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WORLD AIR NEWS

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HELP IS ON ITSWAY

Captain Mark Berg and First Officer Thomas Oyston were at the controls of Universal Air's Dash 8-100 registered 9H-ALM which left Malta on its way to Adana International Airport in Turkey. The aircraft was full of supplies including food, blankets, warm clothing and items for babies collected from the Maltese general public. The twin turboprop, which was originally delivered to Japanese carrier Ryukyu Air Commuter in 1997 left Malta at 08:50am and made a refuelling stop in Heraklion before proceeding to its final destination in Turkey. Photo by Marvic Bugeja / MAviO News

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AVIATION TO THE RESCUE

By Heidi Gibson

Aviation once again played a huge part in transporting relief supplies to the tens of thousands affected by the earthquake that hit parts of Turkey and Syria.

I read somewhere that global package delivery service provider UPS said a Boeing 767 took off every night from the UPS Air Hub at Cologne Bonn airport to transport urgently needed goods from national and international aid organisations as well as donations from ordinary people.

UK aid agencies - including the British Red Cross, Oxfam and ActionAid - stepped in to raise funds and governments around the world immediately began to organise help. All very well and good but how would this stuff get to where it is needed? This is the vital role that aviation plays.

One of the first airlines to offer free mercy lifts was Turkey's low-cost carrier Pegasus which announced they would provide free evacuation flights.

India sent to Turkey relief materials, a mobile hospital and specialised search and rescue teams in two C-17 Globemaster military transport aircraft,

At times of disaster aviation steps in ferrying in search and rescue teams, equipment, aid and of course provides medical airlifts if necessary.

Back here in Africa, the Air Cargo Africa conference took place in Johannesburg and attention was on the African Continental free trade agreement or AfCFTA and what is needed for this valuable agreement to reach its full potential.

AfCFTA is one of the 13 flagship projects of the African Union's 'Agenda 2063:The Africa We Want' programme. It encompasses the world's largest free trade area, incorporating 55 African countries and eight economic regions.

What is desperately needed here is African connectivity and the growth of aviation and for this governments need to give priority to this sector of the economy. Something that is sorely lacking.

On a positive note, the Single Africa Air Transport Market or SAATM – also part of Agenda 2063 – is growing. Read more inside about the countries signing up, agreements made and signs that we are slowly opening up. This is encouraging. There are now 34 signatories to SAATM.

It's crazy to think that if you want to travel in Africa – you will have to take a flight to a country in Europe first and then a flight back. Try and get a direct flight to Seychelles.
Turkish Airlines flies to 53 destinations in Africa and as a result, is seeing a lot of microflows emerging from destinations that aren't so common.

Cargo airlines Astral CEO Sanjeev Gadhia called for more freighters in the market as Africa tended to be at the back of the queue for conversions.

"But the continent needs more freighters, there are not enough. Foreign carriers with freighters are seeing the opportunity here, but African countries can't meet it."

Astral has a fleet of 15 freighters.
Inside our March edition, we turn the focus to Brazilian manufacturer Embraer's regional jets and the role they play on our continent. It's a very interesting read.

EXCITING NEWS - *Our website continues to plague us with serious back-end problems. We apologise for any glitches that it currently has. But on a positive note we are working on it. Keep your eyes peeled for the new one coming!!!

E190-Air Cairo: Part of Embraer's flagship next-gen E-Jets E2 family is the all-rounder E190-E2 with up to 114 seats. Here is the recently delivered Egyptian Air Cairo.

EMBRAER OVER AFRICA & THE MIDDLE EAST

By Heidi Gibson

Africa and the Middle East are ideally suited for smaller regional jets. What determines success for an airline is having the right aircraft fit into a good business plan. Brazilian manufacturer Embraer is taking this to a new level. *World Airnews* spoke to Embraer vice president Stephan Hannemann about the African and Middle East regions and the future of flying.

Embraer vice president Stephan Hannemann

WAN: Thanks for agreeing to the interview Stephan. Can you tell our readers what are the factors driving growth in the African and Middle East regions?

SH: Both regions continue to be growth markets, but ultimately each area has different drivers for growth. In the African context we see sustained growth due to the steeply growing population and, more importantly, a growing middle class. Africa is also a growing market for tourism, which is driving up passenger numbers, and intra-region trade is steadily increasing.

Africa has around 18% of the global population, but only around 3% of passenger traffic – this statistic demonstrates the growth potential that lies ahead.

The Middle Eastern market is more mature. The region has experienced the strongest growth in pax numbers globally over the past two decades, driven by mega hub carriers like Qatar Airways, Emirates and Turkish Airlines. As well as the more headline grabbing mega-hubs, we are seeing a growing segment of intra-regional traffic, driven by a demand mix of business and tourism. Airlines like FlyNas, Salam Air and flydubai have been market leaders in that segment. With individual markets such as

E19 – HE London: Looking to the future, Embraer is currently focusing on designs for hybrid electric and hydrogen to electric propulsion aircraft. Here is an artist's impression of the E19 HE.

Saudi Arabia opening up and executing nationwide development projects, we expect a strong increase in intra-regional demand requiring smaller and most efficient aircraft. Saudi Arabia will be one of the strongest growth markets, with a clear vision in place, which will see strong growth in passenger numbers. With projects like NEOM, there is an opportunity to create new markets, and considerable opportunities around rightsizing their domestic and intra-regional operations - Sabre data reveals that 37% of all flights to and from Saudi Arabia operate with fewer than 100 passengers, a clear indication that right-sizing is a major opportunity

WAN: Africa is one of the world's regions that are best suited to regional air traffic. Can you tell our readers why the family of Embraer RJs are ideally suited to this region?

SH: Today we have around 250 aircraft with over 70 airlines flying across the continent, from the 50-seater ERJ family, the globally successful 'E1' E-Jet family, to the brand-new E2 family - which has up 146-seats.

Our success is based on several factors, but predominantly it is because we offer a capacity segment which is innately perfect for the continent. Most of the routes across the continent today cannot justify flying larger aircraft, due to demand not being sufficient.

