering group. "The new training specification is AS 7489. This will become the global certification from the EASA, FAA and DOD," Neath adds.

Neath further goes on to explain its importance, "This certification will ensure customers get quality trained technicians at any given MRO where the technicians have the certification."

Together, these qualifications and

training prepare aircraft painters to perform their jobs safely and effectively, contributing to the overall safety and quality of aviation operations.

Sustainability & Painting

With CORSIA targets heading closer, aircraft manufacturers, airlines, OEMs and MROs are finding newer and more innovative ways to reduce carbon emissions and painting an aircraft plays a major role in it. In the aviation sector there is of course an ever-increasing focus on sustainability and ESG

Issues, says Marston, "At MAAS this has been a key part of our business plan for many years and we work hard to be as 'green' as possible in all our operations and facilities. As we design, build and operate our own paint shops, environmental systems are included in our site plans from day one and I'm proud to say that all MAAS facilities are ISO 14001 Environmental Management certified," Marston adds.

"Advances in automation and robotics have improved precision and reduced waste, while new coating technologies enhance resistance to fading, chipping, and corrosion," informs Neufeld. Explaining the developments in paint technology that are actually making headway in improving sustainability Marston explains: "The introduction of non-chromate pre-treatments plus the latest primers and basecoat clearcoat systems are in themselves more environmentally friendly products, but they also deliver huge adhesion improvements."

Marston further explains that this in turn means that the aircraft don't need to be painted as often, which clearly brings its own environmental benefits. "These systems also reduce the weight of the paint on the aircraft which over time reduces fuel burn. We are currently working with customers to assess the impact of these weight and fuel burn savings over the longer term, and look forward to sharing data on this with the industry when available," Marston reasons.

Neath tells us about the very promising new chrome-free technologies that enhance employee safety as well as minimising the environmental impact. "It will be 20 years before the industry is able to see a substantial reduction in hazardous waste due to the current in-service fleets and the slow progression of the latest technologies," Neath further adds. However Marston begs to differ, he says that MAAS has already adopted sustainable practises to the fullest extent and the company is reaping the benefits. He further goes on to explain how sustainability is at the helm of operations at MAAS

- Across the sites, MAAS has a number of recycling initiatives already in place to reclaim and reuse materials. The latest example of this is a water treatment plant to process chemical waste from its daily operations and separate the water from the contaminants, enabling cleaner and easier disposal.

- Furthermore, all of the paint bays at MAAS have underground sump systems built below the hangar floor to ensure no waste chemicals or contaminated water ends up on the apron or local area.

- MAAS has also developed their own unique recycling technology which allows to recover 80% of the used solvents. These solvents are then redeployed for cleaning equipment such as paint guns, lines and pipes.

- All the dry materials used in the painting process, such paper, plastic sheeting and tape, are also recycled.

Marston further adds that "There is an Executive Leadership Team member at MAAS responsible for driving our ESG roadmap forward with the objective of making a meaningful contribution to combating the impact of CO2 and other greenhouse gas emissions generated through our business practices."

All-in-all, many companies are adopting sustainable practices, focusing on eco-friendly paint choices and recycling waste materials, making the painting process more efficient, cost-effective, and environmentally responsible.

Rising demand for painting slots

The increased demand for aircraft painting services is driven by several key factors, including the growing global fleet of commercial and private aircraft due to rising air travel demand. "Airlines and operators are placing greater emphasis on branding, using unique liveries to enhance visibility and differentiate themselves in a competitive market," adds Neufeld. Aesthetic upgrades are also essential, as airlines refresh their fleets to maintain passenger appeal and modernise older aircraft. Also, a very clean and aesthetic looking exterior is very pleasing to a potential buyer, so leasing companies sometimes opt to get a clean paint job accomplished prior to putting a plane on the market.

Agreeing with Neufeld, Back adds, "When the resale market is active, new owners often want a different paint scheme applied to fit their taste after the purchase."

