MRO BUSINESS TODAY

May 15th, 2022

The 777-8 Freighter is ideally suited for operators creating a more sustainable and profitable future.

Lufthansa undergoes long-haul fleet modernization with the newest generation Boeing aircraft

Boeing launched the new 777-8 Freighter in January and has already booked 34 firm orders for the model.

Lufthansa Group has placed a firm order of seven 777-8 freighters to strengthen Lufthansa Cargo. The B777-8 is the newest and most fuel-efficient twin-engine freighter. The Group has also placed a new order for two 777 Freighters to add to its cargo fleet, providing extra cargo capacity in the near term until the delivery of its first 777-8 Freighter.

In addition, the Lufthansa Group continues to accelerate the modernization of its long-haul passenger fleet with a new purchase of seven 787-9s. The order for more 787s brings Lufthansa Group's total order book for the 787 Dreamliner to 32 firm orders. The Group also is a launch customer for the 777X passenger airplane, with 20 firm orders.

Dr. Detlef Kayser, Member of the Executive Board of Deutsche Lufthansa AG said, "The continuous modernization

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of Lufthansa Group's long-haul fleet is one of our top priorities. Therefore, we are very pleased to further invest in the newest generation of Boeing aircraft. The purchase will complement our existing orders and further reduce our operating costs, enhance fuel efficiency and provide state-of-the-art customer experiences. Moreover, the purchase highlights our commitment towards enhancing sustainable aviation."

Boeing launched the new 777-8 Freighter in January and has already booked 34 firm orders for the model. With advanced technology from the new 777X family and the proven performance of the market-leading 777 Freighter, the 777-8 Freighter offers the highest payload and the lowest fuel use, emissions and operating cost per tonne of any large freighter.

Ihssane Mounir, Boeing senior vice president of Commercial Sales and Marketing said, "With the selection of our newest freighter, Lufthansa continues its long history of firsts with Boeing airplane programs, becoming the first European customer for the 777-8 Freighter. With the investment in the 777 and 787 fleet, the Lufthansa Group will operate the most advanced, fuel-efficient twin-engine airplanes in the industry. Each of these airplanes reduces emissions by 15 to 25% compared to previous models with a noise footprint up to 50% smaller than their predecessors, helping to advance the Lufthansa Group's sustainability objectives."

The 777-8 Freighter is ideally suited for operators creating a more sustainable and profitable future. With nearly identical payload and range capabilities, 30% better fuel efficiency and emissions and 25% better operating costs per tonne, the 777-8 Freighter will be the ideal choice as operators replace aging freighters later this decade.

The 2021 Boeing Commercial Market Outlook projects a 70% increase in the global freighter fleet by 2040, including approximately 450 new large widebody freighters such as the new 777-8 Freighter and 777 Freighter. First delivery of the 777-8 freighter is anticipated in 2027.

Built with lightweight composite materials and powered by advanced engines and a suite of environmentally progressive technologies, the 787 family has an airport-noise footprint that is 60% smaller than the previous generation of airplanes, making it ideal for Lufthansa Group airport communities.

Japan Air Commuter takes delivery of its 9th fuel-efficient ATR 42-600

The latest 42-600 will undertake the first leg of its ferry flight from Toulouse to Japan with a blend including Sustainable Aviation Fuel.

ATR recently delivered its 9th ATR 42-600 to Japan Air Commuter adding up to a total of 11 ATR to the fleet. The latest 42-600 will undertake the first leg of its ferry flight from Toulouse to Japan with a blend including Sustainable Aviation Fuel (SAF).

In countries committed to reducing carbon dioxide emissions and preserving biodiversity such as Japan, ATR aircraft have proven to be successful: they connect communities and businesses across the Japanese archipelago in the most responsible way.

Stefano Bortoli Chief Executive Officer of ATR said, "We are proud to see that ATR aircraft continue to support our Japanese long-standing customer JAC in its mission to connect communities and remote places, as well as propelling the local economy. Thanks to the unrivaled versatility of our aircraft and its responsible performance, ATR aircraft are the perfect choice for this country".

This new ATR 42-600 sports a specific livery representing the leaves of Kaikouzu, the tree of Kagoshima Prefecture. These leaves are the symbol of the preservation of nature in this country. It represents JAC's commitment to connecting areas that coexist with nature, operating the lowest CO_2 emissions and most fuel-efficient aircraft. The Japanese airline flies Yakushima, Amami Oshima, Tokunoshima, and Okinawa, which are all World Natural Heritage Sites, as well as many other areas rich and diverse in wildlife.

Domestic fleet renewal from late 2023, with an order for 40 x A321XLRs and A220 aircraft; 94 purchase order rights spread over at least a decade.

Airline of the week – Qantas

Qantas group have taken some major fleet reshuffle decisions that will completely reshape and restructure its international and domestic network over the next few decades. It has ordered 12 Airbus A350-1000s to operate non-stop 'Project Sunrise' flights from Australia to other cities including New York and London. These aircraft will feature market-leading passenger comfort in each travel class with services scheduled to start by the end of calendar 2025 from Sydney. Codenamed Project Sunrise, the flights are undoubtedly the world's longest commercial flight and Qantas is undoubtedly our Airline of the week.

'New types of aircraft make new things possible' – The Qantas reshuffle

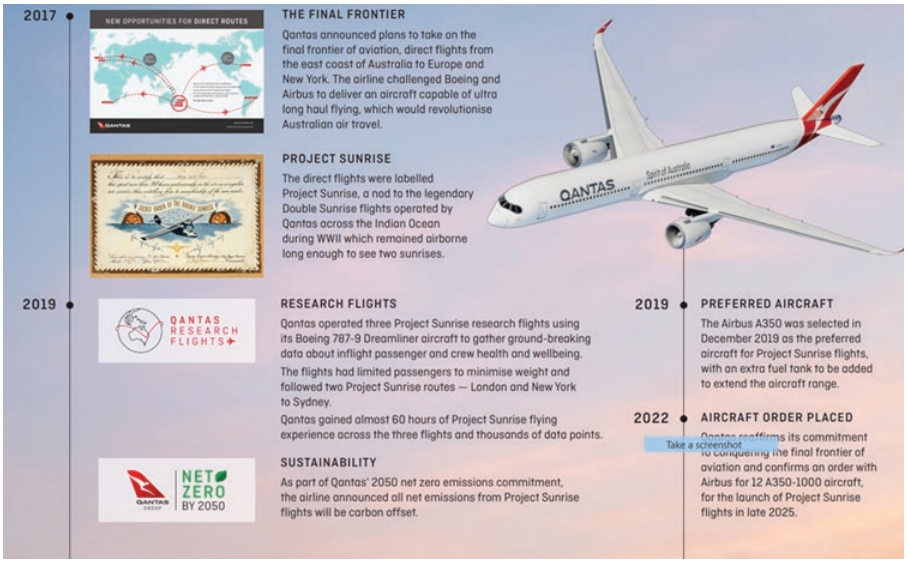
New types of aircraft make new things possible. That's what makes this announcement so significant for the national carrier and for a country like Australia where air travel is crucial," said Qantas Group CEO Alan Joyce, after placing a huge order for Airbus aircraft as Qantas re-shuffles its flights and routes.

Qantas recently confirmed an order for 12 Airbus A350-1000s to conquer the final frontier of long-haul travel and enable non-stop flights to Australia from any other city including New York and London from late 2025. The news was announced at a ceremony in Sydney attended by Qantas Group CEO Alan Joyce and Airbus Chief Commercial Officer and Head of Airbus International, Christian Scherer.

On signing the agreement, Joyce said: "For more than 100 years, Qantas has been at the forefront of transforming the way the world travels, particularly through direct flights. Now, the A350 and Project Sunrise will make almost any city in the world just one flight away from Australia. It's the last frontier and the final fix for the tyranny of distance that has traditionally challenged travel to Australia."

Codenamed Project Sunrise for the airline's long history of endurance flying, Qantas has also shared preliminary concepts for its A350 cabin of the future that will offer a new level of comfort for all passengers on these direct flights that will cut up to four hours off total travel time compared with one-stop options currently.

Joyce further added, "The Qantas A350 travel experience will be truly exceptional, particularly across the premium cabins. Our First and Business Class Seats will set a new benchmark for premium long-haul travel. The first Project Sunrise flights will be from New York and London, but the aircraft will also be able to operate non-stop flights to Australia from destinations such as Paris and Frankfurt."



Customers onboard Qantas' new fleet of A350 aircraft will be treated to luxurious First Class suites with a separate bed, recliner lounge chair and personal wardrobe; a next-generation Business suite; a new Premium Economy seat pitched at 40 inches, a new Economy seat pitched at 33 inches; and a dedicated Wellbeing Zone designed for movement, stretching and hydration. It has a total seat count of 238, the lowest compared with any other A350-1000 currently in service.

"Our direct Perth-London flights started in 2017 and showed strong demand for the convenience and time savings from this kind of travel if the product and service is right. Pre-COVID it was the longest route on our network and had the highest customer satisfaction on our network. All signs point to that demand increasing post-COVID."

Global travellers can expect more direct routes to Australia, significantly reduced point-to-point travel time and a flying experience second to none – with a cabin interior and service design influenced by medical and scientific research carried out on three Project Sunrise research flights from New York and London to Sydney in 2019.

The Project Sunrise

The direct flights were labelled Project Sunrise, a nod to the legendary Double Sunrise flights operated by Qantas across the Indian Ocean during WWII which remained airborne long enough to see two sunrises.

Qantas operated three Project Sunrise research flights using its Boeing 787-9 Dreamliner aircraft to gather ground-breaking data about inflight passenger and crew health and wellbeing. The flights had limited passengers to minimise weight and followed two Project Sunrise routes — London and New York to Sydney. Qantas gained almost 60 hours of Project Sunrise flying experience across the three flights and thousands of data points.

• The world. Powered by Rolls-Royce Trent XWB-97 turbofan engines which are 25 per cent more fuel-efficient than previous generation aircraft. A350-1000 to fly the world's longest routes

• Will carry 238 passengers across four classes (First, Business, Premium Economy, Economy), with more than 40 per cent of the cabin dedicated to premium seating. Compares to more than 300 seats on competitor airlines. Will be carbon neutral, with all emissions offset

• The cabin is specially configured for improved comfort on long flights and includes a wellbeing zone in the centre and more spacious seating in Premium Economy and Economy cabins with new levels of efficiency, comfort and sustainability

• Capital expenditure for Project Sunrise is primarily in FY25-FY27, peaking at $1.2 billion in FY26.

Qantas and Rolls-Royce

Qantas has committed to a deal for 12 Trent XWB-97 powered Airbus A350-1000s that will support its ambitions Project Sunrise. Rolls-Royce and Qantas have also committed to signing a TotalCare service agreement for the Trent XWB-97 engines that will power the 12 aircraft, providing the airline with predictability and reliability for the services and maintenance of the new fleet.

Ewen McDonald, Chief Customer Officer, Rolls-Royce Civil Aerospace, said, "We have been powering Qantas aircraft for more than 40 years and we are delighted to be making more history with Qantas on Project Sunrise. This project is closely aligned with our company's passion for pioneering new innovations and achieving industry firsts. Our Trent XWB engine already has a pedigree in powering ultra-long-haul flights and doing so with the maximum efficiency and reliability."

The Trent XWB-97 is the world's most efficient large aero-engine in service today, delivering a 15 per cent fuel consumption advantage over the first Trent engine, enabling our airlines to fly further on less fuel. It is also ready to operate on Sustainable Aviation Fuels (SAFs) as they become more available to airlines in the future – this is in line with our commitment to proving all Trent engines are compatible with 100% SAF by 2023. In addition, through industry leading engine efficiency the Trent XWB has contributed to avoiding more than 10 million tonnes of CO_2 since it launched in 2015.

As well as offering improved efficiency, the Trent XWB delivers a step-change in out-of-the-box maturity and reliability for the industry, consistently achieving better than 99.9% dispatch reliability.

Following its entry into service in 2015, the Trent XWB, which exclusively powers the Airbus A350, quickly became the fastest-selling large engine of all time. It has now achieved more than eight million engine flying hours in service with more than 30 operators, demonstrating its versatility and capability by flying a range of different routes, from short-range segments to ultra-long-range flights of around 18 hours.

The Project Winton

Qantas also announced the renewal of its narrow-body jets as part of Project Winton with firm orders for 20 Airbus A321XLRs and 20 A220-300s as its Boeing

737s and 717s are gradually retired.The first of these aircraft will start to arrive in late calendar 2023, with the order including purchase right options for another 94 aircraft for delivery through to at least 2034.These aircraft will be used by the Qantas Group on domestic services across the country, which can extend to over five hours. In addition, the A321XLR offers the range capability for flights from Australia to South East Asia, enabling the Qantas Group to open up new direct routes. The A220 and A321XLR fleets will both be powered by Pratt & Whitney GTF engines.

This agreement is in addition to the existing order for 109 A320neo Family aircraft, which includes the A321XLR for the Qantas Group low-cost subsidiary Jetstar.

After placing the order, Joyce said, "The A320s and A220s will become the backbone of our domestic fleet for the next 20 years, helping to keep this country moving. Their range and economics will make new direct routes possible, including serving regional cities better. These newer aircraft and engines will reduce emissions by at least 15 per cent if running on fossil fuels, and significantly better when run on Sustainable Aviation Fuel. This order brings us closer to our commitment to reach net-zero emissions by 2050. Project Sunrise will be carbon neutral from day one," he further added.

- Qantas' A321XLR is five metres longer than the outgoing 737s and will be configured to seat 200 people (20 business, 180 economies) – a 15 per cent increase with no reduction in space between seats. It can fly approximately 3,000km further than the 737 (at 8,700km) and opens up a wider range of direct domestic and short-haul international routes (e.g. South East Asia, Pacific islands).
- The A220-300 is larger overall than the outgoing 717s and will be configured to seat 137 people (10 in Business, 127 in Economy) – a 25 per cent increase with no reduction in space between seats. It has almost double the range at over 6,000 kilometres, meaning it can fly between any city in Australia.
- Both aircraft types will be powered by Pratt & Whitney Geared Turbo Fan engines (PW1100G-JM and PW1500G)
- The noise levels of both aircraft are up to 50 per cent lower than the retiring aircraft.
- On a per-seat basis, the A220-300 burns 28 per cent less fuel per passenger than the 717. The A321XLR burns 17 per cent less fuel per passenger compared with the 737.

Qantas and Pratt & Whitney

Qantas selected Pratt & Whitney GTF engines to power 40 Airbus A220 and A320neo family aircraft, including A321XLR, which the airline will operate on domestic and short-haul international routes. Pratt & Whitney will also provide Qantas with engine maintenance through a long-term EngineWise Comprehensive service agreement. Aircraft deliveries are expected to begin in the second half of 2023.

Qantas Group currently operates several aircraft types with Pratt & Whitney engines, including more than 100 Airbus A320ceo family aircraft with V2500 engines at Jetstar, De Havilland Canada Dash 8 aircraft with PW100 and PW150 engines at QantasLink, and the world's first Airbus A321P2F at Qantas Freight, a passenger-to-freighter conversion powered by V2500 engines.

Rick Deurloo, chief commercial officer for Pratt & Whitney said, "We thank Qantas for selecting us to power, not just one, but two of their next-generation fleets. GTF engine technology will deliver unmatched economic and environmental performance, and for aircraft like the A321XLR, superior payload and range."