Smaller aircraft offer lower trip cost, and are therefore ideal from a financial point of view. There are only a few markets in Africa that can sustain larger narrowbodies like 737 and A320 aircraft or even widebody aircraft for their cargo capacity. One indicator of how well airlines match demand & supply are passenger load factors (PLF), Africa has some catching-up to do with an average PLF of 72%; the global average being above 78%. A point that we feel very strongly about at Embraer is market connectivity, our aircraft due to their size, economics and performance capabilities are the unrivalled champion to connect more markets and increase frequencies.

WAN: Can you name the aircraft types for those that may not know and give a short description of the reasons for this?

SH: Absolutely, our flagship line is the next-generation E-Jets E2 family, which comprises three family members from the smallest E175-E2 with up 90 seats, through the mid-market all-rounder E190-E2 with up to 114 seats to the profit-hunter E195-E2 with up to 146 seats. We have the E195-E2 in operation at Air Peace in Nigeria and will soon start delivering to our long-term partner Royal Jordanian and Salam Air of Oman.

The predecessor of the E2 family, the 'E1' E-Jets family, is a global success with more than 1600 aircraft delivered. These aircraft are flying for airlines like Lufthansa Group, KLM, British Airways, Azul Airlines of Brazil, AeroMexico, and Japan Airlines – and here in the region with strong brands like Kenya Airways, Airlink, RAM and many other others.

We just recently delivered a E190 aircraft to Egyptian Air Cairo. These are extremely reliable, highly efficient and passenger-friendly aircraft from 70 to 120 seats. The E-Jets are extremely popular in Africa and we've seen a steady growth in the past years of new and pre-owned aircraft coming to the African continent.

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We are continuing to sell and build the Embraer E175 jet, which is extremely appealing to the African operator context due to its durability, economics and performance. Over the course of the next months, we are going to deliver a brand-new E175 to Nigerian operator Overland Airways. The E175 is the ideal aircraft to replace aging aircraft in the 80-seater segment, or upsizing from turbo-prop aircraft, whilst delivering jet comfort.

And then there is the ERJ family, which is an out-of-production but still going strong family of jets with 30 to 50 seats. The ERJ is extremely popular in Africa with many operators, some with only one ERJ and others with over 30 aircraft, like Airlink in South Africa. The platform is delivering the best economics for thin markets.

Lastly, there is a new development at Embraer in the cargo space with the E-Jets now having the option to be converted into freighter aircraft, a so called P2F (Passenger-to-Freight) conversion. The E190F and E195F offer a completely new payload segment around 13-14t, so in between turboprop and narrowbody freighters. Our freighters offer a compelling proposition to replace old and inefficient freighters, upgrade or sight-size cargo operations.

WAN: Do you have a breakdown of the amount of aircraft type per African country? Can you provide it for our readers?

SH: Today we have around 250 aircraft with over 70 airlines flying across the continent.

WAN: Does the Middle East have the same type of footprint of Regional Jets? If not in what way does it differ?

SH: Regional jet operation in the Middle East has been a niche operation, with concentration on long-haul, but the intra-region market is definitely growing and has good momentum, with air traffic market liberalisation and increased demand for regional cross-border travel. Airlines like FlyNas, Air Arabia, flydubai, and Salam Air have built impressive intra-regional networks. Our approach is to work closely with existing and new customers identifying their future network and fleet development needs. Last year marked one of the strongest years for Embraer in the region with Royal Jordanian signing for up to 10x E2s and Salam Air for six E195-E2. So we are very confident about the region's prospects.

WAN: Which of your Regional Jets are best suited to this area and why?

SH: We are seeing high demand, especially for the E195-E2, the largest aircraft in our portfolio. This aircraft offers an outstanding mix of unit cost economics, performance and passenger appeal. Unit costs are similar to a next-gen narrowbody, but trip costs are more than 20% lower – a major opportunity to cut costs, improve efficiency, and reduce emissions It's the perfect complement for any airline operating A320 or 737 family aircraft. The aircraft allows airlines to launch new markets at lowest risk, with better financial returns, while building frequency on existing markets.

WAN: How much of demand will be attributed to the turbo prop segment? It seems as if demand for this type is decreasing - would you agree with this and explain why?

SH: Embraer is carefully studying this market and we see solid demand for a future turboprop in Africa. Africa has always been a strong market for TPs, and there's been little innovation in past decades that's why we are assessing the potential of an advanced, comfortable, and quiet TP.

WAN: Which Embraer regional jet type is on the rise?

SH: Our sales focus is fully on the next-gen E2 family for the region, but we continue to explore opportunities around new E175-E1 aircraft also. The E175 is our best-selling commercial aircraft and has been significantly upgraded over the years, improving its fuel burn by 6.3%. It's a great aircraft to replace 50-seater jets and turboprops, boasting excellent economics and most importantly a highly durable design for reliable operations.

WAN: An interesting trend is also highlighted in your Market Outlook is that a higher percentage of growth will relate to the replacement of ageing aircraft. So Africa tends to have a large ageing fleet that will need to be replaced. On the other hand, African countries, governments and private enterprise are not known to have deep pockets of cash – how does Embraer these two factors playing out across Africa in 2023?

SH: Airlines across Africa will be pleased to know that deep pockets are not necessarily required if seeking the most efficient aircraft that is the right size for their operations. What determines success is having the right aircraft fit for a successful business plan. Embraer aircraft specialise in opening, maintaining and growing routes that would fail with larger aircraft.

Through the conversations we have with operators about the market and fleet selection, we are able to demonstrate to airlines the benefits of fleet rightsizing; through these exercises, we show how to create a more financially sustainable environment for the airline operator, and in turn, attract investment from the market to support the business, especially in acquiring aircraft.