Sustainability trends are influencing the industry, with a shift towards eco-friendly paint technologies, while mergers and acquisitions create a need for rebranding and repainting to reflect new corporate identities. Furthermore, the aviation industry's increased focus on maintenance ensures that regular repainting is part of comprehensive upkeep strategies. As per Neufeld, "Technological advancements in painting processes make repainting more efficient and cost-effective, further encouraging operators to seek these services."

Most importantly, in the post-COVID years, some older aircraft retirements have been postponed by owners as demand for private aviation hit record highs. Now, with demand slowing just a bit, some of those older aircraft are receiving some investment in paint and other modernisation steps such as new interiors, upgraded avionics, etc.

Collectively, these factors contribute to a robust market for aircraft painting services in the aviation industry. Additionally, regulatory compliance mandates periodic repainting to address wear and tear and ensure safety standards.

However, the current supply chain constraints are impacting the aircraft paint industry in various ways. "Material shortages, particularly of specialized paints and coatings, have led to delays in painting projects as suppliers struggle to meet demand," says Neufeld. These shortages contribute to increased costs for raw materials due to scarcity and rising transportation expenses, which may be passed on to customers.

Additionally, logistics disruptions have extended lead times for the delivery of essential supplies, complicating maintenance schedules for airlines. The industry is also facing labour shortages, making it difficult to find skilled workers for painting projects, further slowing production rates.


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¿Hola, Qué Tal?

Exploring Iberia Maintenance

By Swaati Ketkar

Iberia Maintenance - the entire MRO fraternity knows this name. Over the years Iberia Maintenance has carved a niche for itself in terms of providing state-of-art MRO services to global airline operators. Well, 'over the years' means exactly how many years? Any guesses? About 30 years, while some would say well 50! In truth, Iberia Maintenance is a little over 97 years old, as in June 2024, it celebrated its 97th anniversary and is slowing inching closer to being a 'company with a century of history' to back it up. "After all these years in the MRO business, our company continues with the same enthusiasm as on the first day," says Julián López, Commercial Director, MRO, Iberia Maintenance. Thanking the hard work and dedication of all the Iberia employees he adds, "We are very proud of our passionate staff who do their utmost to always get the job done on time with the highest standards of safety and quality."

With the head office in Madrid and an additional home base in Barcelona, Iberia has a workforce of over 3,000 employees across different locations.

So, inching closer to a solid 100 years in MRO services, what has Iberia Maintenance achieved over the years that sets it apart? It is said that as you age, you grow wiser, more mature and advanced, and that's exactly what sets Iberia Maintenance apart from its competition, the huge wealth of its experience accumulated over a period of almost a century! Let us delve further into some of the key services offered by Iberia Maintenance.

Iberia Maintenance provides Airframe, Engines and Components services. Regarding airframe heavy maintenance capabilities, Iberia Maintenance covers all Airbus narrow-body fleets plus the A330. The company offers 12 narrow-body and one wide-body hangar bays in Madrid and Barcelona. Iberia Maintenance has three hangars in Madrid and one in Barcelona with 18 positions and the workshops needed to provide maintenance and material administration services for both wide- and narrow-body aircraft.

Iberia Maintenance carries out heavy checks for Iberia group (Iberia and Iberia Express) and all the members of the IAG group (Vueling, British Airways and Aer Lingus). In terms of expanding third-party MRO work López specifies that it depends on the business we are analysing. " In the engine business, the workload from IAG airlines is around 30% of the total, while the other 70% comes from third-party customers, but in the Heavy Maintenance division is the other way around."

He reveals that Iberia plans to grow both – the CFM and V2500 platforms with the growth strategy focused on third-party maintenance work.

When asked about Iberia Maintenance's connection with British Airways, López specifies that all the operating companies within the IAG Group have benefited in term of synergies and BA is no different. "Related to MRO work, we have explored alliances with BA mostly in Base Maintenance," says López. "On the other hand, if we talk about engineering, we have solid teamwork, where we share best practices periodically and are put into practice with all airlines in the group," he comments further.