The Pratt & Whitney GTF engine is the only geared propulsion system delivering industry-leading sustainability benefits and dependable, world-class operating costs. The GTF engine family reduces fuel consumption and carbon emissions by 16 to 20 per cent and noise footprint by 75 per cent, with NOx emissions 50 per cent below the ICAO CAEP/6 regulation. The engine's revolutionary geared fan architecture is the foundation for more sustainable aviation technologies in the decades ahead, with advancements like the Pratt & Whitney GTF Advantage™ engine and beyond.

ABOUT THE ORDER

- Firm orders for 12 Airbus A350-1000 for Project Sunrise. Deliveries are to begin in 2025 and will be completed by 2028.
- Firm orders for 20 A321XLR and 20 A220-300 for Project Winton to start the renewal of Qantas' narrow-body fleet as its fleet of 95 Boeing 737 and Boeing 717 aircraft retire. Deliveries of A220s to start late calendar 2023; A321XLRs deliveries to start a year later in late calendar 2024.
- An additional 94 purchase right options spread across A320 and A220 families, with significant flexibility on delivery timing (over 10-plus years) and aircraft type.
- Combines with the existing order of 109 A320s (plus purchase rights) for Jetstar into a single Qantas Group narrow-body order of 299 aircraft (half of which are firm orders and half are purchase right options), with the flexibility to draw down on that order by choosing any variant from the A320 and A220 families.
- Demonstration of this flexibility with confirmation today that Jetstar will convert 20 of its existing A320 family order to A321XLRs, which have the potential to fly short-haul international routes, with delivery to start in the second half of calendar 2024. (The first tranche from this existing order – 18 A321LRs – is due to arrive from July 2022 onwards.)
- Total cost of the deal is commercial in confidence, though a significant discount from the standard price should be assumed.

About the aircraft

The A220, A321XLR and A350 are the market leaders in their respective size categories. In addition to offering the highest levels of passenger comfort, the aircraft bring a step-change in efficiency, using up to 25% less fuel, a similar reduction in carbon emissions and a noise footprint 50% lower than previous generation aircraft.

All in-production Airbus aircraft are certified to fly with a 50 per cent sustainable aviation fuel (SAF) blend, with a target to increase this to 100 per cent by 2030.

Christian Scherer, Airbus Chief Commercial Officer and Head of Airbus International said, "Qantas is one of the world's iconic airlines, with a visionary

spirit from its inception over 100 years ago. We are honoured by the confidence that Qantas is placing in Airbus and look forward to delivering to the Group one of the world's most modern, efficient and sustainable fleets. This decision by Qantas underscores the position of the A350 as the reference long-range wide-body aircraft."

All of these next-generation aircraft – through their lower emissions, longer range, less noise and better economics – will improve how people travel around Australia and overseas.

Customers can expect more direct routes and therefore less total travel time. They can expect higher levels of cabin comfort. And, particularly on domestic and regional routes, they can expect more choice of flights at different times of the day due to different size aircraft for peak and off-peak times.

To conclude the deal, Qantas Group CEO Alan Joyce said, "Throughout our history, the aircraft we've flown have defined the era we're in. The 707 introduced the jet age, the 747 democratised travel and the A380 brought a completely new level of comfort. The A350 and Project Sunrise will make any city just one flight away from Australia. It's the last frontier and the final fix for the tyranny of distance. As you'd expect, the cabin is being specially designed for maximum comfort in all classes for long-haul flying. We have come through the other side of the pandemic a structurally different company. Our domestic market share is higher and the demand for direct international flights is even stronger than it was before COVID. The business case for Project Sunrise has an internal rate of return in the mid-teens. The Board's decision to approve what is the largest aircraft order in Australian aviation is a clear vote of confidence in the future of the Qantas Group. Our strategy for these aircraft will see us generate significant benefits for those who make it possible – our people, our customers and our shareholders. The phasing of this order means it can be funded within our debt range and through earnings, while still leaving room for shareholder returns in line with our financial framework."

These decisions will also improve journeys for millions of people every year, and create over 1,000 jobs as well as many career progression opportunities at the national carrier.

EASA announces regulatory changes, Operators can now carry less fuel

EASA published new fuel rules with positive environmental impact.

The European Union Aviation Safety Agency has published a Decision that proposes that air operators be allowed to reduce the amount of fuel carried during operations, thereby reducing the CO2 emissions of the overall flight and the environmental impact of the flight.

Aircraft are required to carry enough fuel to ensure the safety of operations in case their flight plan needs to change for reasons that could include the delays on approach to the destination airport or even the impossibility to land due to weather considerations or other issues. Carriage of this extra fuel, as it adds weight to the aircraft, increases the fuel consumption and total emissions from the flight.

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All commercial flights need to file a flight plan and one of the reasons for such a flight plan is to determine the fuel quantity required to execute the flight.

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The amount of additional fuel required can be optimized, while continuing to ensure high safety levels, due to improved risk assessment, calculations based on better data, and better decision making. The principles will also apply to aircraft powered fully or partially by alternative energy sources, such as electric aircraft.

Jesper Rasmussen, EASA Flight Standards Director said, "This regulatory package is part of the overall efforts of EASA to reduce the impact of aviation on the environment. There is no reason to lift up more fuel reserve into the sky than necessary – lifting fuel burns more fuel. Most importantly, this can be done without compromising safety – the reduction is possible thanks to better assessment methods and better data which allow airlines to carry out a more precise risk assessment."

The EASA Decision will enter into force on October 30, 2022.

The new rules bring in three different fuel schemes:

1. basic fuel scheme
2. fuel scheme with variations
3. individual fuel scheme

The transition from the current rules to the basic fuel scheme requires little additional effort from the perspective of an air operator. The other two schemes are voluntary and will take more resources to implement as those require enhanced monitoring capabilities from the airlines. National authorities will also have to adjust their oversight to ensure that safety levels are not compromised.

The precise reductions that would be permissible for individual operations vary according to routing and aircraft used.

To be approved for the new schemes, the operator needs to fulfil certain criteria and demonstrate the implementation of procedures ranging from performance monitoring & measurement, safety risk management, qualification of personnel, reliable and accurate fuel data and plans for the resolution of any significant findings.

A baseline safety performance level needs to be established which is based on operator historical data and a set of safety performance indicators is required before (and after) implementation of individual fuel schemes.

In detail, all commercial flights need to file a flight plan and one of the reasons for such a flight plan is to determine the fuel quantity required to execute the flight. Along with the fuel required to fly the specified route, various fuel quantities need to be specified and added to ensure the flight has enough fuel (in reserve) in case of unforeseen circumstances.

One such fuel quantity is the contingency fuel (often also called the en-route reserve fuel).

The European Aviation Safety Agency (EASA) defines the contingency fuel as "...the fuel required to compensate for unforeseen factors that could have an influence on the fuel consumption to the destination aerodrome".

Historically, this contingency fuel has been defined as an amount of fuel based on a percentage of the trip fuel (the fuel required to execute the flight) or as a quantity based on a percentage of the trip time. Such definitions (based on a percentage of trip fuel or trip time) are applicable to all flights regardless of the aircraft type, the route flown, weather, airspace, etc. and thus neglect the individual nature of each flight and the factors that can influence the flight.

Most flights may not experience the unforeseen factors for which the contingency fuel is added, and a very large percentage of flights will land with this quantity of fuel still remaining in the tanks however a quantity of fuel would have been burnt in carrying this fuel.

In addition, technological improvements, such as more precise information related to actual aircraft fuel consumption and improved knowledge of weather, airspace, and traffic means that the unforeseen circumstances (that are compensated for by the contingency fuel) are better understood and effectively diminished.

The proposed new rules allow lower fuel loads, less burn, and reduced emissions. Once implemented these rules permit operators to demonstrate repeatable improvements in-flight efficiency without compromising safety.

Sustainable Aviation Fuel – A leap into the future

Sustainability is the buzzword not just in aviation, but across all the industries. Man-made pollutants like CO_2, NO_2, and many more have polluted the atmosphere to such an extent leading to depleting the protective ozone layer, melting of ice, and drastic changes in climate, in short leading to the destruction of the planet. It's already high time, we realize the impact of pollution and try and salvage the situation, to save our planet for the next generations. The aviation industry woke up to this call at the 77th IATA AGM where a resolution for the global air transport industry to achieve net-zero carbon emissions by 2050 was passed. This commitment is in sync with the Paris Agreement's goal for global warming not to exceed 1.5°C.

Achieving net-zero emissions by 2050

During this majority of the world's airlines and aerospace companies committed to net-zero emissions by 2050 and started taking steps in that direction. The post-COVID air travel has set a clear precedent for sustainability. However, achieving net-zero is a humungous challenge. The aviation industry must progressively reduce its emissions while accommodating the growing demand of a world that is eager to fly.

The most obvious and straightforward path is to decrease the CO_2 emission as much as possible through sustainable aviation fuel, new aircraft technology, efficient operations and infrastructure, electric engines, eVTOLs, hydrogen propulsion, and many more. Let us focus on SAF.

Sustainable aviation fuel or biofuel is very similar in chemistry to traditional fossil jet fuel but with a smaller carbon footprint. It is made from cooking oil, municipal waste, and forestry biomass. IATA has put forward year-wise milestones for SAF production across the world.

IATA – SAF Milestones

• 2025: With appropriate government policy support, SAF production is expected to reach 7.9 billion liters (2% of total fuel requirement)

• 2030: SAF production is 23 billion liters (5.2% of total fuel requirement). ANSPs have fully implemented the ICAO Aviation System Block Upgrades and regional programs such as the Single European Sky.

• 2035: SAF production is 91 billion liters (17% of total fuel requirement). Electric and/or hydrogen aircraft for the regional market (50-100 seats, 30-90 min flights) become available

• 2040: SAF production is 229 billion liters (39% of total fuel requirement). Hydrogen aircraft for the short-haul market (100-150 seats, 45-120 min flights) become available.

• 2045: SAF production is 346 billion liters (54% of total fuel requirement).

• 2050: SAF production hits 449 billion liters (65% of total fuel requirement).

The entire aerospace industry has signed partnerships and engaged in testing the latest sustainable technology to achieve a single aim of net-zero emission.

Boeing purchased 2 million gallons SAF from EPIC fuels

Boeing recently purchased two million gallons of blended sustainable aviation fuel or SAF from EPIC Fuels to power

their Commercial Airplanes operations in Washington state and South Carolina through 2022. This is by far the largest SAF procurement by OEM and highlights Boeing's commitment to sustainable aviation.

Sheila Remes, Boeing's vice president of Environmental Sustainability said, "SAF is a safe, proven, immediate solution that will help achieve our industry's long-term commitment to net-zero carbon emissions by 2050. Boeing has been a pioneer in making sustainable aviation fuels a reality. Through this agreement, we will reduce our carbon footprint and have SAF available for customer deliveries as well as our operations."

Decarbonizing aerospace logistics

In another major sustainable aviation fuel deal, Neste will supply DHL with approximately 320,000 tons (400 million liters) of Neste MY Sustainable Aviation Fuel. This is one of the most significant steps taken by Neste and DHL Express toward decarbonizing aviation logistics by expanding their existing cooperation with a new strategic collaboration

Peter Vanacker, President, and CEO of Neste said, "This milestone agreement, our largest ever for SAF, underlines the growing need and urgency – as well as the commitment – to act on aviation-related emissions. We are pleased to take this significant step together with DHL, which shows the joint ambitions of both companies and is further progress in our journey towards creating a healthier planet for our children."

Neste signed a contract with Shell Aviation to increase the supply and

availability of SAF for the aviation industry. the agreement called the sustainable aviation fuel (SAF) supply agreement will bring together Neste's expertise in the production and supply of renewable diesel and SAF with Shell Aviation's world-class credentials in supplying and managing fuel around the world.

Studies & research on 100 percent SAF usage

Embraer has signed a Memorandum of Understanding with Pratt & Whitney to collaborate on studies of 100% Sustainable Aviation Fuel (SAF). Technical teams from the two companies will engage to define an integrated ground and flight test plan for 100% SAF in a GTF-powered Embraer E195-E2 aircraft.

"Pratt & Whitney has been active in SAF testing and certification for almost two decades. We will strategically continue to support 100% SAF flight tests for key customers that expand SAF uptake, including partnering with Embraer to test the E-Jets E2 aircraft on 100% SAF as part of their 2050 net-zero emissions target. Through our constant pursuit of more efficient aircraft propulsion technologies, we are determined to support our customers in achieving their goal of net-zero CO_2 emissions by 2050, and will ensure that our engines will be ready for operation with 100% SAF" Graham Webb, Chief Sustainability Officer at Pratt & Whitney said.

ATR recently performed a series of ground and flight tests on its ATR 72-600 prototype aircraft, cumulating seven flight hours with 100 percent Sustainable Aviation Fuel (SAF) in one engine. The aircraft was powered by Neste MY Sustainable Aviation Fuel produced from 100 percent renewable waste and residue raw materials, such as used cooking oil.

These tests are part of the 100 percent SAF certification process for ATR aircraft.

Stefano Bortoli, ATR's Chief Executive Officer said, "As the regional market leader, we aim to lead the change to decarbonization. Already emitting 40 percent less CO_2 than similarly-sized regional jets, ATR turboprops are the ideal platform to offer significant advances in the reduction of CO_2 emissions. The achievement of this great milestone shows that we are fully committed to making the use of 100 percent SAF possible and helping our customers meet their objectives to provide even more sustainable air links – not in 2035 or 2050 but the coming years."

Emission and Climate Impact of Alternative Fuels

Airbus, DLR, Rolls Royce, and Neste have teamed up to start an interesting project called "Emission and Climate Impact of Alternative Fuels.' This project will study the effects of 100 percent sustainable fuel on aircraft emissions and performance.

Steven Le Moing, New Energy Programme Manager, Airbus said, "SAF is a vital part of Airbus' ambition to decarbonize the aviation industry and we are working closely with several partners to ensure a sustainable future for air travel. Aircraft can currently only operate using a maximum 50 percent blend of SAF and fossil kerosene; this exciting collaboration will not only provide insight into how gas-turbine engines function using 100 percent SAF with a certification view but identify the potential emissions reductions and environmental benefits of using such fuels in flight on a commercial aircraft too. "

Both the flight and the ground tests will compare emissions from the use of 100 percent SAF produced with HEFA (hydroprocessed esters and fatty acids) technology against those from fossil kerosene and low-sulfur fossil kerosene. The SAF will be provided by

Neste and additional measurement and analysis for the charactecharacterization particulate-matter emissions during the ground testing will be delivered by the UK's University of Manchester and the National Research Council of Canada.

Oneworld Alliance commitment to sustainable aviation

Members of the Oneworld Alliance intend to purchase more than 350 million gallons of blended sustainable aviation fuel from renewable fuels company Aemetis for their operations at San Francisco International Airport, further signifying the alliance's commitment to environmental sustainability.

OneWorld members including Alaska Airlines, American Airlines, British Airways, Cathay Pacific, Finnair, Iberia, Japan Airlines, Qantas, and Qatar Airways will look to utilize the sustainable aviation fuel for their operations at San Francisco Airport, with the potential for additional Oneworld members to participate in the coming months.