The second factor which helps enormously is that E-Jets and the market of up to 150 seats has historically drawn interest from the financing market. Embraer also has the right banking and lessor relationships to coordinate opportunities for financiers and customers. We see potential in a broad range of financing options to support aircraft deliveries in Africa, including but not limited to: traditional aviation commercial banks; credit enhancement; local banks; alternative lenders; ECA and International banks. In addition to these, lessors also play a pivotal part through direct placement of aircraft or sale-leaseback transactions.

This plethora of sources allows different airlines to have access to the most appropriate sources for aircraft finance. It is also worth mentioning that E-jets' liquidity is a key benefit of the programme with record numbers of aircraft transitioning in the past two years, the 70+ operators also gives owners and investors an additional layer of confidence to deploy capital in Ejet related transactions – there are 25+ lessors with E-jets in their portfolios.

WAN: No one can deny the move towards sustainability and a net-zero Carbon future and clearly Embraer believes that regional aircraft, smaller aircraft will drive this movement. Can you join the dots and explain the reasoning behind this thinking?

SH: Embraer recognises the urgency of the climate crisis and is fully committed to a sustainable future. We have already made good progress. Our latest E2 aircraft reduces fuel burn by 25% over our previous aircraft. We have been working with sustainable alternative fuels (SAF) for over 10 years and last year we conducted

a test with engine partner Pratt and Whitney proving the E2 can fly on 100% SAF.

Looking to the future, the industry needs to develop new propulsion systems and fuels to tackle the climate crisis. As the global leader in regional aircraft, Embraer is ideally positioned to bring disruptive technologies to smaller aircraft first, as regional aircraft are going to be the first platforms on which new fuel and propulsion systems can be introduced effectively. Embraer's Energia project explores a range of sustainable concepts to carry up to 50 passengers. The project is considering a number of energy sources, propulsion and airframe architectures to reduce carbon emissions by 50% starting from 2030 – a key step in our goal to be net carbon neutral by 2050.

Embraer is also working closely with leading universities and academic institutions to overcome the challenges of energy harvesting, storage and thermal management, as well as exploring new ways to make commercial operations more efficient with global customers and governments.

WAN: I understand that Embraer is busy working on a number of new types of regional aircraft specifically designed to embrace the future of aircraft sustainability. Could you highlight one such type that will work well in Africa in the not-so- distant future?

SH: Embraer is currently focusing on 19 and 30 seater designs for hybrid electric and hydrogen electric propulsion. Guided by the company's 50 year technical expertise, external inputs from airlines, and joint studies with engine OEMs, these two approaches to net-zero offer a technically realistic and economically feasible pathway to net-zero.

Energia Hybrid (E19-HE and E30-HE) – revealed as a nine seater in 2021, Embraer is now exploring a 19 and a 30 seater variant:

- parallel hybrid-electric propulsion
- up to 90% CO^2 emissions reduction when using SAF
- 19 and 30 seat variants
- rear-mounted engines
- technology readiness – early 2030's

Energia H2 Fuel Cell (E19-H2FC and E30-H2FC) – revealed as a 19 seater in 2021, Embraer is now exploring a 30 seater variant:

- hydrogen electric propulsion
- zero CO2 emissions
- 19 and 30 seat variants
- rear-mounted electric engines
- technology readiness – 2035

While still at the evaluation phase, the architectures and technologies are being assessed for technical and commercial viability. The Energia Advisory Group has also been launched to harness inputs and collaboration from partner airlines.

WAN: Where can our readers go to learn more about this?

SH: 'Energia – The shape of things to come', presenting the latest update on Energia was broadcast 5th December 2022 and is available on Embraer's YouTube channel https://youtube.com/@Embraer. The event was broadcast live from Amsterdam and Sao Jose dos Campos, Brazil. It includes presentations from Embraer's Chief Engineer, and Commercial Aviation CEO, and features a 360° tour the concepts - Energia H2

E19 – H2FC. Istanbul Turkey: The E19 H2 Fuel Cell was revealed as a 19-seater in 2021. Embraer is now exploring a 30-seater variant.

PROVIDING
FLIGHT OPERATIONS SUPPORT

A Pilatus PC-12 in Moshi: a town in northern Tanzania, near the Kenyan border. It's known as the gateway to Mount Kilimanjaro – seen in the background.

From support for flight operations, quality and safety, a bespoke African aviation consultancy company called Flight Operations Support is breaking new ground. In this two-part series *World Airnews* spoke to founder Khalid Fadal to find out more.

Flight Operations Support founder Khalid Fadal

WAN: Thank you for agreeing to field some questions. Can you tell our readers a bit about who you are, where you live, and your career path in aviation or related? Can we start with you?

KF: Firstly, thank you to World Airnews for this incredible opportunity to showcase Flight Operations Support. My name is Khalid Fadal, and I am the Founder of Flight Operations Support. I currently live in Johannesburg, South Africa, where our company is headquartered.

I have been involved in aviation for over 16 years. My career path in the industry has been diverse. I started out as an Aircraft Maintenance Engineer at South African Airway Technical, where I was rated on the Boeing 737 Classis and the Airbus A330/A340 Fleets. After a few years, I transitioned into the field of accident investigation and became an Aircraft Accident Investigator with a key focus on improving aircraft safety and reducing the risk of incidents and accidents.

After gaining extensive experience with the regulator, I transitioned into aviation consultancy, providing advisory services to airlines and aviation-related companies. My experience in consulting helped me understand the unique needs and challenges of different aviation companies, and inspired me to start Flight Operations Support.

WAN: What did it take to start Flight Operations Support emerge? How long have you been in operation? Can you describe your road to success?

At Flight Operations Support, we recognise African aviation companies' significant challenges, particularly in skills and resources. We have seen firsthand the impact these challenges can have on the safety and efficiency of aviation operations. However, despite their limitations, we have also seen the motivation and drive of African aviation operators to be successful and grow.

Our services are designed to address African aviation operators' unique needs and challenges. We work closely with our clients to understand their specific needs and provide access to skills, knowledge, and resources on a needs basis. Our goal is to help African aviation operators overcome challenges and achieve their full potential.