> "After all these years in the MRO business, our company continues with the same enthusiasm as on the first day."
>
> *Julián López, Commercial Director, MRO, Iberia Maintenance*

> “Related to MRO work, we have explored alliances with BA mostly in Base Maintenance.”

Iberia Engine Maintenance © *Iberia Maintenance*

Line Maintenance

Iberia Maintenance provides 24/7 line maintenance capabilities with mobile maintenance teams comprising highly qualified engineers and mechanics ready into spring to action at the first call. Iberia maintenance prides itself on being able to repair damage to engines or to the airframe anywhere in the world within a matter of hours.

The wide variety of services includes technical assistance with or without CRS (Certification of Release to Services) for transit-, layover- or night stopping aircraft, available for a vast range of aircraft/engine type combinations.

• Iberia Maintenance provides line maintenance services in Madrid, Barcelona and some 32 strategically-located sites around the world.

• Every minute that an aircraft is idle represents an economic loss for the airline. The experienced and highly-skilled technicians reduce this time to a minimum.

• Iberia Maintenance is a member of the European Line Maintenance Organization (ELMO) and IATP (International Airlines Technical Pool).

The component shops embrace broad capabilities for all different technologies, including but not limited to High Dynamic Pressure and Temperature facilities for all pneumatics components, Hydraulic Power Plant for many different Hydraulic Actuators, fuel and oil test benches for engine accessories for a wide range of engine fleets and Sheet Metal/Composites technologies to repair nacelles, flight control surfaces and structural parts. In addition, Iberia Maintenance offers its customers its Wheels and Brakes shop specialised in aircraft such as the Boeing 737 and Airbus A350, plus the Nacelle shop, where the company is an expert in Reversers and Fan Cowls for the A350 and Fan Cowls and Inlet Cowls for the Trent 700.

© *Iberia Maintenance*

Some of the key take-aways from the component shop are -

• In-house repair capabilities and reliable turnaround times to keep the fleet in the air.