United Airlines, first US airline to purchase SAF

United Airlines became the first US airline to sign a purchase agreement with Neste for sustainable aviation fuel (SAF). United will be able to buy more than 50 million gallons of SAF over the next three years. According to the announcement, the SAF purchased from Neste will fuel United flights from Schiphol Airport in Amsterdam.

United also made headlines in December 2021 when they announced the completion of the first commercial flight using 100% sustainable fuel. The aircraft transported more than 100 passengers from Chicago to Washington, D.C., and used 500 gallons of SAF. Boeing, CFM International, Virent, and World Energy supported this achievement.

Leftover oil from fries @SAF

In an interesting move, an airport in Dallas is using the leftover oil from the fryers of over 200 restaurants to turn into sustainable fuel for aircraft, a solution that could massively drop the environmental impact of the over 150,000 flights per day worldwide. The solution, masterminded by Dallas Fort-Worth International airport, is not only a fantastic fix for the gallons of waste produced by restaurants but also a fuel option that Airbus has already demonstrated in a flight recently.

For making SAF, cooking oil is refined into a synthetic aviation fuel by removing the oxygen but as aircraft cannot currently rely solely on synthetic aviation fuel, this is then blended with standard fuel to make it suitable for flight. Once it is complete, SAF allows for normal planes to fly with around 80 percent fewer emissions, including those released during its production.

Apart from the above OEMs, engine manufacturers, airline operators, airports, and MROs, there are many medium to small-scale aerospace industries using the SAF in their way and making an impact on green aviation.

The path from stabilizing emissions to emissions reductions will require a collective effort. All industry stakeholders, including governments, must take responsibility to address the environmental impact of their policies, products, and activities. And they must work together to deliver sustainable connectivity and ultimately break aviation's dependence on fossil fuels.

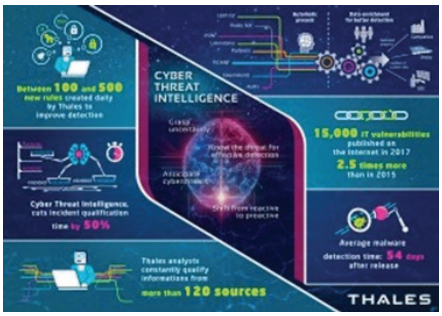
Aviation has a history of realizing what was thought to be impossible. From the first commercial flight to the first commercial jet was about 35 years. And twenty years on we had the first jumbo jet. Sustainability is the challenge of our generation. And today we are launching a challenging transition. But in 30 years it is also within reach of human ingenuity, provided governments and the whole industry work together and hold each other accountable for delivery.

PARADE your way to airspace safety – Hats Off – 'Thales & CS Group'

The PARADE system will provide permanent 360° site protection and is designed for easy transport from one site to another by road, air or sea, considerably increasing its scope of use and speed of deployment.

The new age is the age of eVTOLS, Flying Taxis and drones, in our last story we discussed with the coming decade, the skies will be filled with drone traffic and the new flying vehicles will need a vertiport to land. Millions of new drones will enter the skies over the next 20 years, creating an extremely complex aviation ecosystem and raising significant safety and security challenges.

Security threat



Drones have posed to be one of the biggest security threats that nations all over the world are facing. The nefarious or careless use of drones poses a significant threat to public safety and national security, and it is a particularly complex advancement due to its cyber-physical nature.

The majority of commercial drone systems interact with their base using unencrypted communication channels, they can become vulnerable to exploitation by a cybercriminal who can intercept and have access to sensitive data drone exchanges with the base such as pictures, videos, and flight paths. Realising this, Thales and CS Group are developing a technology called PARADE – Protection déployAble modulaiRe Anti-DronEs. This programming capability will provide permanent deployable protection for critical infrastructure from drone threats.

PARADE @Airspace security

The modular, multi-mission PARADE system will detect, classify and safely neutralise micro-and mini-drones either to protect sensitive sites on a temporary basis or as part of overseas deployments abroad. It is a scalable, modular, multi-mission drone countermeasures system to protect people, fixed military sites or facilities deployed abroad. The system can also be used by the armed forces to help protect events, people and civil and military infrastructure, in particular during large gatherings. PARADE will be a modular, multi-mission system that can be deployed by the armed forces on a temporary basis to protect a fixed site or as part of military operations overseas.

The contract

The French defence procurement agency or the DGA has notified Thales and CS Group to develop and deliver the PARADA drone capability with a firm commitment of EURO 33 million out of a total programme budget of EURO 350 million over 11 years. Accordingly, Thales and, CS GROUP are working with their partners in France and Europe's defence industrial and technological base to develop this technology.

The programme follows an open competition contract was awarded after a European competitive tendering

process launched by the DGA in 2021 to strengthen the drone countermeasures (counter-UAV) capabilities of the French armed forces.

The partnership between Thales, a recognised player in civil and military air operations for over 40 years, and CS GROUP, an integrator of critical drone countermeasures systems in France, is an integral part of fully aligned with the missions conducted under the country's special air security arrangements (DPSA) designed to provide enhanced protection during sensitive events.

The contract initial first order calls for the acquisition of six PARADE drone countermeasures systems. With contributions from French SMEs such as CerbAir, Exavision and MC2 Technologies, as well as the Dutch company Robin, the PARADE system will provide decision support and, analysis of complex situations and the capability to neutralise micro-drones and mini-drones. The programme contract also includes operator training and system/ and equipment maintenance and upgrades.

The first PARADE systems will be delivered to the DGA within a year of the launch of the programme.

Thales, CS Group and PARADE

The PARADE system will provide permanent 360° site protection and is designed for easy transport from one site to another by road, air or sea, considerably increasing its scope of use and speed of deployment.

As an expert in air supremacy, Thales offers integrated solutions to protect airspace, citizens and infrastructure and will draw on its experience as a systems integrator and its know-how in air defence, cybersecurity and digital architectures.

Thomas Got, Managing Director, Integrated Airspace Protection Systems, Thales said, "Thales's drone countermeasures solutions ensure safety and security at all levels of military and civil airspace. The expertise and experience of our industry ecosystem and our partnerships with French SMEs offer real opportunities for us to innovate and further enhance our value proposition. The consortium led by Thales and CS GROUP enables us to offer a drone countermeasures solution that meets the requirements of the DGA and the French armed forces and ensures the highest level of safety and security for people in large gatherings."

CS GROUP is a pioneer in drone countermeasures and has deployed operational solutions to meet civilian as well as military requirements since 2016. The company develops modular, scalable, interoperable, cybersecurity systems built around a command-and-control capability that uses artificial intelligence and data fusion technologies to provide a clearer understanding of this constantly evolving threat.

Marie de Saint Salvy, Deputy Chief Executive Officer, CS Group said, "CS GROUP has been involved in drone countermeasures for over eight years and actively monitors the latest technological advances in order to respond effectively to the evolving drone threat and meet the related operational requirements, from large-scale event security to counterterrorism and protection for troops on overseas deployments abroad. The partnership between CS GROUP and Thales provides a comprehensive vision of air security at all levels to guarantee permanent situational awareness and determine the best way to respond to threats. We are very proud that our consortium has been selected for the PARADE programme and that our solution will be helping to keep people safe at major events."

Drone countermeasures are a priority for the French government as the preparations for the Paris 2024 Olympics continue. PARADE will provide additional detection and response capabilities for the DPSA, improving security for two forthcoming international sporting events due to take place in France: – the 2023 Rugby World Cup and the 2024 Olympic and Paralympic Games – for which drone countermeasures are a government priority.

AAR Signs marketing partnership with ProvenAir Technologies to enhance digital experience

ProvenAir's digital solution leverages advanced technologies to analyze and dynamically generate back-to-birth (BtB) trace history.

AAR signed a marketing partnership agreement with ProvenAir Technologies, LLC to enhance the digital solutions available to AAR customers. ProvenAir's digital solution leverages advanced technologies to analyze and dynamically generate back-to-birth (BtB) trace history for life-limited parts.

James Boccarossa, ProvenAir Founder and CEO said, "ProvenAir's mission is to redefine service in the aviation industry through innovation and technology. We make an impact by digitizing and automating a cumbersome manual process. By partnering with AAR, one of the world's top MROs and parts suppliers, we will be able to reach more customers and help those customers realize their digitization goals."

Rahul S. Ghai, AAR Chief Digital Officer said, "AAR continues to focus on digital solutions that enhance and differentiate our offerings. We are impressed by ProvenAir's technology and have been able to realize internal efficiencies by utilizing ProvenAir for our own Parts Supply and Landing Gear needs. Leveraging our global sales team to connect aircraft owners and operators with ProvenAir for the benefit of our customers is a natural progression of our relationship."

ProvenAir automates the BtB process to save aviation customers time, increase records quality, shorten the sales cycle, ease aircraft transitions, and increase the residual value of used serviceable material.

EU Wings and AliPlan sign up for Rusada's ENVISION software to manage Airworthiness & Maintenance

ENVISION is a modern and intelligent software solution to provide best level of service to customers with maximum efficiency.

EU Wings and AliPlan have signed up to use Rusada's ENVISION software for their Airworthiness and Maintenance.EU Wings and its sister company AliPlan are Italian line maintenance specialists and providers of CAMO and engineering services.

Between them, they will use 5 of ENVISION's modules to manage their operations, including Fleet Management, Line Maintenance, and Inventory Management. Rusada's European team will now begin work on the implementation project with a view to going live later this year.

Vincenzo De Laurentis, General Manager at EU Wings said, "We are always striving to provide the best level of service to our customers, but this is only possible if we ourselves are working at maximum efficiency. Switching over to ENVISION, modern and intelligent software will give us the perfect platform on which to achieve this."

Julian Stourton, CEO, Rusada said, "Both EU Wings and AliPlan have a great understanding of what their customers need, and I have no doubt that ENVISION is the solution to support their quest for peak operational performance. We are very glad to be adding yet another ambitious and agile outfit to our customer base."

EU Wings and AliPlan will use 5 of ENVISION's modules to manage their operations, including Fleet Management, Line Maintenance, and Inventory Management.

EU Wings, based in Verona, provides line maintenance services to customers across Europe, Africa, and Asia, assisting with scheduled maintenance, component replacement, minor repairs, and aircraft disinfection. AliPlan, also based in Verona, offers a wide range of services to aircraft operators including CAMO support, engine shop support, engine data monitoring, and aircraft phase in/out support.

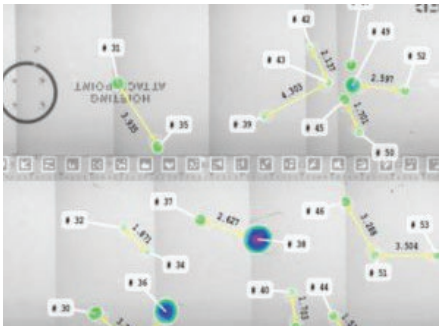
8tree expands dentCHECK service relationship with Panasonic Avionics

The expanded service will now include support for large area dent mapping at customer locations.

Panasonic Avionics Corporation and 8tree have expanded their relationship and availability of the dentCHECK dent-mapping and reporting service. The expanded service will now include support for large area dent mapping at customer locations. This builds on the existing Ad Hoc dent-mapping services offered at Panasonic Technical Service (PTS) regional line stations at Los Angeles International Airport (LAX) and London Heathrow (LHR) area airports.

Sean Gavin, SVP of Panasonic Technical Services said, "We are pleased to announce the expansion of our relationship with 8tree. Using the 8tree scanning technologies allows us to deliver highly accurate information much more quickly than previously possible using traditional methods. This allows our passenger and cargo airline customers to make very timely, data-driven, operational decisions. Our global network, combined with 8tree technology creates a high-value, cost-effective service for dent mapping and aircraft safety solutions."

The introduction of large area dent mapping service is particularly suited to hail damage scenarios and follows a series of very successful service jobs completed by Panasonic Avionics and 8tree. In the aftermath of an extreme hail event in Roswell, New Mexico late last year, several severely damaged wide-body aircraft – as many as a thousand dents each – were inspected using dentCHECK's large area panoramic mapping feature. A comprehensive itemized digital report, containing key damage metrics, were completed in days, as



This service offering will allow Panasonic Avionics customers yet another convenient, accurate, and efficient way to protect their commercial aircraft investment, avoiding unnecessary costs and time delays.

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opposed to the months it would have taken with traditional manual methods.

Arun Chhabra, CEO of 8tree said, "After the incredible results in Roswell last year, expanding the scope of our dentCHECK service relationship with Panasonic Avionics was a natural choice. Operators will benefit from the faster, more efficient mapping of catastrophic hail damage, allowing them to make more informed decisions about aircraft serviceability and return to service, while alongside building more robust aircraft records. Working with the Panasonic Avionics team to deliver this large area mapping service, we look forward to seeing operators return their aircraft to service faster and with greater confidence."

This service offering will allow Panasonic Avionics customers yet another convenient, accurate, and efficient way to protect their commercial aircraft investment, avoiding unnecessary costs and time delays. Further, the service will complement PTS's existing line of best-in-class products and services, continuing its history of being a premier MRO service solution provider.

Kalitta Air goes paperless with GE Digital's Asset Records software

Asset Records is a single, cloud-based solution where the operators can digitize, index, and archive maintenance records, connect the records and data of internal and external operations.

Kalitta Air has signed GE Digital's Asset Records software to streamline and simplify its aircraft records and asset documentation. Asset Records makes it easier foroperators to streamline records management. With a single, cloud-based solution, operators can digitize, index, and archive maintenance records, connect the records and data of internal and external operations, facilitate documentation between airlines and lessors, and help match maintenance records to the relevant M&E (Maintenance & Engineering) system.

Kalitta Air is the largest cargo airline based in Ypsilanti, Michigan, and has a large MRO division to overhaul engines, airframes, and landing gear. They are deploying GE Digital's Asset Transfer System, a part of the Asset Records software suite, in a first-of-its-kind application to manage their external work, customized to fit the engine modules that the company overhauls. After the 80-day overhaul of an engine, the completed records have to be sent to the airline that owns the asset, so they have the records for their compliance needs.

Christopher Barks, Director of Quality for Kalitta Air said, "Kalitta is a dynamic organization with a huge heart and a well-disciplined workforce, who deliver a top-shelf, quality product day in and day out. Moving to digital is key for our business because it helps us to speed up the time to audit. GE Digital integration experts were critical in enabling the digital flow with our Technical Operations and they did it fast. Implementation was done in eight weeks when we were expecting 16 to 20 weeks."

One of the key features of Asset Records is to go paperless organizing all existing documents as part of complete implementation along with additional integration with external assets and contract software solutions.

Asset Transfer System helps streamline and simplify the way leased asset documentation is managed between airlines, lessors, and MROs. With two modules, records management, and project management, users can drive efficiency throughout the leased asset lifecycle while assisting in compliance documentation.

Andrew Coleman, General Manager of GE Digital's Aviation Software business said, "The Kalitta team has the desire, willingness, and ability to accomplish just about any task. They are known for using high-end technology to meet the needs of their customers, so we are honored that they are pioneering the use of our Asset Records software to meet the needs of their unique application."

Key to the airline's choice of ATS was support for e-signature and the ability to use tablets for data entry which is more efficient for getting data into the system. A specific goal is to go paperless, which is a key feature of the Asset Records, organizing all existing documents as part of complete implementation. The software also allows for additional integration with external assets and contract software solutions.