We invest heavily in developing systems and processes that improve the efficiency and safety of aviation operations, and we provide knowledge and support that helps to build skills and capacity. We also work to identify opportunities for growth and expansion, and we provide strategic advice and support to help aviation operators in Africa achieve their goals.

Bringing Flight Operations Support to life took significant planning, research and hard work to identify the market need and determine the critical services we would provide. This included extensive academic research, which culminated in an MBA dissertation. We assembled a team of highly experienced postholders and flight operations personnel who could provide exceptional service to our clients. Once we had a solid plan, we launched Flight Operations Support and began providing our services to clients in Africa and other regions.

Our East and West African success can be attributed to our focus on safety, efficiency, and cost-saving, our commitment to delivering exceptional customer service, and our investment in knowledge and processes. We are always looking for new and innovative ways to improve our services, address the challenges facing aviation companies in Africa and other regions, and support the motivation and drive of African aviation operators to succeed and grow.

WAN: So what services does Flight Operations Support provide and who is your team?

KF: Flight Operations Support is a bespoke airline and operator support company that specialises in providing a wide range of services to meet the unique needs of our clients. We work with a team of highly experienced postholders and flight operations personnel who are available 24/7 to provide support to our clients. Our services include:

- Postholder and department support for flight operations, quality, and safety: We provide our clients with access to a team of highly experienced postholders who can provide expert support for flight operations, quality, and safety. This includes assistance with regulatory compliance, safety management, and risk assessment.
- Real-time flight tracking and reporting: Our flight following and support team is available 24/7 to provide real-time flight tracking and reporting to ensure oversight. This helps our clients to manage their operations more effectively and make data-driven decisions.
- Quality management: We offer a range of quality management services, including quality audits, quality control, and quality assurance. This helps our clients to ensure that their operations are of the highest standard and in compliance with regulatory requirements.
- Safety management: We provide a range of safety management services, including safety audits, safety risk management, and safety performance monitoring. This helps our clients to identify and mitigate potential risks, improve safety performance, and reduce the risk of incidents and accidents.
- Advisory services: We provide expert advice and support to our clients on various aviation-related issues. This includes regulatory compliance, operational efficiency, and cost-saving.

Our team works closely with our clients to provide tailored solutions that meet their unique needs. We are committed to delivering exceptional customer service and building solid relationships with our clients.

By outsourcing these functions to us, companies can focus on their core business while we provide the necessary support to ensure their operation runs safely, efficiently, and in a compliant manner.

Look out for the second part of this interview in the April edition of World Airnews when we get to grips with more about Flight Operations Support.

MITSUBISHI HEAVY INDUSTRIES AXES SPACEJET PROGRAMME

The SpaceJet M90 appears at the 2019 Paris Airshow. (Photo: David McIntosh)

Mitsubishi Heavy Industries has ended its SpaceJet programme, which was intended to bring a new regional jet to market.

The paused SpaceJet M90 development activities have been discontinued, MHI said, blaming "insufficient initial understanding of highly complex type certification process for commercial aircraft" and "insufficient resources to continue long-term development".

The type achieved over 3,900 hours of flight tests with no safety issues.

In a statement, the company said: "Mitsubishi Heavy Industries announces the discontinuation of SpaceJet development activities, which had been pursued by Mitsubishi Aircraft Corporation, a consolidated MHI Group company."

Going forward, MHI said it planned to continue its OEM business with the CRJ Program, deepen partnerships with global OEMs, consider next-generation technologies with an eye towards aircraft development programmes, and apply knowledge and experience to its F-X (next-generation fighter) programme.

YEARS IN DEVELOPMENT

MHI Group officially launched the programme in 2008, with the M100 type introduced at the 2019 Paris Air Show. The type was due to have a new engine and advanced aerodynamics.

The SpaceJet family of aircraft was intended to address demand in the regional jet market, and had achieved orders from Japanese and US customers.

That included a memorandum of understanding with Mesa Airlines for the purchase of 100 Mitsubishi Aircraft SpaceJet M100 aircraft.

NEW A350 FULL-FLIGHT SIMULATOR

Aviation training provider Simaero has acquired a CAE A350 Full-Flight Simulator with the latest Airbus training standards.

The future device will be equipped with a dual Head Up Display (HUD) and this order is the first for the group in over a decade.

"To meet our customers' demanding requirements, we needed a high-grade full-flight simulator technology. Knowing the high fidelity and reliability of the five CAE devices we already operate, this acquisition was a logical next step to the close relationship we are having with them for many years," said Damien Dabancourt, Simaero FSTD Manager.

The group offers A350 pilot training on the two Air France A350 FFS near Paris Charles-de-Gaulle Airport as part of its exclusive partnership with the French airline, but this new device will significantly expand its ability to answer A350 pilot training needs.

Like most of its fleet, the future simulator will be certified by the European Union Aviation Safety Agency (EASA). Simaero's Approved Training Organization (ATO) will offer EASA-approved A350 type-rating, CCQ, and CTR courses, starting soon.

This new device will be located in Simaero Paris Training Centre and is expected to be fully operational by the end of 2024.

EDWARD THE A321NEO BALD EAGLE

Engine manufacturer Pratt & Whitney and Frontier Airlines have revealed 'Edward the Bald Eagle' - the third GTF-powered A321neo featuring Pratt & Whitney's hallmark bald eagle on the tail.

The engine manufacturer's employees named the plane after the late Edward Hall, one of the first African American military aviators trained as a bombardier, navigator and a member of the famed Tuskegee Airmen during World War II.

Following his military service, Hall spent a 33-year career at Pratt & Whitney, retiring as a metallurgist in 1983.

"The Tuskegee Airmen were among the most talented and decorated US World War II pilots, yet they returned from distinguished military service only to face a battle for desegregation and equality at home. Aviation pioneers like Hall have been the talent and intelligence behind decades of ground breaking engines at Pratt & Whitney. We believe diversity and inclusion are differentiators for creativity and innovation, so it is moving to see his heroism, life and legacy honoured in this way," Earl Exum, vice president of mature commercial engines at Pratt & Whitney.