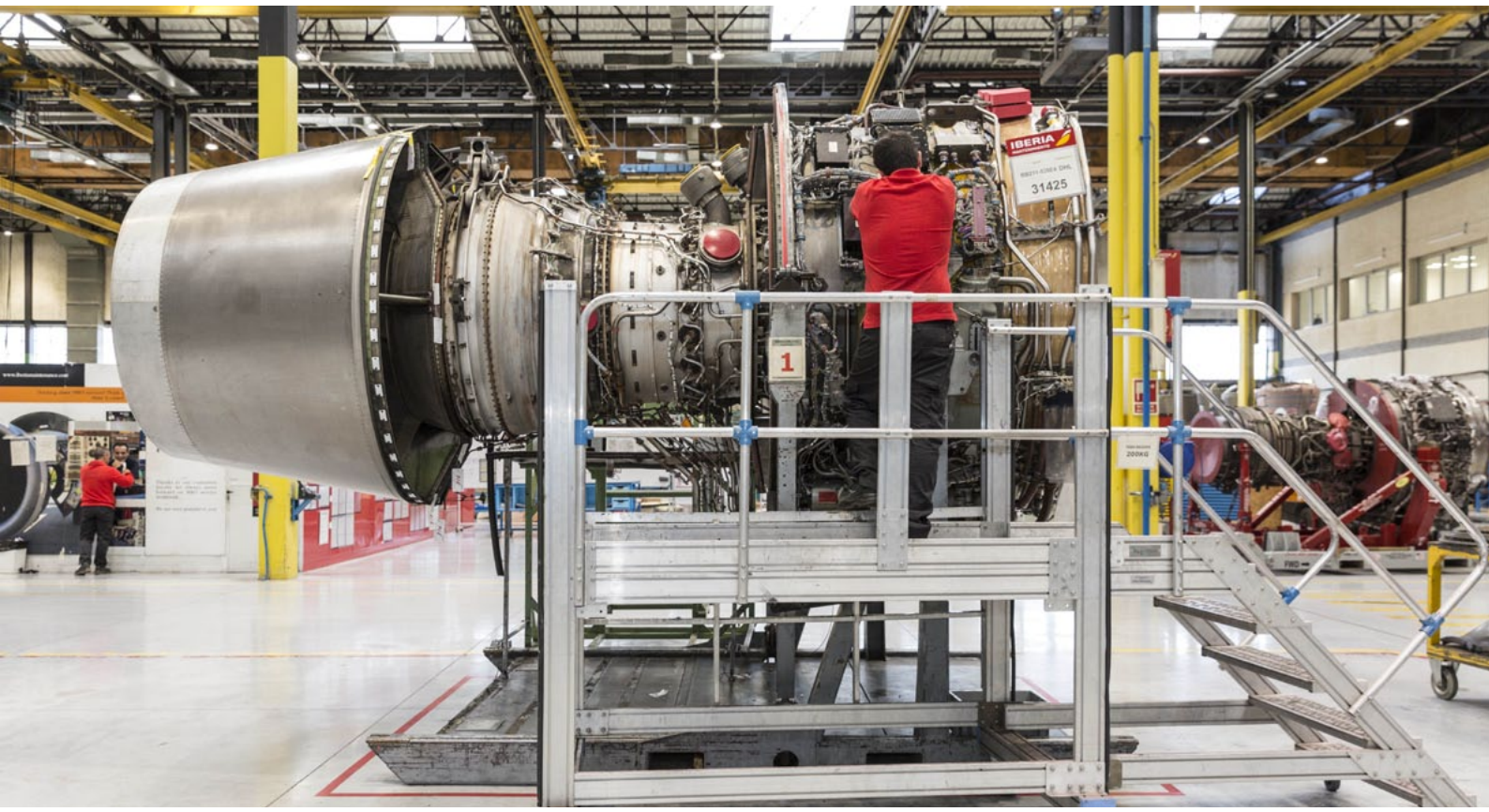
• Ten specialized production lines for overhaul, repair, exchange replacement and testing of the aircraft components and engines accessories assembled mainly in Airbus aircraft.

• 3,000m² of Workshops and more than €10M of inventory dedicated to high-rotation elements (wheels and brakes, batteries) to guarantee the continuous operation of the main airlines in Southern Europe.

• Strong repair engineering department with proven experience developing alternative repair schemes that have been approved by the OEM.

• Focus on cost reduction in line with customer preferences: PMA, DER/DOA, etc...

Speaking about shop capacity and on-demand pressure, López points out that both businesses are different. “The components business is more stable across the year while the airframe business is



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concentrated during the winter months between October to May. "We are fully booked in those months and what we are trying to offer is some "incentives" that could help to secure stable lines," López adds.

Aircraft Conversions

Iberia Maintenance provides turnkey solutions for major modification programmes. The company boasts of having state-of-the art connectivity solutions, high-density configurations and system upgrades for commercial and military aircraft.

• Adaptative solutions, from the most cost-effective to the most complex.
• A330 conversion from passenger to Multi-Role Tanker Transport (MRTT) aircraft in collaboration with Airbus D&S and also reverse conversion from military to civil purpose.
• A400M modification and structural conversions to complement its mission equipment in collaboration with Airbus D&S.

Temporary cargo conversions

Technical and engineering services for temporary operational changes from passenger to cargo aircraft.

• Aircraft turn into instant freighters
• All-in-one seat frame installed in economy seat tracks and a palletized variant that stacks on the cabin floor.
• Business-class seats, bulkheads, galleys, lavatories and overhead bins remain in place
• Aircraft can be easily returned to passenger operations.
• Conversion by removing economy seats from the cabin of the airbus A330 taking less than two days.

Cabin Modifications

Iberia Maintenance provides a wide range of cabin modification programs for Airbus fleet. "We offer a wide range of services to make your customized cabin interiors and reconfigurations from galleys to seats and additional parts for commercial aircraft to upgrade the interiors," says López.