Airbus to undergo digital transformation with Thales' innovative flight management system

Thales is proud to contribute to the digital transformation of the airways with our flight management system.

Airbus's choice of a system that is compatible with all its aircraft will enhance fleet interoperability for airlines and make it easier for pilots to make the transition from one Airbus aircraft type to another.

Airbus has selected Thales to equip its commercial airlines particularly A320, A330, and A350 with the innovative flight management system based on the PureFlyt product. This system is specifically adapted to meet the requirements of Airbus and will process and share vast amounts of data to optimize flight operations, enhance interoperability and reduce environmental impact. Entry into service is planned for the end of 2026, with an aim to improve interoperability for airlines and pilots and optimize flight paths to help reduce the carbon footprint of airline operations.

Yannick Assouad, Executive Vice President, Avionics, Thales said, "As the only player in in-flight management technologies in Europe, Thales is proud to contribute to the digital transformation of the airways with our flight management system, and delighted to have this opportunity to continue to support our partner Airbus. Our connected and cyber-secure solution will improve interoperability for airlines and pilots and optimize flight paths to help reduce the carbon footprint of airline operations."

The FMS is the "brain" of the aircraft. It is used to prepare flights, calculate and provide the crew with the information they need, set flight parameters and ensure aircraft guidance throughout the flight and during approach and landing procedures, based on fuel efficiency factors and instructions from air traffic control. Designed from the outset to be connected and cybersecure, the system maximizes the benefits of access to open-world data including real-time weather information. By linking the new FMS with non-avionics systems — such as the pilot's Electronic Flight Bag and airline operational control centers — the solution makes it quicker and easier to analyze flight plan revisions, providing the pilot with the best route and simplifying interaction with air traffic control. It will help to ease airport congestion, cut fuel consumption, decrease noise pollution and reduce pilot workload.

PureFlyt draws on 40 years of experience in flight management systems and over 100 million flight hours with Thales's current generation of FMS systems, enabling airlines to benefit from an optimal combination of flight safety, operational efficiency, and fuel savings. This comprehensive solution includes navigation and performance databases for the precise calculation of optimal flight paths and flight times. Airbus's choice of a system that is compatible with all its aircraft will enhance fleet interoperability for airlines and make it easier for pilots to make the transition from one Airbus aircraft type to another. The new system will also be available as a retrofit option for aircraft currently in service.

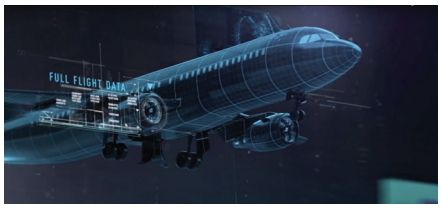
With its expertise in avionics, connectivity, and cybersecurity, and air traffic management, Thales is the only European company to offer end-to-end onboard and ground-based solutions that help to meet the ambitious objectives of optimizing flight operations in terms of the air transport sector's carbon footprint.

SITA to provide e-Aircraft DataHub to Pratt & Whitney allowing to retrieve data from any aircraft and any airline

e-Aircraft DataHub is a multi-fleet and hardware-free solution through which Pratt & Whitney and airlines can collaborate effectively to gain invaluable, data-driven insights to improve their services.

Pratt & Whitney signed an agreement with SITA, an information technology provider with more than 70 years of experience serving more than 2,500 global customers. This data delivery agreement enhances engine health management services offered to Pratt & Whitney-powered aircraft, growing Pratt & Whitney's full-flight data capabilities for SITA's global customers.

Joe Sylvestro, senior vice president of Aftermarket & Sustainment Operations at Pratt & Whitney said, "Engine maintenance exists for the full life of an engine. Once an engine is produced, it then relies on Pratt & Whitney and our technicians to maintain, repair, and overhaul it whenever needed. Working with data delivery solution providers like SITA, our capability of collecting full-flight data is expanded to a larger aircraft population.



More customers are able to benefit from our engineers' and technicians' expertise and data-driven insights leading to proactive, preventative maintenance."

As the OEM, Pratt & Whitney is committed to driving maximum engine reliability and performance through its EngineWise solutions. Working with SITA and its e-Aircraft DataHub platform, Pratt & Whitney has expanded customers' access to data.

Yann Cabaret, CEO, SITA FOR AIRCRAFT, said, "e-Aircraft DataHub is a multi-fleet and hardware-free solution, allowing Pratt & Whitney to retrieve data from virtually any aircraft and any airline around the world, while these airlines remain in full control of their data. Through SITA's unique data-brokering platform, Pratt & Whitney and airlines can collaborate effectively to gain invaluable, data-driven insights to improve their services across the board." This agreement between Pratt & Whitney and SITA is about meeting customers' evolving needs and enhancing service to keep their operations running smoothly. Leveraging full flight data, Pratt & Whitney EngineWise Insights+ provides predictive maintenance recommendations that optimize performance, mitigate fleet disruptions, reduce customers' operating costs and maximize time in the air.

BAE Systems –60 years legacy in HUD vision, development & production

BAE Systems has produced more than 15,000 head-up displays, which have been in service on more than 50 different aircraft.

LiteWave

BAE Systems has unveiled a new lightweight, compact Head-Up Display (HUD) for use in commercial and military aircraft called the LiteWave. It is a laptop-sized HUD mounted above the pilot's head that presents critical information, such as direction, altitude, and speed, directly in the pilot's line of sight. LiteWave is almost 70 percent smaller and lighter than traditional HUD and can be fitted in aircraft with limited cockpit space. It is 80 percent faster to install with a simple design with quick and cheap maintenance. It is powered by BAE Systems' revolutionary, patented waveguide technology.

What is a Head-up Display?

Minimization of size and weight in modern aircraft design has had many benefits. Unfortunately, it has also reduced opportunities to give pilots the line-of-site benefits of the latest see-through, Head-Up Display (HUD) systems.

LiteWave @ largest eye-motion box

LiteWave can be easily adjusted to suit any individual flying position and allows the pilot to maintain excellent situational awareness, even during poor weather or at night. It offers the largest eye-motion box of any HUD available, which means pilots can move more freely in their seats, without the risk of losing sight of the display. This freedom of movement allows you to maintain comfort and not be stuck in one position, especially important on longer flights.

Lee Tomlinson, director of HUD products at BAE Systems' Electronic Systems business said, "LiteWave can be fitted into virtually any cockpit in the world. Our engineers have created a digital display that is smaller, lighter, and uses less power than any other Head-Up Display. It has the potential to revolutionize the market and make HUD technology far more accessible."

Benefits of LiteWave HuD

- Integrates into cockpits with limited space
- Cost-effective upfront and through the product's lifetime 80 percent faster to install with no additional realignments required
- Allows pilots exceptional freedom of movement without losing sight of the display – greatly increasing their comfort
- Offers a significant increase in mean time between failure (MTBF), when compared to traditional HUDs
- The high-resolution display provides pilots with crisp symbology under all flight conditions
- A reliable, fully digital display with no loss of brightness over time

Manufacturing facility

LiteWave is manufactured at the BAE Systems Electronic Systems site in Rochester, UK, which has innovated and invested in cockpit displays for over 60 years. The Rochester site has produced more than 15,000 HUDs, which are in service on more than 50 different aircraft types in more than 50 countries globally. This includes some of the most advanced and demanding military aircraft, such as the Eurofighter Typhoon, F-16 Fighting Falcon, and F-22 Raptor.

LiteHUD @Ultra- compact HUD

LiteHUD is an ultra-compact HUD offering major SWAP-C benefits plus the latest digital display technology, patented waveguide optics, easy modular integration, and 35X the reliability of analog HUDs. It marks the next stage in bringing state-of-the-art digital technology to the marketplace and is now available to begin flight trials for future customers on commercial and military aircraft.

Due to its small form factor design, LiteHUD can be integrated into almost any cockpit, from turboprop trainers to the fighters of tomorrow. This low-profile HUD is even compatible with next-generation cockpits that also feature a large area display. That combination is typically not possible with a conventionally-sized HUD.

To date, LiteHUD has been selected for the Hurkus-B trainer, Scorpion jet, and

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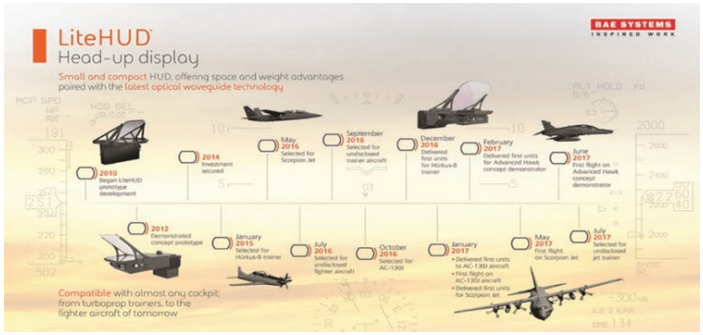
the BAE Systems Advanced Hawk, along with a selection of other undisclosed platforms.

LiteHUD timeline

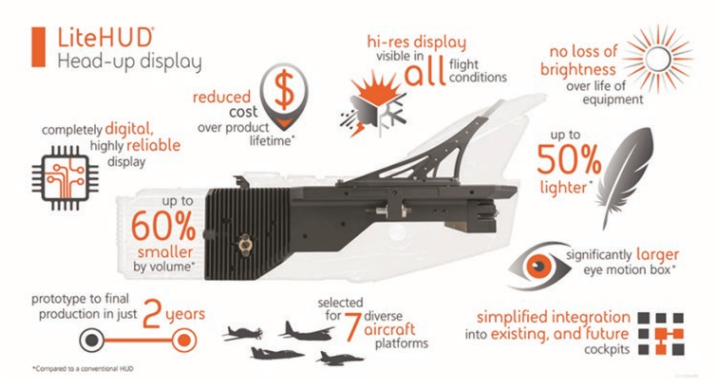
LiteHUD has a highly reliable, hi-res digital display that's visible in all flight conditions, with no loss of brightness over its lifetime.



Benefits of the LiteHUD include:

- 60 percent smaller by volume and up to 50 percent lighter than a conventional head-up display (HUD), enabled by patented optical waveguide technology
- Integrates easily into both existing and future cockpits, and is compatible with cockpits featuring a large area display (LAD).
- Incorporates a significantly larger eye motion box than a conventional HUD, increasing pilot comfort
- High-resolution navigation and sensor imagery displayed under all flight conditions
- High brightness, that remains stable over the life of the equipment
- Seamless operation with night vision goggles
- All-digital display provides up to a 35X increase in reliability and significantly reduced cost over the product lifetime

Capabilities & benefits



Legacy of HUD leadership

BAE Systems has been a leader in HUD vision, development, and production for more than 60 years – a position gained through continuous investment in technology and innovation. They have produced more than 15,000 head-up displays, which have been in service on more than 50 different aircraft types in more than 50 countries around the world. This includes some of the most advanced and demanding military aircraft worldwide, such as the Eurofighter Typhoon, F-16 Fighting Falcon, F-22 Raptor, and more.

Boeing to move its global HQ from Chicago to Virginia

Virginia marks strategic sense for Boeing's global headquarters given its proximity to its customers and stakeholders.

At its Chicago office, less office space will be required for the employees who will continue to be based there.

Boeing is all set to move its global headquarters from Chicago to Arlington, Virginia outside Washington D.C as it plans to build firmer relations with customers, federal regulators and lawmakers. Apart from this, Boeing also plans to develop a research and technology hub in the area to harness and attract engineering and technical capabilities. The hub will focus on developing innovations in the areas of cyber security, autonomous operations, quantum sciences, and software and systems engineering.

Boeing President and Chief Executive Officer Dave Calhoun said, "We are excited to build on our foundation here in Northern Virginia. The region makes strategic sense for our global headquarters given its proximity to our customers and stakeholders, and its access to world-class engineering and technical talent."

Greg Hyslop, Boeing's chief engineer and executive vice president of Engineering, Test, and Technology said, "The future of Boeing is digital. Focusing our R&D and talent development in areas that support digital innovation will fuel the introduction of cutting-edge capabilities. This new hub in Northern Virginia will follow the successful implementation of this technology strategy in other regions."

Boeing will maintain a significant presence in Chicago and the surrounding region.

"In today's business environment, we have adopted a flexible work strategy in parts of our company and are taking steps to be more efficient within a reduced footprint. This helps us channel investments toward our critical manufacturing and engineering facilities and training resources," added Calhoun.

Over the past two years, Boeing has implemented flexible and virtual solutions that have enabled the company to reduce its office space needs. At its Chicago office, less office space will be required for the employees who will continue to be based there. Boeing will adapt and modernize the workspace to better support future work requirements.

Magnetic MRO introduces hassle-free setup of wheels and brakes workshop

The Plug-in solutioncombines the offering of the equipment as well as the prepared-to-use modules.

Magnetic MRO is introducing an innovative solution that allows the hassle-free setup of wheels and/or brakes workshops for its customers. The Plug-in workshop is a unique solution in the market – it combines the offering of the equipment as well as the prepared-to-use modules that can be installed at the customer's location as a fully functional workshop, with installation taking minimum time.

Margus Graf, Workshop Manager at Magnetic MRO said, "The Plug-in Workshop is designed for the companies wishing to start their own workshop without undergoing lengthy constructions of the building as well as a selection of tooling which would be necessary for operations – our solution can provide it all. It is a flexible service, too, as we can provide as many modules for the workshop with different equipment as the customer would need for their individual work scope."

"Understandably, it is difficult for clients who are focused on their core business to refocus on construction and development of the Workshop. Therefore, we want to offer them a solution where they can remain a focus of their core business, and we will take care of the construction and necessary equipment of the Workshop", added Mr. Graf.

The idea to offer Plug-In workshops came from the experience of the company's previous projects -after delivering and attempting to install the equipment, Magnetic MRO professionals were facing obstacles related to construction. Fixing such issues is known to be time-consuming and, therefore, delays the launch of the shop.

STS continues robust expansion, opens third facility in the UK

The hangar, capable of undertaking multiple lines of aircraft maintenance, will create more than 200 new jobs in the region over the next two years.

STS Aviation Services is all set to lease an aircraft base maintenance facility in Manchester, United Kingdom. The hangar, capable of undertaking multiple lines of aircraft maintenance, will create more than 200 new jobs in the region over the next two years.

Mick Adams, CEO of STS Aviation Services in Europe, said, "In the coming months, our team will introduce 100+ jobs in Manchester with 100 more coming online in 2023. And as part of STS' long-term resourcing strategy, we will launch new trainee and apprenticeship schemes, something that is critical to the future of aviation in the United Kingdom. I am enormously proud of the STS Aviation Services' team members who have made this, our next stage of growth, possible."

Ian Bartholomew, Senior VP of Commercial & Business Development at STS Aviation Services in Europe said, "Positioning STS Aviation Services' MRO capabilities at key airport gateways is a specific strategy designed to assist our loyal customers in reducing costs and elapsed times for aircraft maintenance events."

STS Aviation Services will begin its recruitment strategy for the Manchester facility immediately, and the station is expected to be fully operational by October of this year.

Mark Smith, President of STS Aviation Group said, "This is a very exciting project for our team; one that will see STS Aviation Services positioned as the largest and most dynamic independent MRO in the United Kingdom. As STS Aviation Services continues to grow its global footprint, we remain excited about bringing new jobs, new customers and our team's innovative aircraft maintenance solutions to Manchester."