Hall earned a physics degree from Virginia State University and carried out graduate work at the RCA Institute in New York before joining Pratt & Whitney's Hartford, Conneticut headquarters in the USA in 1950.

During that time, Hall witnessed the development and evolution of many of the company's remarkable engines for both military and civilian aircraft.

Technological advancements in this era included the air-cooled radial Wasp engines; gas turbines like the J57, the first engine in the US with more than 10,000 pounds of thrust; the F100 turbofan, which has powered decades of national defence; the PT6 turboprop, on which general aviation and many helicopters have been built; and the JT3D turbofan, which ushered in the jet age with the Boeing 707.

"We are extremely proud that our newest A321neo features a bald eagle on its tail named for the late Edward Hall, who valiantly served our country as a Tuskegee Airman, achieved remarkable professional success following his military career, and helped break barriers for African Americans through his advocacy and leadership.

This latest A321neo to join the Frontier fleet is powered by the ground breaking Pratt & Whitney GTF engines and their innovative sustainability benefits which are helping to support our mission as America's Greenest Airline," said Frontier Airlines president and CEO, Frontier Airlines, said:

In recognition of the companies' relationship, Frontier asked Pratt & Whitney employees to name the first three of the airline's 144 A320neo family aircraft powered by GTF engines.

The first plane was named 'Frederick the Bald Eagle' in honour of the company's founder Frederick B. Rentschler, and the second was named 'Maria the Bald Eagle' after Pratt & Whitney Canada's Maria Della Posta, the company's first female president and a pioneer in sustainable aviation.

Photo Credit: Justin Sullivan / Getty Images

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PRESTIGE POWER

The South African Airforce is the second oldest air force in the world after the Royal Airforce.

It was formed on February 20 1920 and this year it was a reason to celebrate.

Marking 103 years of existence, the South African Air Force Base commemorated the anniversary as a part of a Prestige Day event held earlier this year at the AB Swartkops base, near Pretoria.

It is also home of the South African Air Force Museum and 17 Squadron.

The evening before the main event kicked off, was marked by various fly-past formations of the Museum Helicopters, Silver Falcons and Hawk Mk120s.

The day of the parade opened with the South African Airforce flag and the national flag flown by two Agusta A109LUHs. South African Airforce Chief Lieutenant General Wiseman Mbambo took the general salute against cannon fire.

Guests witnessed marching columns, the Air Force band, a flypast, a fast jet air display and a VIP protection display.

The mass fly past began with several rotary wing assets from various squadrons around South Africa and the SAAF Museum.

The helicopter formation was led by a 15 Squadron 'Charlie Flight' BK-117, with two Oryx, two Agusta A109LUHs, two Alouette IIs and two Alouette IIIs helicopters.

The Museum fixed wing formation went overhead next to a Cessna C185, Bosbok and two Harvards.

The next formation of the mass flypast was The Pilatus PC7MKII formation from Central Flying School, AFB Langebaanweg with both Silver Falcon members and Central Flying School pilots.

The final flypast was presented in the form of three Hawk Mk120s lead-in fighter trainers from 85 Combat Flying School, based at AFB Makhado.

This also included a solo display by the Hawk Mk120 flown by Major Rehan 'Kaine' Venter.

Photos by Jarryd Sinovich- Aviation Central

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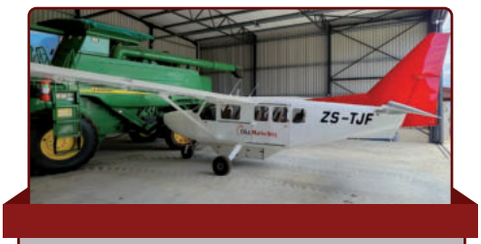

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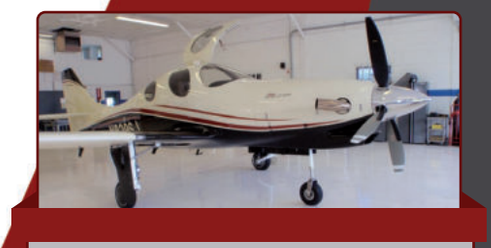

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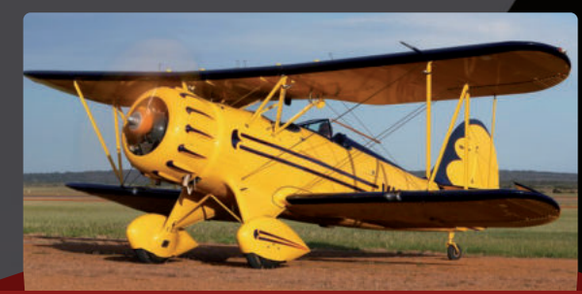

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OPENING UP **ZIMBABWEAN SKIES**

by World Airnews correspondent Wallace Mawire

Zimbabwe has signed nine Memoranda of Understanding (MoUs) with the Nigerian Civil Aviation Authority, including several West African states and airlines to open up the country's skies.

Civil Aviation Authority of Zimbabwe (CAAZ) public relations and communications manager Firstme Vitori, said that this had come about after they and the ministry of transport and infrastructural development had participated in the International Civil Aviation Organisation (ICAO) Air Services Negotiation Conference (ICAN) 2022 in December 2022.

63 ICAO member states were present at the event hosted by the Nigeria Civil Aviation Authority.

Vitori said at the conference four new Air Service Agreements (ASA), compliant with the Yamoussoukro Decision (YD) were negotiated and signed by four Single African Air Transport Market (SAATM) member states namely Benin, Chad, Cote d'Ivoire and Mali.

The signed agreements provided for multiple airline designations, unrestricted frequencies and capacity for both passenger and cargo services and 5th Freedom traffic rights.

She said one new Air Service Agreement was also negotiated and signed with Finland – a non-SAATM member country – that allowed for multiple airline designations, unrestricted frequencies and capacity for both passenger and cargo services.