Service includes all necessary inspections, testing and certifications to match the client's requirements. The company supports certification process along with the design organization and the authorities.

• Experience multidisciplinary teams support the customer during the entire fleet modification programs.
• Optimised solutions to match the customer requirements.
• Turnkey interior designs for the full cabin modifications and reconfigurations.
• High-density cabin solutions to install double lavatories alongside the back galley to gain extra cabin space.
• Better passenger experience with next-generation high-speed wireless IFE solutions. Connectivity systems upgraded to state-of-the-art technology.
• Short downtime to upgrade the communication systems of the existing cabins to the newest-generation systems.
• Cabin refurbishment process in combination with programmed base maintenance activities to reduced time on ground.
• The key challenge facing design engineers is the trade-off between comfort and

> "We are fully booked in those months and what we are trying to offer is some "incentives" that could help to secure stable lines."

expertise but also cabin profitability.
• Lease return support

In response to market demand, Iberia Maintenance successfully completed Iberia´s aircraft modification programme to add the new Premium Economy Class to its fleet marking one of the largest conversion programmes in the history of the Iberia airline.

Engine Maintenance

Now let's talk about one of the most important aspects of aircraft MRO, 'The Engine'. Iberia Maintenance Engine Shop provides maintenance and engineering services to engines, thrust reversers and a wide range of related accessories. The Engine Shop and test cell are located at Madrid.

• Iberia Maintenance has been overhauling CFM56 engines since 1992. It delivers the perfect unity of experience and expertise to ensure the utmost reliability of operations.
• Optimum support for the V2500 engine to ensure predictable maintenance costs, optimised engine performance and reliability. Iberia Maintenance is part of International Aero Engines (IAE) engine MRO Network.

Iberia Maintenance is the largest independent worldwide centre still servicing Rolls Royce RB211-535 engines.

In October 2022, Iberia Maintenance obtained the license from Pratt & Whitney to service the GTF PW1100G-JM and inducted the first engine in December 2023. In addition, the22 company is working to introduce the LEAP platform capability - the LEAP 1A and LEAP 1B. Speaking on the status of the launch and planned production of LEAP platform López commented, "For Iberia Maintenance to invest and build a sustainable future for our business is a priority. Therefore, introducing a new engine such as LEAP is within our plans, and we are currently working on the details associated with the license. Hopefully, we expect to have news soon about the resolution of this phase and be able to start working on the capacitation and training."

> "For Iberia Maintenance to invest and build a sustainable future for our business is a priority."

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"Our technicians and engineers are committed to keeping the engines in service, but also improve on-wing durability and reduce non-scheduled events or requirements," López adds.

Currently, the RB211 is the only large engine type maintained by Iberia. When asked about any future plans to introduce wide-body engines to the service, López notes that the current focus of the company is on the development of other projects for Iberia Maintenance: as in the LEAP. "We plan to consolidate our expertise and knowledge of the PW1100 or other more ambitious related to our Aviation Eco-Tech Hub brand-new facilities in La Muñoza (Madrid)," López clarifies.

Thus, in the short term, Iberia Maintenance does not plan to include any other wide-body engines to its capability.

Apart from providing the above MRO services, Iberia Maintenance also provide tailored training to technical staff. "Our Training Centre, based in Madrid, offers training programmes to meet with the European Aviation Safety Agency (EASA) and the Spanish Aviation Safety Agency (AESA) requirements; Aircraft training, specialist training and PART 66 basic skills training for category A, B and C licences and we are a Member of EAMTC (European Aviation Maintenance Training Committee)," López boasts proudly.

Vision and Mission

Speaking about the vision of the company, López's eyes lit up with excitement. He further divulged the robust expansion plans of the MRO. "In the engine business, we are adapting our facilities for future engines, such as the PW1100 or LEAP, while serving the legacy ones." He further goes on to admit that this co-existing moment is a challenge, but the company sees this as a strategic opportunity to maintain and increase our customer base."