At present, STS Aviation Services has two aircraft base maintenance facilities in the United Kingdom; one in Birmingham and another in Newquay. And with the opening of the new Manchester facility later this year, STS finds itself in a unique position to serve its growing customer base at yet another key airport gateway in the United Kingdom.

The new hangar will create over 200 new jobs in Manchester in the next two years.

The new facility provides BAE with additional capacity to support the design and development of electronic warfare (EW) systems for the United States and its allies.

BAE expands base in the US with a 7th facility in Manchester, enhancing production and job creation

Manchester facility provides an excellent, modern work environment for employees.

BAE Systems has opened a new engineering and production facility in Manchester, N.H. as the latest step in a series of strategic facility investments across the country – including in Austin, Texas; Cedar Rapids, Iowa; and Huntsville, Ala. The new facility provides additional capacity to support the design and development of electronic warfare systems for the United States and its allies. The 200,000-square-foot Manchester facility includes engineering design space, modern laboratories, and office space, providing the company with additional capacity to support the design and development of electronic warfare (EW) systems for the United States and its allies.

Ray Brousseau, Vice President, and deputy general manager at BAE Systems Electronic Systems said, "Our new Manchester facility is critical to developing next-generation electromagnetic warfare systems and accelerating the delivery of capabilities to our customers. This investment will support our workforce, improve operational efficiency and research capabilities, and enable us to continue delivering high-quality trusted products."

Steve Copley, Manchester Project Director at BAE Systems said, "At BAE Systems, we offer challenging and rewarding work, great career opportunities, a welcoming culture, and an opportunity to take part in a mission that is critical to the safety and security of the U.S. military. Our Manchester facility provides an excellent, modern work environment for our employees, and deepens our roots in the Granite State."

BAE Systems' advanced EW systems combine threat warning and self-protection capabilities to help pilots conduct their missions and return home safely. The growth of the company's EW programs provides career growth opportunities for employees in Manchester. The company is hiring hundreds of skilled local candidates for critical roles to accommodate growth, including positions in engineering, finance, and project management.

Akasa Air to launch with Navitaire punch powering its digital retailing strategy

Navitaire's proven digital commerce solutions, digital experience capabilities, and cloud-first approach are uniquely suited to help visionary airlines like Akasa Air.

The sky embraces everyone, and so air travel should be inclusive and affordable for all is the motto of India's youngest and newest airline, soon to be launched – Akasa Air. According to the CEO, Vinay Dubey Akasa Air is expecting its first aircraft delivery by early June 2022, with the intention to start commercial operations in July 2022. It recently revealed its much-anticipated brand identity with the unveiling of its 'Rising A' symbol and tagline, 'It's Your Sky'.

The new breed of Digital-first airlines

Striving for excellence, Akasa Air is busy signing agreements for exceptional travel experiences, recently they signed the cloud-enabled Navitaire Airline Platform to power its digital retailing strategy. It will leverage key solutions, including the New Skies order-based reservation and retailing system, Digital Platform, GoNow day-of-departure, and SkyLedger revenue accounting systems.

Commenting on the partnership, Anand Srinivasan, Co-founder and Chief Information Officer at Akasa Air said, "Our goal is to leverage best-in-class technology and build a data-driven organization and our partnership with a technology leader like Navitaire is a testament to the same. We are convinced that globally proven solutions like New Skies and SkyLedger will power our tech-enabled strategy and help us run reliable operations and offer affordable travel options to our customers."

David P. Evans, Navitaire CEO said, "It is a pleasure to partner with Akasa Air as they launch this innovative, inclusive airline, and we look forward to supporting Akasa Air's dynamic growth. Our proven digital commerce solutions, digital experience capabilities, and cloud-first approach are uniquely suited to help visionary airlines like Akasa Air leverage

new technology specifically designed to help the leading digital pioneers of the skies move fast and grow fast. This experience and our shared culture let us focus on delivering what Akasa Air, one of today's new breed of digital-first airlines, needs today and in the future."

About Navitaire

Navitaire, an Amadeus company, provides technology and business solutions to the airline industry, powering over 60 of the world's leading low-cost and hybrid carriers today. Navitaire is one of the first providers to move its entire airline platform of solutions to the cloud, offering its carriers dynamic scalability to keep pace with growth and access to leading-edge technology that supports modern offer & order retailing concepts. Its extensive API suite and proven retailing and distribution capabilities give airlines flexible options to offer bundled or a la carte ancillary services throughout a customer's journey. Navitaire's dynamic distribution, including its cloud-based NDC-enabled and digital channels, enables connections with industry and business partners, ranging from online travel agencies and airlines to travel commerce companies, all using modern technology.

Clean, green, and young fleet

India is one of the fastest-growing aviation markets in the world with unparalleled potential. There is already witnessing a strong recovery in air travel, and decades of growth. Akasa Air's core purpose is to help power India's growth engine and democratize air travel by creating an inclusive environment for all Indians regardless of their socio-economic or cultural backgrounds.

Akasa Air has placed a firm order of 72 Boeing 737 MAX airplanes, powered by CFM fuel-efficient, LEAP-1B engines. The 737 MAX family aircraft deliver superior efficiency in reducing fuel use and carbon emissions, fulfilling the airline's promise of being an environmentally friendly company with the youngest and greenest fleet in the Indian skies.

Akasa Air's order includes two variants from the 737 MAX family, including the 737-8 and the high-capacity 737-8-200. Providing the lowest seat-mile costs for a single-aisle airplane as well as high dispatch reliability and an enhanced passenger experience, the 737 MAX will ensure Akasa Air has a competitive edge in its dynamic home market. The 737 MAX family delivers superior efficiency, flexibility, and reliability while reducing fuel use and carbon emissions by at least 14% compared to the airplanes it replaces. India's growing economy and expanding middle class will fuel strong demand for commercial flights, driving the need for more than 2,200 new airplanes in South Asia valued at nearly $320 billion over the next 20 years, according to Boeing's 2021 Commercial Market Outlook forecast.

CFM's advanced LEAP engine continues to set new industry standards for fuel efficiency and asset utilization, logging more than 12 million engine flight hours in commercial operation. The fleet is providing better fuel consumption and lower CO_2 emissions, as well as a significant improvement in noise compared to the best CFM56 engines while maintaining the CFM's legendary reliability. The LEAP-1B engine entered into service on the Boeing 737 MAX in 2017. More than 600 aircraft have been delivered to some 66 operators worldwide and the fleet has logged more than 2.5 million engine flight hours.

About Akasa Air

Akasa Air is an upcoming ultra-low-cost Indian airline co-founded by billionaire and stocks trader Rakesh Jhunjhunwala and former Jet Airways CEO Vinay. It is a brand of SNV Aviation Private Limited, headquartered in the city of Mumbai, Maharashtra, India. They claim to be the most dependable airline, offering warm and efficient customer service, reliable operations, and affordable fares. Akasa's youthful personality, employee-centric philosophy, tech-led approach, and culture of service will make this commitment a reality for all Indians. The carrier plans to offer commercial flights starting in the summer of 2022 to support the growing demand across India. With a commitment to being socially responsible. They plan to start international routes by 2023.

Fokker Services to provide MRO support to Embraer's E-Jets fleet

The engine LRUs will be repaired in-house at Fokker Services' repair facilities.

Embraer has chosen Netherlands-based Fokker Services to provide maintenance, repair and overhaul (MRO) services, covering a series of engine line replaceable units (LRUs) enrolled in Embraer's Pool Program, supporting Embraer's first-generation E-Jets aircraft, including the E170, E175, E190, and E195. The multi-year agreement includes more than 60-part numbers of engine LRUs.

Johann Bordais, President & CEO, Embraer Services & Support said, "We are glad to strengthen our relationship with Fokker Services. At Embraer, we are always looking for ways to improve the Pool Program, in order to benefit our customers, and Fokker Services, with its expertise and excellence in supporting fleets worldwide, has presented the most comprehensive and appealing proposition to support the E-Jets fleet. We are convinced that is the best choice to improve our services even more."

This agreement shows the initial result of Embraer's and Fokker Services' commitment to explore opportunities for cooperation, as highlighted in the Memorandum of Understanding (MoU) signed between the companies in October 2021, when Embraer, Fokker Services, and Fokker Techniek agreed to pursue opportunities to explore a broad range of activities in the Defense, Commercial and Services & Support markets. Additional joint projects are being discussed among the companies, strengthening a broader partnership.

Menzo van der Beek, CEO of Fokker Services, said: "This agreement highlights our shared commitment to the MoU that we signed last year. This is a great step in developing further opportunities together, as we have found an ideal match with the high-quality demands of Embraer's E-Jet fleet and our engine LRU expertise. As our partnership with Embraer grows, we will continue to expand our support capabilities portfolio for Embraer aircraft platforms."

The engine LRUs will be repaired in-house at Fokker Services' repair facilities. To ensure the outstanding reliability of these critical components, the team will utilize state-of-the-art equipment, such as twin wire electric arc spray and an eddy current dynamometer test stand. Fokker Services will now provide its specialist knowledge to support these CF34 engine LRUs based on existing knowledge and experience with CFM56 and CFM LEAP LRUs. Fokker Services combines this with more than 30 years of experience in managing integrated programs and drives continuous improvement by expanding its in-house repair capability portfolio.

1000th GTF powered Airbus A320neo delivered to Wizz Air

Wizz Air has selected GTF engines to power 276 A320neo family aircraft, of which 54 have now been delivered.

In a milestone achievement Pratt & Whitney recently delivered its 1000 Airbus A320neo aircraft powered by GTF engine. The 1000th aircraft was A321neo delivered to Wizz Air in Budapest, Hungary. Wizz Air has selected GTF engines to power 276 A320neo family aircraft, of which 54 have now been delivered. Pratt & Whitney also power the airline's fleet of 105 A320ceo family aircraft with V2500 engines.

Owain Jones, chief development officer at Wizz Air said, "We are thrilled to accept the 1,000th GTF-powered A320neo family aircraft. The industry-leading technology in the GTF engine is helping to power our growth, while significantly reducing our impact on the environment and further reducing our already best-in-class operating costs. Our collaboration with Pratt & Whitney has helped us make air travel affordable for more people than ever before, and they are now partnering with us through our efforts to help our Ukrainian brothers and sisters reach safe destinations."

Pratt & Whitney GTF engines around the world have saved airlines more than 600 million gallons of fuel and avoided more than six million metric tons of carbon emissions. GTF engines power more than 1,200 aircraft delivered to 62 operators across three aircraft families.

Rick Deurloo, chief commercial officer at Pratt & Whitney said, "Congratulations to the Wizz Air team on the 1,000th GTF-powered A320neo family aircraft, and on the success that we've achieved together since your first flight in 2004. We are honored to work with you in connecting people and in making the world more sustainable."

The Pratt & Whitney GTF™ engine is the only geared propulsion system delivering industry-leading sustainability benefits, mature dispatch reliability, and world-class operating costs. GTF engines for the Airbus A320neo family reduce fuel consumption and carbon emissions by 16 percent, regulated emissions by 50 percent, and noise footprint by 75 percent. The engine's revolutionary geared fan architecture is the foundation for more sustainable aviation technologies in the decades ahead, with advancements like the Pratt & Whitney GTF Advantage™ engine and beyond.

Safran to maintain electrical power generators and ventilation systems for AJW fleet

The exclusive contract is for 5 years for APU generators and ventilation systems.

Safran and AJW Group have signed a contract tomaintain electrical power generators, electrical contactors, and ventilation systems equipment to cover more than 350 Airbus A320 and A330 aircraft. This is an exclusive contract for a period of five years and will support around 50 Auxiliary Power Unit generators (APUs) and more than 100 ventilation systems per year.

Vincenzo Guerriero, VP Customer Services and Support at Safran Electrical & Power and Safran Ventilation Systems said, "We are delighted to strengthen our partnership on MRO with AJW Group – a client with which we have had a strong relationship for many years. Such achievement and such renewal of cooperation is the result of a constant

dedication for delivering the best possible service, the highest level of quality, and the expected level of performance of an aviation equipment manufacturer."

Barry Swift, Senior Vice President Operations at AJW Group said, "We are pleased to be collaborating with Safran on the A320 and A330 electrical generators, contactors, and ventilation systems. The contract with Safran exemplifies AJW's strategy and commitment to providing our global customers with seamless supply chain management, the highest quality of component repairs, and impressive turnaround times to meet the demands that operators need to maximize their operations.

Safran Electrical & Power will repair its Auxiliary Power Units generators (APUs) as well as all the electrical contactors, whereas Safran Ventilation Systems will maintain the ventilation systems (avionics fans, skin air valves, brake cooling fans). Once repaired, the equipment will be shipped to AJW's headquarters in the UK. Safran as the Original Equipment Manufacturer (OEM) will provide state-of-the-art repair improving drastically the reliability of the components.

Honeywell signs Southern Aeroparts as its channel partner for CFM, PW, and Trent engine solutions

Southern Aeroparts is a branch of AMETEK MRO and is one of the leading thrust reverser actuation system repair stations.

Honeywell has confidence in Southern Aeroparts' OEM-trained technicians and our extensive history of customer support.

Southern Aeroparts, signed a license agreement to become a Honeywell channel partner for components on CF6-80, PW2000, PW4000, V2500, Trent 700, Trent 800, and Trent 900 engines. Southern Aeroparts is a branch of AMETEK MRO and is one of the leading thrust reverser actuation system repair stations.

Southern Aeroparts has provided maintenance, repair, and overhaul services on these components for decades. Utilizing strategically located facilities in the United States and Singapore, this agreement with Honeywell allows further penetration of Southern Aeroparts into OEM-centric markets for those customers requiring OEM-only material.

David Bentley, Divisional Vice President and General Manager of Southern Aeroparts, underscores the company's core strategy of supporting legacy platforms with best-in-class solutions for customers. He said, "This agreement expands Southern Aeropart's long-standing relationship with Honeywell and strengthens our presence in the market by allowing us to better support our customers globally. Honeywell has confidence in our OEM-trained technicians and our extensive history of customer support. This agreement perfectly aligns with our business model and will facilitate the expansion of our repair business across the globe."

Establishing repair partnerships and agreements with leading OEMs is a cornerstone of AMETEK MRO's business. As part of the AMETEK MRO group, Southern Aeroparts has the financial backing it needs to prioritize innovation and expand capabilities.

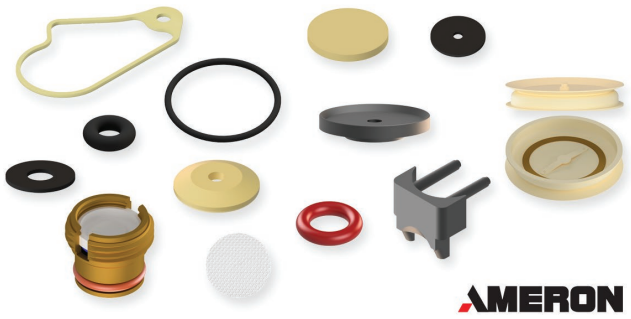
AMERON gets FAA approval for its oxygen masks

The MMXM48 oxygen mask is an integral component of the OEM MF20 series full face quick donning mask regulator assembly.