The CAAZ stated a review of four existing Air Service Agreements of four other countries, namely the Democratic Republic of Congo (DRC) had resulted in the designation of

Zimbabwean local airlines to commence services in the DRC. The second review with Kenya addressed some restrictions which affected operations between the two countries.

The third with India followed interest by Indian Airlines to include Victoria Falls as an entry point.

And lastly, a review of the air services agreement with the United Kingdom updated and modernised the old one and promoted air services between the two countries.

Vitori said that the activation of these Air Service Agreements is part of CAAZ's mandate as the aviation industry regulator to facilitate and ensure enabling instruments are in place for access of the Zimbabwean airspace to all aviation industry players in the movement of passengers and cargo in line with the government's Open Skies Policy for the promotion of trade, investment and tourism.

'The Authority applauds the Government of Zimbabwe through the ministry of transport and infrastructural development for the support rendered in these engagements and efforts to attract more airlines into the country,' Vitori said.

TAAG Angola Airlines Boeing 777 at Paine Field, Everett.

TAAG ANGOLA LOOKS AT LONG HAUL

By Romuald Ngueyap

TAAG Angola Airlines wants to develop its long-haul network fast, especially in Europe and South America.

To support this ambition, the Angolan carrier, pending privatisation, is already working on a plan to rejuvenate its fleet of Boeing 777 wide-body aircraft, some of which are more than 16 years old. This was recently revealed by its CEO Eduardo Fairen, in an exclusive interview with Cirium, an aeronautical data delivery platform.

"Our widebody fleet needs to replace some of its units and we are currently studying a new feasibility with the support of Santos Dumont - an aviation asset management and consulting firm based in Ireland - to see what might be our best choice for this," he said. "We will have timely negotiations with both players, Boeing and Airbus."

For the moment, TAAG Angola Airlines is not definitively fixed on the aircraft model to order, but it hopes to announce an order at the next Paris Air Show (Paris, France), scheduled for June 19-25, 2023.

"We're seeing a contraction in demand in some of the markets (we serve), and because we are subject to more restrictions than other players in other parts of the world, in terms of niches, our aircraft model will probably be based on the 250 to 270 seat segment, rather than the 300 to 350 seat segment," said Fairen.

For him, the Airbus A330neo or the Boeing 787 Dreamliner will be more suitable for TAAG operations, to the detriment of the A350 and the 777X which are too big for the company. TAAG's current widebody fleet consists of three Boeing 777-200s (16 years) and five Boeing 777-300s (9 years). It also leases an Airbus A330 and an A340 from Hi-Fly Malta since last year.

Pending its new order, TAAG has already launched the renewal of its medium-haul aircraft. In July 2022, the carrier reached an agreement with Air Lease Corporation (ALC), under which the US lessor will provide it with six Airbus A220s, to be delivered between 2023 and 2024. These should replace its 737-700 fleet (four aircraft) which has an average age of 16 years.

The rest of the fleet includes six new Dash 8-400s introduced between 2020 and 2022. These are currently deployed on the home network and two regional routes. A final module is expected later this year.

According to Fairen, studies are also underway for the acquisition of some all-cargo aircraft. TAAG is evaluating the potential of wide-body aircraft with a capacity of 70 tonnes to better meet national and regional demand. However, he acknowledged, one of the difficulties associated with the acquisition of new aircraft is the lack of production slots and availability in the current context related to supply chain challenges.

"We want to continue these discussions and see other potential opportunities in the leasing market for these aircraft and freighters," he said.

UGANDAN AIRLINES LOSSES

By World Airnews correspondent Romuald Ngueyap

Despite state support, Uganda Airlines has posted a cumulative loss of (US) $43 million since its launch in 2019

Founded in 2018, the airline began operations in August a year later. Today the Ugandan national carrier remains a loss-making operation and it looks as if things could worsen before they improve.

Uganda Airlines recorded a larger loss of 266 billion shillings or (US)$72 million in the 2021-2022 financial year, compared to 164.6 billion shillings or (US)$44 million recorded in the 2020-21. This is according to the Auditor General.

This totals 532 billion shillings or (US)$143 million, its accumulated losses since the launch of its operations three years ago. The company posted a deficit of 102 billion shillings or (US) $27 million in the 2019-2020 financial year.

Questioned by media Chimp reports, Ugandan Airlines management attributes these losses to the impact of the health crisis which has slowed down its expansion efforts, particularly in new markets such as China, India and the United Kingdom. Brexit and the Russian-Ukrainian crisis have also led to an increase in fuel prices.

Last year the carrier reported that the price of aviation fuel increased from (US) $1.3 to (US) $3.5 per litre.

"In January 2022, we started paying our service provider for the Trent 7000 engines at (US) $585,000 per month for the four engines. This operational cost did not exist the previous year." In addition, Uganda Airlines considers its Airbus 330neo too expensive to operate on its route connecting Dubai.

"Their operating costs are over (US) $15,000 an hour. That's why, in our new strategic plan, we have included a mid-range aircraft to bridge the gap between the A330 and the CRJ900. This aircraft will reduce operating costs on Dubai and on other routes such as Johannesburg."

Its current fleet, the youngest in Africa in 2022, currently includes two Airbus A330-800 and four CRJ900s with an average age of three years. Its network includes 10 destinations that have been launched namely; Bujumbura, Dar es Salaam, Kilimanjaro, Zanzibar, Johannesburg, Kinshasa, Mogadishu, Mombasa, Nairobi and Dubai.

The state has already invested more than 1.6 trillion shillings or (US) $430 million in Uganda Airlines since its launch. Although loss-making, it reassures "that it is always able to meet its short-term obligations; the company is not burdened with debt."

Uganda Airlines also believes that its losses are more or less in line with its business plan.

The company expects to break even around 2027, which means it will continue to incur losses while continuing to open new routes, purchase new aircraft and handling equipment for its external ground handling services. Its strategic plan also provides for the establishment of an MRO unit, in order to domesticate its maintenance in order to significantly reduce certain pockets of expenditure.

The rest of the fleet includes six new Dash 8-400s introduced between 2020 and 2022. These are currently deployed on the home network and on two regional routes. A final module is expected later this year.