Speaking of the mission of this 'close-to-a- century-MRO' - Iberia thrives on the ethos of 'Safety First'. The mission of Iberia Maintenance is to provide to Iberia L.A.E. S.A. Operadora and other clients a service of quality, efficiency, and satisfaction in the maintenance of aircraft, engines and components, creating at the same time value for its shareholders as a business that must be developed in the international market of Aeronautical Maintenance Organizations.

Sustainability & Iberia

Everyone is talking about sustainability these days, be it airlines, OEMs, MROs or airports, each one wants to do their bit for the environment; to contribute to clean and green aviation and here, Iberia leads by

example. Sustainability is a strategic pillar at Iberia Maintenance. Within the company, sustainability is seen as an opportunity to differentiate Iberia Maintenance from the market competition. "Thus, it acts as our driving force, marking us as different from the others," says López. By advocating strong sustainability index, Iberia boasts of attracting socially conscious customers and retains an increasingly environmentally aware talent pool.

To give an example, International Airline Group (parent company of Iberia and Iberia Maintenance) in 2019 became the first airline group in the world to commit to achieving net zero carbon emissions by 2050.

There are four pillars of Iberia Maintenance's sustainability strategy:
-Waste
-CO2 emission
-Water
-Energy, VOCs and Solvents

Just like everyone else, Iberia Maintenance also aims to implement a vast number of initiatives on the sustainable front and they have already implemented a few of their initiatives on a war footing. López describes one such initiative undertaken during 2021. "Alongside Getting Greener, we installed the largest corporate solar plant in Spain in the ceiling

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of our Engine Shop. This plant produces 80 million kW/h of power, enough to power 800 homes and to cover our energy needs," López recalls proudly. She further hopes to announce the installation of more solar plants at the rest of Iberia Maintenance hangars. "In addition, we are developing a strategy to use SAF in our test bench," López adds as an afterthought.

"Sustainability, even, if already a pillar of the company, will drive the strategy of the business, as it´s something that is not an option right now, it´s a "must," says López. "But what we really want to see at Iberia Maintenance is the development of the Eco-Tech Hub, that will create quality employment for Spain and professionals in the sector, which will allow the country to be a leader in sustainable aviation fuel and will position Iberia Maintenance as the centre of excellence in the MRO business in south Europe," López concludes.


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Five Common Mistakes to Avoid During Aircraft Transitions

A practical guide by Giovanni Renga, CTO, AMROS Group

Aircraft transitions can be complex and challenging involving a lot of forensic-like work where the devil is often in the detail. Even the most experienced teams can slip up, leading to costly delays and other headaches. In our first "expert's corner" we want to dive into five of the most common mistakes made in aircraft transition management and how to avoid them.

1. Insufficient Knowledge of Contractual Obligations

One of the most common mistakes in aircraft transition is neglecting the contractual agreements such as lease redelivery conditions or sales/purchase agreements. Understanding the contractual obligations, especially regarding delivery conditions of aircraft and components, is crucial. This isn't just something to think about at the end of the lease; it needs to be on your radar throughout the entire lease period. Additionally, often lease redelivery obligations may exceed EASA/FAA requirements, which from an asset management perspective, can cause financial burdens if not understood properly. If you're not clear on what's required, you could face unexpected problems when it's time to return the aircraft. Make sure everyone involved—irrespective of whether or not they are directly involved in maintenance – is fully up to speed with the lease redelivery obligations.

2. Inadequate Auditing of Aircraft Records

When you are about to spend several hundreds of thousands of dollars per month on lease rent, or millions of dollars to purchase an aircraft, it may seem easy for the inexperienced to try to avoid a records audit. Your aircraft value, however, is heavily influenced by the aircraft records, therefore, a thorough auditing of aircraft records is essential for a smooth transition. Poor or incomplete records can cause serious issues, leading to delays, additional costs for maintenance, or even legal complications and the grounding of aircraft. Regularly audit your records to ensure they are accurate, complete, and compliant with the lease agreement and analyse them thoroughly when acquiring or returning an aircraft. This proactive approach can save you from a lot of last-minute stress and prevent costly mistakes such as delay penalties, costly components exchanges or even that grounding of an aircraft.