AMERON— a brand of AMETEK MRO has received FAA-PMA approval for its oxygen mask, part number (P/N) MMXM48. The MMXM48 oxygen mask is an integral component of the OEM MF20 series full face quick donning mask regulator assembly, which is an emergency breathing device made for airliner crews that fly no higher than 40,000 ft maximum. When in use, the mask assembly gives protection to the flight crew against the effects of depressurization, harmful gases, and fumes.

Adam Brammer, Divisional Vice President and Business Manager of AMERON said, "The MMXM48 oxygen mask was designed to be a direct replacement alternative for OEM oxygen mask part number MXM48. This alternative solution will considerably help customers that experience long lead times from the OEM."

AMERON recommends the MMXM48 be inspected by the customer regularly for any damage that may affect the pilot's ability to see clearly through the mask. If damage has occurred, the customer should make replacements as necessary. AMERON also recommends the MMXM48 be reviewed as part of the full mask overhaul every six years for a replacement.



When in use, the mask assembly gives protection to the flight crew against the effects of depressurization, harmful gases, and fumes.

APOC and SMartLynx partner for Airbus A321 freighter conversions

This partnership brings our two companies closer together for increased cooperation in the future and reinforces APOC's policy of narrowbody aircraft investment.

APOC Aviation and SmartLynx Airlines have entered into an agreement to purchase four Airbus A321 airframes. These airframes acquired in passenger configuration will be converted into freighters and will join the SmartLynx fleet early next year.

Jasper van den Boogaard, VP Airframe Acquisition & Trading said, "This significant transaction brings our two companies closer together for increased cooperation in the future and reinforces APOC's policy of narrowbody aircraft investment with multiple options. The company was pleased to partner with SmartLynx to secure these assets. We were quick to seize this versatile opportunity. Working closely with SmartLynx, the transaction has developed over the past two years and I'd like to thank their professional team for their continued commitment and confidence. Despite the constraints of COVID-19, we are very pleased to expand the business relationship between our two companies."

Van den Boogaard, who is an ISTAT Certified Appraiser, observes the fluctuations in aircraft asset valuations closely. He added "The A321 is an interesting asset because it can be converted to a freighter and there is significant activity in this sector of the market right now. It can also be used for low-cost/long-haul operations (because of its efficiency and range) and it is attractive for part out. The flexibility to utilize any one of these three options made this an exceptional opportunity for the business."

Zygimantas Surintas, Smartlynx Airlines CEO said, "Efficient partnerships like this are crucial for successful carrier's involvement in the A321 conversion program. We are happy to cooperate with both the seller and APOC – the transaction was beneficial to all parties, for each in its own way. Acquiring four well-maintained sistership airframes was an important addition to the SmartLynx Airlines conversion chain, which begins with sourcing the right feedstock as a first step. Because of that, SmartLynx is becoming an active player in the secondary market of A321-200 airframes, as well as CFM56-5B and V2500 engine types. It is more than certain, that here developing solid relationships is the key."

Van den Boogaard further added, "Airlines using narrowbodies are ramping up operations now that the Summer season of 2022 is activated. A large number of aircraft have now returned to service and we see strong demand for passenger travel this month. We support both the entry into service of those aircraft but also any part they need during the hopefully very busy summer season."

The four additional cargo aircraft will bring the airline's A321F fleet up to fifteen (15) active aircraft of the type by mid-2023.

SmartLynx will also continue its growth strategy to be the biggest A321F operator in the world along with its commitment to the green environment as this type is using much less fuel than other cargo aircraft in its class.

As 2022 progresses APOC seeks to establish its position as a narrowbody aftermarket specialist. The A320 and B737 family aircraft APOC seeks are those equipped with the latest modifications so securing young vintage airframes is key to ensuring that APOC's growing parts inventory, located at its stock hubs in The Netherlands, Singapore, and Miami, can offer the most desirable.

Aviator Airport Services to carry out ground handling and de-icing for Sunclass Airlines

The facility will be provided at Stockholm Arlanda, Malmo, and Gothenburg Airports for a 5-year-long period.

The new contract will extend the scope of Aviator provided services for Sunclass with the addition of de-icing.

Aviator Airport Services Sweden has signed a new partnership agreement with Sunclass Airlines for ground handling and de-icing services. Under the new contract Aviator will provide Sunclass Airlines with full ground handling and de-icing services at Stockholm Arlanda, Malmo, and Gothenburg Airports for a 5-year-long period. The new contract extends the scope of Aviator-provided services for the airline as the company has been already providing Sunclass Airlines with high-quality ground handling services.

Jonas Brundin, MD of Aviator Airport Services Sweden said, "We are delighted to continue our long-lasting cooperation with Sunclass Airline and have such a trusted partner in our ranks."

Bent Erlandsen, Director Operations from Sunclass Airlines said, "Over the years of working with Aviator we were proven, again and again, true professionalism, experience, and deep industry knowledge. We are delighted to work together with Aviator and trust that our partnership will continue to develop for many years to come, and that we together continue to deliver great results and a high level of service for our guests."

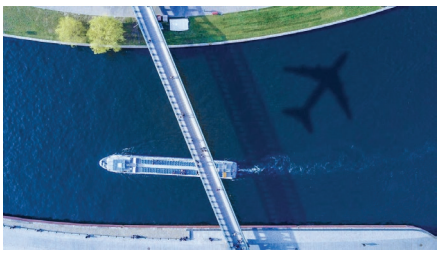
Aviator Airport Services Sweden is a full-range provider of aviation services at 15 airports across the Nordics and a family member of Avia Solutions Group, leaders in end-to-end capacity solutions for passenger and cargo airlines worldwide. They provide high-quality ground handling services from passenger and baggage handling to de-icing, cargo, and full-freight handling, to station services, including airport security and the Nordic Dino aircraft washing robot.

B&H Worldwide to manage FL Technics aircraft parts storage in Germany

All warehousing will be undertaken by adhering to strict operating procedures, safety protocols, and administrative controls.

FL Technics has signed a contract with B&H Worldwide to manage its aircraft parts storage in Germany. Effective immediately, B&H Worldwide will utilize its Frankfurt warehouse facility to store a range of aerospace consumables, engine spare parts, rotables, and Dangerous Goods for FL Technics to ensure they can be efficiently distributed to customers across the European Union.

Jakub Ptacnik, B&H's Business Development Manager for Eastern Europe said, "Europe has always been a major market for B&H Worldwide and it's a testament to the scope of our international capabilities that FL Technics has chosen to trust us with its aircraft parts storage across the EU."



Mildaras Masilionis, Head of Logistics and Storage Department at FL Technics, emphasized the importance of a long-term trusted partnership between the organizations. He said, "In the aviation industry the sustainable and trusted partnerships are crucial for growth, thus I am glad we excelled in the cooperation with B&H Worldwide as both companies will leverage the synergies within our global operations of logistics and MRO businesses."

All warehousing will be undertaken adhering to strict operating procedures, safety protocols, and administrative controls and will be managed using FirstTrac, B&H's unique, in-house developed aerospace software solution. In addition to providing parts warehousing services, FL Technics has an option to take up freight management, AOG, and other specialist services which B&H Worldwide can provide.

FL Technics and B&H Worldwide have had a long-term commercial relationship in both the UK and Singapore but this is the first time they have worked together in mainland Europe.

Duncan's Provo facility gets API authorization for winglet installation

Duncan Aviation is API's longest-standing and most prolific, installation partner.

Aviation Partners has signed an agreement with Duncan Aviation to extend its blended winglets authorization designating Duncan's Utah MRO location as an authorized installer for API blended winglets. In 2008, Duncan Aviation partnered with API in 2008 to install the API blended winglets on a Falcon 2000EX for STC (Supplemental Type Certificate) certification flight test. API subsequently announced Duncan Aviation's Battle Creek, Mich., and Lincoln, Neb., MROs as the first authorized installers for Falcon blended winglets in 2009.

Chad Doehring, Duncan Aviation's PVU Executive Vice President/Chief Operating Officer said, "Duncan Aviation and Aviation Partners have been industry partners for years. Having our Provo facility API-authorized gives our western US customers a more convenient option

for winglet installations. It's been a great working relationship. We appreciate API's continued support and confidence in the quality of our installations. It is confidence shared by our mutual customers."

Duncan Aviation has 10 airframe maintenance teams between all three MRO locations with more than 10 years of experience completing this in-demand modification on all series of the Falcon 50, 900, and 2000 aircraft.

Gary Dunn, API President said, "Our relationship with Duncan Aviation goes back to the mid-1990s when we completed several Gulfstream II winglet installations. Dozens of Hawker 800 series winglet retrofits followed. With more than 100 Falcon winglets now complete, Duncan Aviation is our longest-standing, and our most prolific, installation partner. We look forward to the increased installation capacity and customer choice that adding Provo to the list will bring."

In addition to the Falcon 50, 900, and 2000 aircraft families, Duncan Aviation is also an API authorized installation partner for winglet modifications on Hawker 800 series aircraft.

ST Engineering expands MRO partnership with United Airlines in the US

Under the MOU, ST Engineering will extend its heavy maintenance support to United by servicing additional narrowbody aircraft at its Pensacola facility.

United Airlines has signed ST Engineering for United's long-term airframe heavy maintenance needs in Pensacola International Airport in Florida, U.S. ST Engineering currently supports United's Airbus A320 Family out of its facility in Mobile, Alabama. Under the MOU, ST Engineering will extend its heavy maintenance support to United by servicing additional narrowbody aircraft at the airframe Maintenance, Repair & Overhaul (MRO) complex that ST Engineering is constructing at the Pensacola International Airport.

The MRO complex is an expansion to an existing two-bay widebody hangar facility currently operated by ST Engineering. Estimated to be completed by the end of 2024, the expansion will add three large state-of-the-art hangars and associated support shops, and around 1.5 million man hours to ST Engineering's annual capacity in Pensacola.

Besides Pensacola and Mobile, ST Engineering also operates other MRO facilities in the U.S. including San Antonio, Texas, and Middle River, Maryland.

Jeffrey Lam, President of Commercial Aerospace at ST Engineering, said, "We are committed to the long-term and growth needs of our customers in the U.S. In expanding the current partnership arrangement with United under this MOU, we look forward to growing our support for them at our expanded MRO complex in Pensacola when it is completed."

Besides Pensacola and Mobile, ST Engineering also operates other MRO facilities in the U.S. including San Antonio, Texas, and Middle River, Maryland, and offers aircraft engine washes through EcoServices in Wethersfield, Connecticut.

Asiana Airlines signed Delta Tech Ops for the MRO work on its CF6-80C2 engines

The MRO work will be carried out at Delta's Atlanta facility.

Asiana Airlines has selected Delta TechOps as its maintenance, repair, and overhaul provider for its CF6-80C2 engines over the next five years. These engines power the 747 and 767 fleet of Asiana Airlines. The contract will bring the engines under Delta's extensive global portfolio.

Don Mitacek – Senior Vice President, Delta Technical Operations and President – Delta TechOps Services Group said, "We appreciate and are honored by this significant new agreement with Asiana and this is all possible thanks to the well-established track record of safety, excellence, and quality by Delta TechOps people. The mutual value-add to both Asiana and Delta TechOps is compelling and we look forward to expanding our portfolio of more than 150 MRO customers around the world with Asiana in the years ahead."

Delta TechOps people will expertly carry out scheduled engine overhaul shop visits during the five-year period. Additionally, Delta TechOps will support any unscheduled or AOG engine work. The work will be conducted by Delta TechOps Aviation Maintenance Technicians primarily at its Atlanta Technical Operations Center.

Delta TechOps people will expertly carry out scheduled engine overhaul shop visits during the five-year period.

Constant Aviation on a mission to build skilled MRO workforce

Constant Aviation is expanding itsrecruitment initiatives to meet the growing demand for private aviation MRO.

Constant Aviation has enhanced its innovative Maintenance Apprenticeship Program, further expanding its recruitment initiatives to meet the growing demand for private aviation maintenance, repair, and overhaul (MRO) services. Apprentices in this improved, next-generation, two-year program will work alongside experienced Aircraft Technicians, learn by performing daily technical tasks and participate in classroom and lab work all while earning a steady income. Apprentices can acquire the Federal Aviation Administration (FAA) Airframe Certification, an essential first step towards a career in aviation services.

David H. Davies, Constant Aviation's Chief Executive Officer said, "With the private aviation industry experiencing record growth, rising demand for technical work on aircraft has squeezed MRO staffing industrywide. We are meeting the demand through initiatives including an expanded Maintenance Apprenticeship Program that gives prospective technicians the experience and skills they need for careers in aviation through on-the-job training and classroom and online education."

Additionally, Constant Aviation has increased technician pay by 10 percent in 2022, putting their compensation in the top one to two percent of the industry. The salary increase showcases the company's commitment to recruitment, retention, and career longevity.

The Maintenance Apprenticeship Program is available at Constant Aviation's main MRO facilities at Cleveland Hopkins International Airport (ICAO: KCLE) and Orlando Sanford International Airport (ICAO: KSFB). No prior experience is required, and apprentices will become full-time, regular employees of Constant Aviation, eligible for benefits, earning an hourly wage, and receiving pay increases as they move through milestones of the two-year program.

Constant Aviation covers the cost of all training and certification testing for the Maintenance Apprenticeship Program and provides study materials, access to online preparation and study software plus a base set of tools essential to begin a career in the aviation tech industry.

Davies added, "Constant Aviation's Maintenance Apprenticeship Program provides anyone interested in a high-paying career in aviation with the training and experi-

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ence they need to get started – with no experience required, at no cost, and while earning a salary. It's a wonderful opportunity, especially for ambitious, hardworking people who may not have the means to acquire an expensive education but want access to success and opportunity."

The Maintenance Apprenticeship Program is the latest step in a multipart effort to attract new talent, create a pipeline of qualified employees for the future, and ensure a long-term balance between newer and more experienced technicians.

In addition to the apprenticeship program, Constant Aviation is recruiting established technicians by offering a USD 15,000 signing bonus for successful military veteran candidates to immediately bring experienced technicians into the hangars. Forty percent of Constant Aviation's current workforce consists of veterans, providing further impetus for attracting skilled workers.

Constant Aviation's Maintenance Apprenticeship Program provides anyone interested in a high-paying career in aviation with the training and experience.

Duncan's 'Class Act' – Painting and Refurbishing the Citation 525 with a jazzy new avatar

Duncan Aviation recently painted and refurbished this Citation 525 with a vibrant red base and stunning black and silver accent stripes, which added a "jazzy" look.

Duncan Aviation's Paint and Interior teams in Lincoln, Nebraska, took an outdated Citation 525 and gave it a flashy new paint scheme and matching interior makeover. The owner of Citation 525 wanted a new look based on one of the planes that he saw on a Phenom in Duncan's Battle Creek facility. He wanted the team to recreate that look on his Citation. However, the new paint didn't come without challenges.

Senior Completions Sales Representative Angie Coleman said, "Knowing that the customer wanted the red and black look on the exterior, we wanted to give him the scheme he desired. However, these models of aircraft have solar reflective values that have to be met for the exterior paint. This put our Paint and Design team to work to find a good match of paint in the solar reflective paint formulas."