According to Fairen, studies are also underway for the acquisition of some all-cargo aircraft. TAAG is evaluating the potential of wide-body aircraft with a capacity of 70 tonnes in order to better meet national and regional demand. However, he acknowledged, one of the difficulties associated with the acquisition of new aircraft is the lack of production slots and availability in the current context related to supply chain challenges.

"We want to continue these discussions and see other potential opportunities in the leasing market for these aircraft and freighters."

A joint Department of Defense team executed 12 artificial intelligence, or AI, flight tests in which AI agents piloted the X-62A VISTA to perform advanced fighter maneuvers at Edwards Air Force Base, California, December 1-16, 2022.

LOCKHEED MARTIN'S NEW JET WAS FLOWN BY AI FOR 17 HOURS IN WORLD FIRST

Lockheed Martin and the United States Air Force, are currently developing an AI-powered F-16 variant called the VISTA X-62A.

In December 2021, during a test flight from California's Edwards Air Force Base, a special Lockheed Martin F-16 fighter jet trainer called the VISTA X-62A became the first tactical aircraft to be controlled by AI.

This could be a big deal, as new pilots must be trained to fly high-performance planes in various conditions.
Because making and maintaining fighter planes is so expensive, air forces today are much smaller than they used to be. This makes it hard to set aside enough of these "flying thoroughbreds" for training.

Engineers now have a tool that can do two things at once, thanks to the progress of artificial intelligence.

The "Variable In-flight Simulation Test Aircraft" (VISTA), created by Lockheed Martin's Skunk Works classified research laboratory in collaboration with Calspan Corporation, is used at the US Air Force Test Pilot School at Edwards to simulate the flying characteristics of various aircraft. Additionally, it includes having autonomy.

The VISTA X-62A is an upgraded F-16D Block 30 Peace Marble II with Block 40 avionics installed.

It was first called the NF-16D, but in June 2021, the US government declared it a national asset and changed its name to the X-62A.

The VISTA X-62A has extremely cutting-edge capabilities inside its stressed aluminum alloy skin. Calspan's VISTA Simulation System or (VSS) and Lockheed Martin's Model Following Algorithm (MFA) and System for Autonomous Control of the Simulation (SACS) are two of the most notable.

Together, they give the plane new features that turn it into a system that can fly itself and a place to test artificial intelligence.

The Enterprise Mission Computer version 2 or (EMC2), also known as the 'Einstein Box', which is meant to let older systems link together for sharing of data across all domains, is managed by the Skunk Works Enterprise-wide Open Systems Architecture (E-OSA) on the SACS system.

In addition, the cockpit's forward and aft sections each use Getac tablet displays and sophisticated sensors.

Lockheed said that the Vista X-62A has better features and can also make quick software changes for rapid prototyping, which speeds up development and lets more test flights happen.

"VISTA will allow us to parallelise the development and test of cutting-edge artificial intelligence techniques with new uncrewed vehicle designs," said M.Christopher Cotting, US Air Force Test Pilot School director of research.

"This approach, combined with focused testing on new vehicle systems as they are produced, will rapidly mature autonomy for uncrewed platforms and allow us to deliver tactically relevant capability to our war-fighter," he said.

Leonardo UK chair and CEO Clive Higgins at the new site in Newcastle Helix

LEONARDO INVESTS IN UK SITE

Defence and security firm Leonardo has announced that it is investing in a new high-technology science and engineering facility in the north east UK town of Newcastle Helix.

The development entails a ground-breaking 24-acre city centre development that brings together industry leaders, businesses, and top researchers into an internationally renowned innovation cluster.

Leonardo expects to employ over 200 people at the new site and generate more than £185M of economic benefit in the region over the next ten years.

The development will allow Leonardo to access talent from across England and build closer links with small and medium sized businesses - many of which are already part of Leonardo's nationwide supply chain.

Best known for its onshore production of UK military helicopters and cutting-edge electronics on-board Royal Air Force aircraft, Leonardo is one of the biggest suppliers to the UK Ministry of Defence.

The company is at the heart of the Global Combat Air Programme (GCAP), a UK, Italy and Japanese initiative to produce a new 6th generation fighter jet to go into service in 2035 and its cyber security business has been trusted for decades to protect the UK Government's most sensitive information.

The new site in Newcastle will focus on research, development and prototyping of Leonardo's next generation sensing, security and vertical lift products.

This builds on the data-driven approach to design and manufacturing that went live at the company's electronics sites across the UK in June 2022, using secure public cloud environments to put big data at the fingertips of engineers in order to accelerate product development.

UK Minister for Investment Dominic Johnson said, "The North East has proven time and again how inward investment benefits local communities by boosting productivity, driving R&D, creating economic growth and supporting high-value jobs in priority sectors like science and engineering. Leonardo's decision to increase its stake in UK plc is another vital step to level up the region and country, further improving our attractiveness to overseas investors as we continue becoming a science and technology superpower."

Chair and CEO of Leonardo UK Clive Higgins said, "The UK's defence and aerospace industry is an engine for economic growth. Leonardo already employs over 8,000 people in the UK and our new site in Newcastle will allow us to expand even further, drawing on science and engineering skills from the North East region in order to develop the next generation of digitally-led technologies.

Leonardo's new site in Newcastle will generate a wealth of opportunities for young people in the area.

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ETHIOPIAN AVIATION **ACADEMY**

The Ethiopian Aviation Academy (EAA), one of the business wings of the Ethiopian Airlines Group, will target students from Latin America in a partnership with a US-based aviation company - UTD Aviation Solutions.

According to the MOU signed at Ethiopian Airlines headquarters, UTD Aviation will spread information across US and Latin American markets, about the wide range of courses of Ethiopian Aviation Academy

"The agreement aims to sustain the legacy of Col. John C. Robinson, also known as 'The Brown Condor' and 'Father of the Tuskegee Airmen', which began almost 100 years ago," Ethiopian Airlines Group said in its statement.