Giovanni Renga, CTO, AMROS Group

3. Inadequate Archiving of Records During Aircraft Operation

The easiest way to waste an airline's money for is to just throw your aircraft and maintenance records into an archive and wait until it's time for the aircraft's transition. However, how you store and manage records during the aircraft's operations is just as important as the records themselves. Poor archiving practices can lead to lost or hard-to-find documents, which can cause significant problems during the transition. Establish a solid system for archiving records, ensuring they are easy to access and well-organized. This will make the transition process much smoother and more efficient. If you do not have a digital aircraft records system in operation yet, the time to switch is now!

4. Not Maintaining an Updated Delivery Binder

In connection with Mistake 3 above, the delivery binder is your comprehensive guide to the aircraft's history, condition, and compliance with contractual obligations. It's crucial to keep this document updated throughout the lease term, not just at the end. It is essential to ensure that the information is regularly updated and accurate. An up-to-date delivery binder makes the final transition much easier and helps avoid any unwanted last-minute surprises.

5. Lack of Planning and Poor Project Management

A smooth transition of an aircraft starts with the planning. A very frequent mistake made is to cut corners and costs and not engage in proper project management of an aircraft transition. However, without a solid plan, things can quickly go wrong—timelines can slip, costs can increase, and communication can break down. Assign a dedicated project manager who understands the process and can manage the project, milestones and stakeholders. Proper planning and effective project management will ensure a smoother transition and help you avoid unnecessary complications. Make sure to plan your aircraft transition 12 months ahead, where possible, and bring all stakeholders together to manage expectations and requirements accordingly.

Navigating aircraft transitions doesn't have to be overwhelming. By being aware of these common pitfalls—understanding your contractual obligations, regularly auditing and archiving records, keeping your delivery binder updated, and ensuring strong planning and project management—you can steer clear of major issues and ensure a smooth, successful transition.

Giovanni Renga is a founding member and CTO of the market-leading aviation technical manager AMROS Global. Under Giovanni Renga's leadership, AMROS Global has successfully performed over 700 aircraft transitions.

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on the move

AMROS Group, the Swiss provider of fleet technical management services to the global aviation and aerospace industry, has announced changes to its executive management structure. Effective immediately, **Giuseppe Renga**, CEO of AMROS Group, will assume all responsibilities as CEO for both AMROS Global and AMROS Innovations. This strategic consolidation under a single leadership aims to streamline operations, enhance synergies across the companies and drive unified growth strategies. **Eros Tavani** and **Bernhard Meier**, who have played pivotal roles in the company's development as CEOs of AMROS Global and AMROS Innovations respectively, will continue to contribute to the company's vision and direction as founders. They will lead sales, business development and company innovation. Giovanni Renga will maintain his role as CTO, ensuring the technological advancement that defines the Group's market-leading solutions. Commenting on the management shift, Giuseppe Renga stated, "This realignment allows us to leverage our combined strengths and streamline our core competencies while making room for long-term talent acquisition for future generations. It enables us to be closer to our customers and respond efficiently to the ever-changing market dynamics." Eros Tavani added, "Giuseppe Renga embodies the next generation of leadership that we need at AMROS. Our commitment to nurturing young talent has always been a cornerstone of our success and Giuseppe has exemplified this perfectly over the last 12 years. His vision and dedication ensure that AMROS will continue to lead the industry with fresh ideas and robust strategies."