The interior of the Citation aircraft was a different story altogether. The interior had to be in sync with the exterior paint along with retaining the existing materials. The Duncan team created a beautiful and artistic interior complementing the vibrant exterior from top to bottom. The headliner and window panels were covered in a light, neutral tone. The main cabin veneer had a brown-toned stain with a slight hint of red undertone in a nice matte finish. The drink rails and table inserts were covered in a warm red leather. Moving down from the drink rails, the lower sidewalls were draped in a contemporary diamond-patterned chenille fabric in a charcoal grey color. The main cabin seats make a statement of their own with smooth, black leather, highlighted with a vibrant red accent stitching that shows off the simple but elegant seat design. The seat belts are webbed in a matching red to tie it all together. The floor of the aircraft was covered in a warm charcoal grey carpet with a simple pattern. Last but not least, the aft lavatory's aft divider is covered with a beautiful classic two-tone red stripe fabric that ties everything together.

Duncan Aviation Lead Designer Carie Bruss said, "It was stunning. Everything just flowed so nicely together, and the exterior tied into the interior beautifully."

Kjell Lindberg, Vice President of The Toll Group NW said, "The aircraft is absolutely stunning and both the interior and exterior exceeded their expectations. The first time seeing the aircraft was definitely a 'wow' moment. It's always a little nerve-racking picking a finish because you don't know how they will look together, but the Duncan Aviation team guided me through the process and ensured the final product would turn out great. It certainly did. From start to finish the Duncan Aviation team was a "class act" and the process was made simple and fun. Duncan Aviation came highly recommended by our management team. We'll definitely be back with future aircraft."

Thus, the Duncan Aviation team was able to achieve the color and look the customer wanted while still being able to deliver a beautiful and safe aircraft that met all the paint regulations.

5G technology, AVIATAR platform, Hybrid Inspections & more.... from Lufthansa Technik

The services offered on the AVIATAR platform range from predictive maintenance to fulfilment and automated solutions. The 5G-assisted VTI and virtual borescope are a part of AVIATAR`s MRO Management solution.

High-resolution video streams in the visual inspection of engine parts in combination with the new 5G network technology worked wonders during the pandemic for Lufthansa Technik says **Mr. Michael Kirstein, Vice President Operations Engine Services**. He also speaks about the journey and challenges in setting up the campus network based on 5G, expansion in a second overhaul shop and importance of hybrid inspection in an exclusive interview with **Swati.k**

Q - More than two years ago, Lufthansa Technik was one of the first industrial companies in Germany to start setting up so-called campus networks based on the latest mobile communications standard 5G. Now you have extended to a second overhaul shop. How would you describe this experience? Were there any challenges that you faced during this expansion?

A - When we set up our campus network in early 2020, the idea to explore the brand new 5G mobile networking standard in an industrial context was relatively new, and there was almost no existing experience to build on. Nevertheless, we did not start completely from scratch, as we could rely on the enormous network expertise of our sister company Lufthansa Industry Solutions (LHIND) that closely supported us from the get-go. Moreover, we were excited to put this publicly hyped technology into practice and collect our own experience with it. Not because we wanted to be part of the hype, but because we wanted to gain first-hand knowledge and experience how 5G can really improve specific use cases in the MRO Industry. Nevertheless, of course, it was quite fascinating to be among the first industry (and not just aviation industry) players in Germany to have our own dedicated mobile campus networks operational. And the interest from politics, media and public was huge.

At that point in time, February 2020,

we considered our 5G networks and the respective applications mere test cases for potential future applications. Thus, it was natural that we had to face some challenges, one of them, for example, being the poor choice of 5G-capable user devices that could at all be used in a private campus network. For LHIND and us, it was true pioneering work to achieve initial operational readiness of the first test use case, the so-called "Virtual Table Inspection" (VTI). Who could have thought that only a few weeks later the pandemic would plunge the entire aviation industry into an unprecedented crisis? And who could have thought that this very crisis would also help the new networks to quickly evolve from the planned test cases to some sort of a lifeline in those serious times. I wouldn´t venture as far as saying that we have to be thankful for the crisis, but in regard to industrial 5G it was indeed a door-opener for remote, or as we often call them "virtual", inspections of engines and their respective parts. It was amazing to see how quickly our customers became familiar with these kinds of solutions, and how quickly they started to appreciate and embrace them. Literally from day one, our customer`s feedback was just amazing. Thus, it was a real no-brainer to make virtual solutions a standard offering in our Engine Services product segment.

Q – Can you explain the working of the AVIATAR platform? Can you give us an example of the practical application of this platform?

A - AVIATAR was introduced in 2017 as our independent, modular platform for digital products and services. It combines fleet management solutions, data science and engineering expertise to provide a comprehensive range of integrated digital services and products for airlines, MRO companies, OEMs and lessors that integrate seamlessly with physical engineering implementation and beyond.
The services offered on the AVIATAR platform range from predictive maintenance to fulfilment and automated solutions. The 5G-assisted VTI and virtual borescope use cases I talk about here are a part of AVIATAR`s MRO Management solution that, among other features such as asset sourcing, enables our customers a permanent monitoring of the progress of their current MRO events. This solution unites all standardized engine event communication between our customers and our engineers or mechanics in one platform. For example, right next to the high-resolution video stream, MRO Management for example offers a convenient user interface that allows customers to discuss, evaluate, approve and document all due repair decisions for their remotely inspected engine parts.

Q - Can you explain the different types of services that are offered, using the 5G infrastructure?

A - Sure! The first service offering powered by the 5G network in our engine overhaul workshops in Hamburg is what we call "Virtual Table Inspection", or VTI for short. Therein, we now offer our customers to skip the classic in-person "Table Inspection" of dismantled engine parts (a standard

process during engine maintenance), and use a remote live-video-based solution instead. The latter is delivering a high-resolution video stream directly to our customers, who in turn do no longer have to travel to Hamburg to personally inspect their engine parts in order to make their repair decisions based on the proposals and substantiations by our engineers and mechanics. The video in up to 4K resolution, streamed by a qualified mechanic or engineer with a gymbal-mounted mobile video device, uncovers even the smallest details of the various engine parts spread across the eponymous inspection table. Thus, our remote customers can rely on crystal-clear images for the important repair decisions, which they finally take based on our inspection criteria and comprehensive repair suggestions. The video stream is directly embedded into our AVIATAR digital operations tool suite that provides a seamless and easy user experience. Our customers simply log into the respective AVIATAR module, where they can directly see and interact with our experts, watch the high- resolution live-video, raise questions and, thus, direct the entire inspection process. And all this at their convenience, in time and from their home base.

Based on the outstanding customer feedback regarding the VTI, we soon decided to also introduce virtual borescopic inspections as the second use case. These take place, for example, during the important incoming inspection of engines, but they are not limited to this step. Here, the same strengths come to play. The high-resolution video stream of the "keyhole camera" provides our customers with high-quality insights into even the most remote cavities and other hard-to-reach areas of their engines, in which the conventional VTI equipment (usually a 5G cell phone or a tablet) would never fit in. Here, too, the high video resolution made possible by 5G plays to its strengths, especially since digital measurements are also possible within the live-streamed borescopy. My favourite story here is how colleagues once proudly reported how a remote customer immediately confirmed a scratch mark that was just 0.3 millimetres in length. The high-resolution video stream really leaves nothing undetected. Any ambiguities are usually gone in a second.

Q- High-resolution video streams in the visual inspection of engine parts, sound extremely appealing from an Aircraft Maintenance Engineer`s point of view. Also, this application must be used extensively during the pandemic lockdown. Your views on this?

A- Indeed, as mentioned above, the VTI started to unfold its full potential during the crisis, especially in combination with the new 5G network technology. Interestingly, we had already trialled something similar a few years before, but the Wi-Fi technology used back then posed a number of drawbacks. The Wi-Fi`s relatively low-bandwidth impaired the video quality and the camera´s movement from one Wi-Fi cell to another regularly prompted losses of connection ... an absolute no-go for our customers who during the Table Inspection of their engine parts have to make repair decisions that can easily exceed 100,000 dollars for a single part.

We thus were lucky that in early 2020, only a few weeks before the pandemic hit the aviation industry, we had just inaugurated our first dedicated 5G campus networks, one of which was exclusively used for the VTI. The new standalone mobile network technology and our own independent frequency enabled us to perfectly tailor the 5G network to the VTI use case. The resulting high upload ratio and the seamless roaming between various network cells overcame all problems from the Wi-Fi days and immediately promoted the VTI to a suitable solution. When only a few weeks later the pandemic struck with full force and the first travel restrictions prohibited our customers from travelling to Hamburg, the VTI quickly evolved from a test case to nothing less than a business-critical service that kept both us and our customers going.

Q- You say, this offering became an indispensable part of the engine overhaul process as it saved the operators a lot of time and money as the operators can now also interact remotely with the mechanics on-site in Hamburg. Initially, how did you convince the operators to interact remotely? Were there any clients that insisted on an on-site visit for inspection? Is that option still available?

A- As mentioned in the answers above, VTI basically saw the light of day in times of strict travel restrictions. In these times, we did not really have to convince our customers, simply due to the fact that it was the only remaining option on how to perform a joint table inspection. For the large majority of our customers, it was simply not possible to travel to Hamburg any more. Hence, back then it was rather a question of "inspect your parts virtually or don´t inspect them at all". Nevertheless, from the very beginning the experience with the remote solution was so good that it automati-

cally convinced the large majority of our customers to stay with the VTI, even after the travel restrictions were lifted again. Nevertheless, there still are a few clients that have returned to performing the classic in-person table inspection, as it is still part of our service offerings. Another development we see are so-called "hybrid" inspections, with some customer representatives being present at the shop floor in Hamburg, and further expertise / back-up staff called-in via the remote solutions. That happens quite regularly now.

Q – Of Lately, the interference of 5G technology with flight operations was a subject of controversy, and Hamburg base is directly adjacent to the Hanseatic city's international airport, how did you solve this problem?

A - Indeed, our engine shops are located only a stone´s throw away from Hamburg Airport. As an aviation company, we are used to the maxim that safety always enjoys the highest priority. Thus, we put special emphasis on operational aspects such as interference, already long before the recent controversy regarding public 5G networks surfaced in the US and other countries.
Building on our decades-long experience with aircraft technology, we already knew that the frequency band we use (3.7 and 3.8 GHz) would not pose much reason for concern. Compared with the public 5G band (3.7 to 3.98 GHz) in the United States, its safety margin to the frequency band used by radar altimeters on commercial aircraft (4.2 to 4.4 GHz) is almost twice as large. Moreover, we so far use our 5G technology exclusively inside of industrial buildings. Their high steel and concrete content massively shield all wireless networks from the outside world, and thus, also from the airport.
That already minimizes the risk of interference with the surrounding infrastructure. However, as we usually apply safety standards that go beyond the general regulations, we asked the German Federal Network Agency (BNetzA) to document the clearance of our 5G network with a so-called site certificate. We did this although it is not actually mandatory given the performance of the 5G antennas we use here.
To play it extra safe, we moreover employed the technology company Rohde & Schwarz to take measurements at the Hamburg base in February 2022. The company's world-renowned experts in mobile network quality measurements were unable to detect any 5G signals outside the areas designated for our use cases, despite the network scanner used being significantly more sensitive than a cell phone and registering even the weakest signals.
Our safety considerations also strongly benefited from the close collaboration with Lufthansa Industry Solutions who brought a wealth of experience into the joint project.

Q – Can you tell us the role of Lufthansa Industry Solutions in the successful implementation of 5G?

A - Lufthansa Industry Solutions (LHIND) played a crucial role in the conception and setup of our 5G campus networks. They accompanied the entire process in an advisory capacity from the very beginning, bringing an enormous wealth of expertise into the project, from regulatory guidance and technology scouting to detailed performance measurements and safety considerations, to name just a few. It was a win-win situation for both our "sister" companies: On the one hand, due to LHIND's outstanding support, we became a renowned pioneer for industrial 5G in Germany. On the other hand, due to the experience gained in the setup of our 5G networks, LHIND is now very successful in supporting companies around the world in rolling out their own industrial 5G networks.

Q – Congratulations on the Ten-year license from the German Federal Network Agency, which has paved the way for further expansion. Can you tell us about your expansion plans going ahead?

A - Based on the so far extraordinary positive experience with our first 5G networks, we are indeed considering various other ideas to where else and how else this technology could be used in the future, not just here in the Engine Services segment, but in the entire MRO environment. However, I would like to make one thing very clear: Our idea is NOT to cover all workshops and buildings quickly and comprehensively with 5G networks. In our considerations, there is no "5G for the sake of 5G". New networks will only be created where they represent an immediate, measurable and value-generating benefit for our employees and for existing or even completely new use cases and services. With this in mind, there are a few application areas that I can well imagine being evaluated regarding 5G in the not-too-distant future. These areas, for example, cover the localization of tools and components, the development of new on-board sensors for aircraft and engines, and future forms of wireless machine connectivity. However, these are just a few examples.

World's first airport for Air Taxis and Delivery Drones

Nicknamed the "world's smallest airport", Urban Port hopes that the zero-emissions facility will be replicated around the globe to cut both road congestion and air pollution.

The world is buzzing with technological innovations in Drones, flying taxis, eVTOLs, you name it whatever you like. Every country is making headway in this future of flying innovations. It's a flying wonder, taking flight without any pilot, working on inbuild sensors and GPS. Technological experts have predicted a future in which just like on roads, there will be drone/flying taxi traffic in the skies very soon. It takes us down memory lane with a picture of the popular animation of the 90's the Jetsons, in which the family zooms around in a flying taxi.

With the flying taxis, soon to take the skies, the next question is where will these taxis, drones, and eVTOLs land? The answer is given by a digital infrastructure developer in the UK by the name of Urban Port. They have opened the world's first fully operational hub called Air-One for future electric vertical take-off and landing (eVTOL) vehicles. This hub is backed by the UK government and supported by advanced air mobility developer Supernal.

The hub – starting gun for a new age of transport

The hub is a 1,700 sq m prefabricated vertiport designed for both rapid assembly and disassembly. Nicknamed the "world's smallest airport", Urban Port hopes that the zero-emissions facility will be replicated around the globe to cut both road congestion and air pollution. "Existing airports around the world are huge, and carbon hungry, with 1.2km runways," says Urban Air Port founder and executive chairman Ricky Sandhu. That's because of the technology and how the aircraft take-off and land. The project's designers believe that the concept will show how a network of small urban mobility hubs can be rapidly set up in cities of various sizes. "Our goal is to show that the turnaround time can be absolutely minimal so that with a very small footprint, you can get high-capacity infrastructure that can support the vehicles," Mr. Sadhu adds.

Air-One will also host charging infrastructure for other modes of electric transport, including electric vehicles.

The Forecast

According to Urban-Air Port, the advanced air mobility (AAM) market is set to take off, with a forecast growth of 9 percent annually to reach USD 1tn within the next two decades. Analysis by NASA indicates that the lack of ground infrastructure remains one of the biggest barriers to the industry's growth.

Sustainability

With the ability to accommodate air taxis and autonomous delivery drones, the center is expected to demonstrate how advanced air mobility can support a zero-carbon future by cutting congestion and air pollution. The hub has been backed by the UK government and supported by advanced air mobility developer Supernal.

Drones have the exciting possibility to help reduce logistics and delivery congestion on our roads in a sustainable, eco-friendly, zero-emission way, cutting emissions by up to 47 percent when compared to light commercial vehicles.