Todd France

Air Transport Services Group (ATSG) has promoted **Todd France** to Chief Commercial Officer (CCO). In this role, France will oversee commercial activities for all ATSG companies and report to ATSG President **Jeff Dominick**. Since December 2022, France has served as President of ATSG's aircraft leasing subsidiary, Cargo Aircraft Management. Previously, he was president of ATSG's aircraft maintenance subsidiary, Airborne Maintenance & Engineering Services, from February 2020. France's career at ATSG includes key business development and operational management roles with both Airborne and ABX Air. ATSG is a prominent provider of aircraft leasing, cargo, and passenger air transportation solutions for domestic and international air carriers, as well as companies seeking outsourced airlift services. It is the global leader in freighter aircraft leasing, with a fleet that includes Boeing 767, Airbus A321 and Airbus A330 converted freighters. CO Group has announced several senior management changes within its Airframe Services division to reinforce its commitment to delivering top-tier MRO services to its customers. Following Jacqueline Jiang's transition within the Swire group to the role of Chair, Chinese Mainland of John Swire & Sons (China), Ben Scheidel will succeed her and join the HAECO Group leadership team as Group Director, Airframe Services, effective September 1, 2024. In this role, Scheidel will assume global responsibility for the group's Airframe Services activities. He brings with him extensive industry experience and a strong record of driving operational excellence, which will enable him to build on Jiang's accomplishments over recent years. With Scheidel moving into a HAECO Group position, Peter Murton will succeed him as Chief Executive Officer of HAECO Hong Kong, while Derek Hui will step into the role of Executive General Manager, Operations, overseeing base and line maintenance services in Hong Kong. Both Murton and Hui possess extensive experience in Airframe Services, particularly within HAECO Hong Kong's operations, and their expertise will be invaluable in their new roles, which also commence on September 1, 2024. Bill Collins, President of MRO Services at HAECO Americas, will retire from the HAECO Group at the end of the year. Todd Navin, the current Chief Financial Officer at HAECO Americas, will succeed Collins in January 2025. Collins has successfully led the business through his tenure, steering it through the challenges of the Covid-19 pandemic and back

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towards growth with the support of key airline partners. Richard Sell, HAECO Group Chief Executive Officer, expressed appreciation for the longstanding trust and support of the company's valued partners. He emphasised that the new senior management team in Airframe Services will harness their diverse talents and experience to build on the existing successful collaborations and continue working closely with customers to meet their MRO needs. He also highlighted the group's commitment to strengthening these relationships as HAECO continues to grow in the years ahead.

Lufthansa Technik has announced a series of internal promotions and changes within its key management positions. On May 1, **Michael Kirstein** assumed the role of Vice President "Transformation Office," where he will spearhead the "Ambition 2030" growth programme aimed at strengthening Lufthansa Technik's global leadership in aircraft fleet support. Kirstein previously oversaw operations in the company's engine services division. On May 15, **Derrick Siebert** transitioned from Vice President Commercials Engine Services to Vice President Operations Engine Services. Following this, on June 15, **Dr Georg Fanta**, formerly Vice President Commercials Aircraft Component Services, took over as Vice President Commercials for engine services. Effective July 1, **Thomas Illner**, who previously served as Chief Executive Officer of Lufthansa Technik subsidiary BizJet, was appointed Managing Director and Head of Region Americas at Lufthansa Technik Component Services. **Berit Plewinsky** was named Vice President Commercial Aircraft Component Services on July 8, having previously worked as Senior Director Product Sales & Fulfillment Single Events and Closed Loop in the aircraft component segment. Three additional appointments took effect on August 1: **Tim-Oliver Fedeler**, formerly Head of Digital Innovation in the component segment, became Managing Director of Lufthansa Technik Component Services Asia Pacific and Senior Director Product Sales & Fulfillment for the region. **Jens Michel**, who was previously Head of Legal Affairs for EMEA (Europe, Middle East and Africa), assumed the role of Vice President Sales Northeast Asia. **Dr Alexander Sixt**, previously responsible for the Global Competence Center Warehouse & Aircraft Maintenance Solutions at Lufthansa Technik Logistik, was appointed Managing Director of Lufthansa Technik Intercoat. Finally, **Fabian Nagel**, former Senior Director Procurement Engines & Airframe, will take up the position of Vice President Sales VIP & Special Aircraft Services on August 15, succeeding **Wieland Timm**, who is retiring in September after more than 20 years with the company.