Ricky Sandhu, founder and executive chairman of Urban-Air Port, said, "The opening of Air-One is a momentous moment – the starting gun for a new age of transport, an age of zero-emission, congestion-free travel between and within cities that will make people healthier, happier and more connected than ever before."

The 'vertiports' are designed to be highly flexible, catering to four different markets: Passenger air taxis, autonomous delivery drones, disaster emergency management, and defense operations and logistics.

They can be operated completely off-grid using on-site hydrogen fuel cells, and zero-emission generation.
Urban-Air Port said it will generate revenue through an 'infrastructure-as-a-service' model, enabling customers to decide the level of service they require.

The strategic location

Coventry was chosen for the site due to its location in the center of the UK – with most parts of the country within four hours of travel. Coventry University's National Transport Design Centre, part of the research Centre for Future Transport and Cities, has contributed to Urban-Air Port's design. Researchers have worked to ensure Air-One's design is accessible and easy to navigate, and Coventry University will continue to collaborate with Urban-Air Port to increase public understanding and acceptance of the new technology.

The launch event

The massive launch event was conducted recently with Air-One currently demonstrating aircraft command and control, eVTOL charging, and cargo loading for unmanned drones. Demonstrator flights are currently on. West Midlands Police and drone logistics company Skyfarer are among the first to operate flights from the site, showcasing how Urban-Air Port's vertiports can provide drone bases for 'sky protection' and high-value cargo deliveries in the near future. Flights of large cargo drones are also demonstrated by UK-based drone developer Malloy Aeronautics. The hub is open to the public till the middle of May.

Over at least a month the Air-One mini-airport site in Coventry will host demonstrator flights and outline how to control aircraft. Urban-Air Port added air taxis were yet to receive government approval, but a life-sized model of one being built would be on show on the ground.

Mike Whitaker, the chief commercial officer of Supernal, says, "Air-One serves as a valuable, tangible asset to help build stakeholder confidence and trust in emerging mobility technology and supporting systems. The Coventry demonstration is an important first step forward to reimagining how people across the world will move, connect and live. Developing a scalable system to support advanced air mobility operations requires collaboration from all industries and corners of the world. Supernal's support of Urban-Air Port reinforces our belief in infusing technology and innovation to enable humanity and society to reach new levels of potential."

The Coventry demonstrations may be extended beyond the month and people can register to attend via the company's website.

"In a couple of years, the community from here can be flying to places like London within 20 minutes, saving so much time," Mr. Sandhu says "Our job is to pave the way."

"Air taxis will be coming very, very soon, in two years or so the leading companies will be launching theirs but cargo drones... these are already flying, doing lots of deliveries in and around the country but also around the world... They need a coordinated piece of infrastructure and that's where we come in. By contract, new vehicles can take off vertically and land extremely accurately. There's going to be a whole new type of infrastructure needed to support those." He further adds.

A series of public engagement events at Air-One have been planned, to bring future air mobility to life for the public and form part of Coventry's City of Culture celebrations.

Expansion plan

Urban-Air Port plans to deploy 200 more hubs around the world over the next five years. Vertiports will be launched in the UK in the West Midlands and London, and internationally in the US, Australia, South Korea, France, Germany, Scandinavia, and Southeast Asia. As announced in October 2021, Urban-Air Port and Munich Airport's airport operator will also cooperate on the launch of an Air-One site.

Robert Courts, UK minister for aviation, said, "British innovation has a rich history of transforming global transportation, from the creation of the railroads in the 1800s to the growth of great British brands such as Jaguar, Triumph, and Rover in the 1950s. The opening of Air-One, backed by government funding, will revolutionize the way people and goods travel across the nation. This step forward puts Britain at the vanguard of clean transport, bringing investment and high-skilled, green job opportunities to the nation while leveling up opportunity in the Midlands."

"We're aiming to see 200 Urban Air Ports deployed within the next five years, globally," Mr. Sadhu added. "But we think that's conservative because big cities will need significantly more."

Munich Airport is working on close cooperation with Urban Air Port to ensure that the vertiport project becomes a blueprint for future vertiport deployments in multiple environments and settings.

The Challenges

There are several challenges standing in the way of flying taxis and skyports. Some of them are public acceptance, high-volume manufacturing, digital, power, and physical infrastructure investment, and the development of a highly-automated air traffic management system. However, the main challenge is regulatory hurdles and air traffic control systems.

Regarding regulatory hurdles, the biggest barrier is that flying taxis have yet to be given authorization to fly commercially by the relevant authorities, such as the Federal Aviation Administration (FAA) in the US, or the UK's Civil Aviation Authority (CAA).

Both of these are, however, continuing to study the issue – the safety of such vehicles, and how authorization can be formulated and subsequently monitored. At the CAA this work is being done by a specific innovation team.

Apart from this, health and safety issues cannot be neglected. Imagine if a flying taxi fell in an uncontrolled way the amount of damage it can cause to anyone in the vicinity is simply unimaginable. Ricky Sadhu says his main concern is that investment in skyports and other infrastructure may lack investment in the eVTOL vehicles themselves.

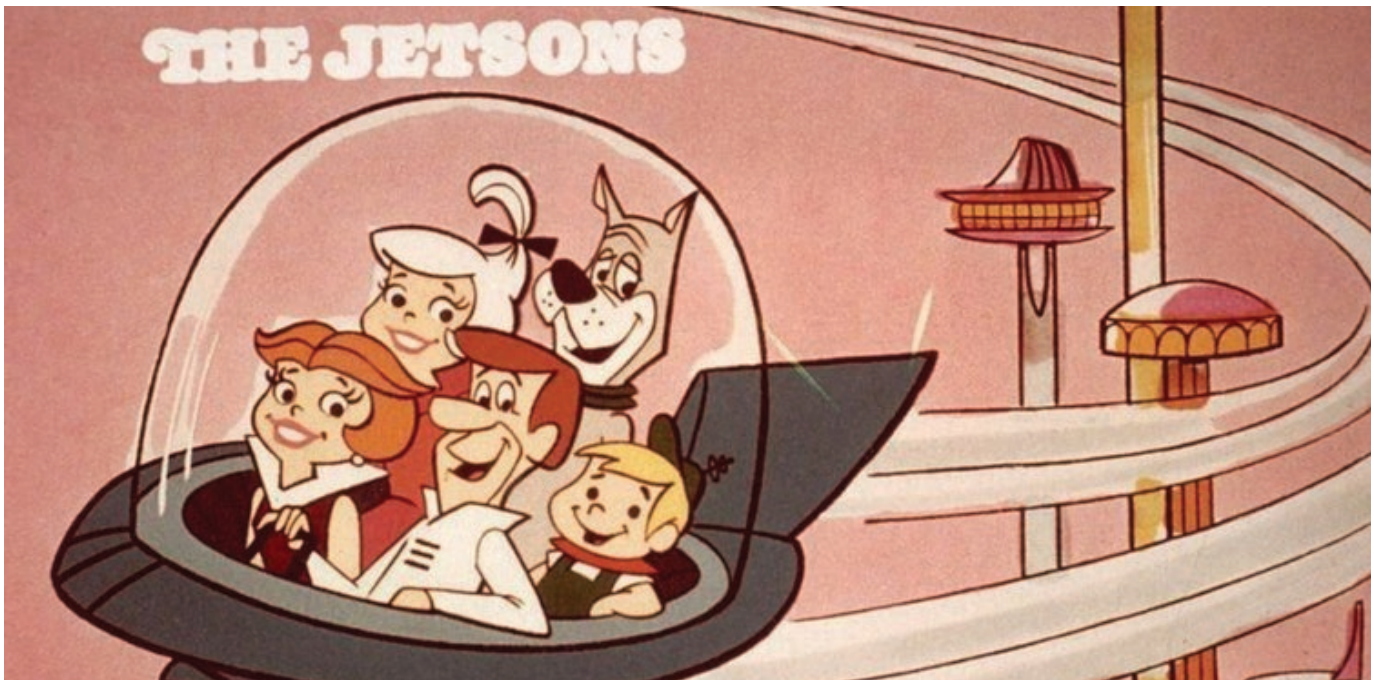
"I'm less concerned about regulation. What we're seeing is evolving quickly," says Mr. Sandhu .

He further adds that despite the challenges, there is already enormous demand and interest in skyports from cities across the US, Europe, and Asia.

Currently Urban-Air Port is in the process of developing global networks of specialist ground, air, and digital infrastructure to support urban logistics worldwide.

Market Competition

Rising companies in the drones and UAV market include Dronamics, Natilus, Elroy Air, and Reliable Robotics.



Swedish Defence signs SEK 400 million contract with Saab for Gripen launch system

Post-delivery, the maintenance of the launch systems will be performed in Sweden by Saab.

The Swedish Defence Material Administration r FMV has signed a SEK 400 million contract with Saab for the development and integration of a new launch system for Gripen C/D and Gripen E. The order includes the development and integration of a new launch system for air-to-air missiles and countermeasure pods on Gripen C/D and Gripen E. The contract also includes options for subsequent series orders of launcher systems.

Åsa Schöllin, head of the Gripen Sustainment business unit said, "The integration of the new launch system is an important component for ensuring the continued high availability of the Gripen system. After delivery, maintenance of the launch systems will be performed in Sweden, which further contributes to a secure supply of defence equipment for our customers."

The launchers can be integrated with existing variants of weapon pylons and can carry all Gripen air-to-air missiles.

The launchers can be integrated with existing variants of weapon pylons and can carry all Gripen air-to-air missiles. The launcher is mounted to the aircraft's weapon pylons and has a sophisticated connection between the aircraft and the weapons mounted on the launcher.

Boeing unveils the first look of digitally advanced, Next-Gen T-7A Red Hawks for US Air Force

T-7A will prepare pilots for future missions for decades to come.

This aircraft is a tangible example of how Boeing, its suppliers, and partner the digital engineering revolution.

Boeing recently unveiled the first T-7A Red Hawk advanced trainer jet to be delivered to the US Air Force. The US Air Force has placed an order of 350 to prepare its pilots for the future mission. The T-7A Red Hawk is a fully digitally designed aircraft, built and tested using advanced manufacturing, agile software development, and digital engineering technology significantly reducing the time from design to first flight. The aircraft also features open architecture software, providing growth and flexibility to meet future mission needs.

Ted Colbert, president and CEO, Boeing Defense, Space & Security said, "We're excited and honored to deliver this digitally advanced, next-generation trainer to the U.S. Air Force. This aircraft is a tangible example of how Boeing, its suppliers, and partner the digital engineering revolution. T-7A will prepare pilots for future missions for decades to come."

The T-7A Red Hawk incorporates a red-tailed livery in honor of the Tuskegee Airmen of World War II. These airmen made up the first African American aviation unit to serve in the U.S. military.

Gen. Charles Q. Brown, Jr., Chief of Staff of the Air Force said, "The Tuskegee Airmen are one of the most celebrated units in our Air Force history, and the T-7A honors the bravery and skill of these trailblazers. Like the Airmen they were named and painted to pay homage to, the T-7A Red Hawks break down the barriers of flight. These digitally-engineered aircraft will make it possible for a diverse cross-section of future fighter and bomber pilots to be trained, and provide an advanced training system and capabilities that will meet the demands of today's and tomorrow's national security environment."

The aircraft will remain in St. Louis where it will undergo ground and flight tests before being delivered to the U.S. Air Force. The T-7A program resides at Boeing's St. Louis facility with the aft section of the trainer being built by Saab in Linkoping, Sweden. Saab will soon start producing that section at their new production facility in West Lafayette, Indiana.

Lars Wagner to replace Reiner Winkler as CEO of MTU Aero Engines

The role of MTU in the worldwide aircraft engine business was essentially strengthened and extended under Reiner's leadership.

Reiner Winkler, the CEO of MTU Aero Engines will terminate his mandate after almost two decades by the end of this year. Lars Wagner is appointed as the future CEO of MTU Aero Engines with effect from 1st January 2023.

On his retirement, Winkler said, "After more than twenty years in the management board of MTU, I now see the time has come to pass on my responsibilities. The company's expected new growth phase and the excellent succession plan at the top of both the Supervisory and the Management Board appear to be a very suitable point in time. I am extremely thankful that I was allowed to help shape the successful development of MTU over such a long period of time."

The Chairman of the Supervisory Board, Klaus Eberhardt, said: "For more than two decades, Reiner Winkler has contributed decisively to develop MTU into an excellently positioned company with outstanding perspectives for its future. The role of MTU in the worldwide aircraft engine business was essentially strengthened and extended under his leadership. For this, the Supervisory Board expresses its utmost respect and thanks to him."

Winkler's CEO appointment would have ended on September 30, 2024.

Eberhardt further added, "Lars Wagner is an excellent successor at the top of MTU and has been a potential internal candidate for some time. With his comprehensive experience in both MTU and the industry, and his convincing personality, he will lead the company into the future, which will be characterized by far-reaching technological innovations".

Eberhardt will retire as Chairman of the Supervisory Board of MTU Aero Engines and Gordon Riske has been proposed as his successor, and he has already accompanied the selection process for the CEO position. In the coming months, Riske and the further members of the Supervisory Board will shape the search for a female board member as a replacement for the vacant Executive Board position as well as help design the exact division of responsibilities at the Executive Board. According to legal requirements, a woman shall be nominated as the fourth member of MTU's Executive Board.

Oscar Torres succeeds Jeff Lund as the President and CEO of Kellstrom

Jeff Lund was the President and CEO of Kellstrom for the past six years, he recently retired.

Kellstrom Aerospace has appointed Oscar Torres as the President and Chief Executive Officer succeeding Jeff Lund who recently retired.

Paul Fulchino, Chairman of Kellstrom's Board of Directors said, "Oscar's extensive experience and knowledge of the commercial aerospace aftermarket make him an excellent choice to lead Kellstrom toward fulfilling its full-service aftermarket vision".

On his appointment, Oscar Torres said, "We thank Jeff for his contributions and leadership during the past six years and wish him and his family the very best in his retirement. I am excited about the opportunity to lead Kellstrom and continue its commitment to provide cost-effective and superior quality solutions to our business partners".

Torres joined the company in 1999 and has held several senior positions, most recently as Executive Vice President of Operations and Chief Financial Officer.

International CALENDAR 2022

2022

Date	Event	Venue
23-25 May	EBACE	Geneva, Switzerland
24-25 May	Global Aerospace Summit	Abu Dhabi
31 may-01 June	IATA Annual Ground Handling Conference	Paris, France
07-08 Jun	Engine Leasing, Trading & Finance	London, UK
09-11 June	France Air Expo	France
15-16 June	MRO BEER	Istanbul, Turkey
21-23 June	World ATM congress	Madrid , Spain.
07-09 July	AERO South Africa	South Africa
07-08 Sept	Aero-Engines Europe	Dublin, Ireland
07-08 Sept	Helitech Expo	ExCeL London
20-22 Sept	MRO ASIA-PACIFIC	Singapore
06-08 Oct	Istanbul Airshow	Istanbul Atatürk Airport, Istanbul
18-20 Oct	MRO EUROPE	London, UK
01-03 Nov	Abu Dhabi Air Expo	Abu Dhabi
06-09 Nov	ATCA	Washington, D.C.
06-08 Dec	MEBAA	DWC, Dubai

For Editorial : **editorial@ mrobusinesstoday.com**
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