The Brown Condor Initiative (BCI) is a joint initiative structured with the EAA to train underprivileged and under-marketed future aviators of colour in America.

Mesay Shiferaw, managing director of the EAA said, "We are glad to have signed this MOU that will pave the way for future aviators of colour to acquire world-class aviation training. This partnership enables both EAA and UTD Aviation to promote the academy jointly."

"UTD recognises the potential of the EAA as a pipeline to address the labour crisis in the US aviation sector. We are confident that we can promote the academy's training courses in the market we operate, and no doubt the co-operation will soon bear fruits for both continents," said Dahir Mohammed, president and CEO of UTD Aviation Solutions.

Meanwhile, the Ethiopian Airlines Group has opened an aviation training centre in the city of Hawassa, southern Ethiopia as the second campus for the EAA to provide pilot trainee programmes. The facility features different types of classrooms, three training simulators, three aircraft parking and workshop hangars, trainees' and instructors' dorm rooms, a cafeteria and a sports ground.

Ethiopian Airlines Group CEO Mesfin Tasew said "As Africa's giant in the aviation industry, we are determined to reach more people who dream of becoming aviation professionals and enrich our continent with qualified personnel who will take Africa's aviation to the next level."

"From the day it has been established more than six decades back, our aviation academy has been producing the best aviation professionals who are competitive at a global level. With our second training centre open now, more trainees will have the chance to realise their dreams and that is a huge achievement for us."

The EAA is the largest and most modern aviation academy in Africa. It is recognised as an ICAO regional training centre of excellence.

The Ethiopian Aviation Academy has signed an agreement with a US-based company to market its existence to students of colour.

IBOM AIR TO DEBUT REGIONAL FLIGHTS

Nigerian airline, Ibom Air is expecting delivery of ten A220-300s beginning in October this year.

Ibom Air plans to add seven African and two domestic routes to its network from April this year.

Chief Operations Officer George Uriesi said that Ibom Air would phase in regional flights from the first quarter of 2023.

"The seven destinations are a carefully planned pivot to the region from operating only domestically. But the rollout is steady and organic. We won't be starting all stations so quickly. It will happen over the course of this year, one after the other," he said.

"We've looked at the passenger numbers and chosen our destinations based on the already existing 'unserved' or 'underserved' markets."

The new regional routes are planned to serve Ghana (Accra), Cameroon, Sierra Leone (Freetown), Senegal (Dakar Blaise Diagne International), Liberia (Monrovia Roberts), Gabon (Libreville), and Gambia (Banjul),

Uriesi said the airline expects delivery of ten in-house A220-300s from October this year to 2026.

He said the airline had chosen this type because of its continental aspirations.

Based at Uyo, Ibom Air currently serves six domestic destinations, including Abuja, Lagos, Calabar, Enugu, and Port Harcourt Omagwa.

Its current fleet comprises two A320-200s wet-leased from Lithuania's GetJet Airlines (GW, Vilnius), and five CRJ900LRs.

Nigeria's Akwa Ibom state is a shareholder in the airline through the Ibom Investment Corporation.

Ibom Air group manager of marketing and communications Aniekan Essienette earlier said, "We are focused on one thing, to grow this airline and put [the Nigerian state of] Akwa Ibom on the pedestal. We are going to expand regionally. We tell everyone that cares to listen that Ibom Air is a world-class African regional airline, meaning that, as much as we want to go international, we want to, first of all, conquer the African territory."

MULTI-ENGINE JETS AUTOMATION FOR USAF

The United States Air Force has awarded Reliable Robotics a contract to explore and study the possibility of automating large, multi-engine transport jets.

The new study will include a feasibility assessment of both limited and complete aircraft automation capabilities for cargo aircraft and missions.

Remotely piloted aircraft will enable the Air Force to increase mission tempo worldwide and leverage a certifiable commercial solution for defence industry needs at fractional costs and extend aircraft capabilities.

"We are interested in Reliable Robotics not only for their effectiveness in supporting the warfighter in Contested Logistics but also for their novel approach of outfitting legacy aircraft with cutting-edge automation kits," said Sean R McClune, of the United States Air Force.

"This is of great value to the U.S. Government because it will help solve the demand for short to medium-range point-to-point logistics without the need to manufacture new aircraft, which will ensure critical logistics are available at speed and scale to all regions of the country."

The US-based company is developing a certifiable safety-enhancing aircraft automation system that enables continuous autopilot engagement through air phases or flight, including taxi take-off and landing, with a remote pilot supervising operations.

Higher precision navigation, sophisticated flight planning capabilities and more robust flight controls better manage aircraft and environmental conditions and improve safety with or without onboard crew.

Once certified by the Federal Aviation Administration (FAA), Reliable's system will reduce the occurrence of common causes of fatal aviation accidents, such as controlled flight into terrain and loss of control.

"We value the Air Force as an essential mission partner," said David O'Brien, Major General (Ret.) and Senior Vice President of Government Solutions at Reliable Robotics.

"Our vision is to provide the remote piloting capability to a wide variety of aircraft. This contract furthers our focus on automation of large, multi-engine jet aircraft, which is an important step in our developmental roadmap."

UGANDA AIRLINES EYES NIGERIAN ROUTE

Uganda Airlines could soon start flying direct between Lagos and Abuja

Uganda Airlines could soon start flying direct between Lagos and Abuja after a Memorandum of Understanding was signed between the two African countries.

Ugandan foreign affairs minister Jeje Odongo met Nigeria minister for aviation Hadi Sirika in Kampala as the two principals discussed several issues related to the aviation industry of both countries.

Sirika hailed the excellent cordial and robust bilateral relations between Nigeria and Uganda anchored on the principle of Pan-Africanism and shared values.

He said the federal government of Nigeria had reviewed its bilateral air service agreement (BASA) with Uganda that provides for reciprocal international commercial air transport services between the two countries as part of efforts to facilitate direct air connectivity between the two countries.

The meeting provided the necessary administrative and technical support in the MoU that was agreed upon, during the last International Civil Aviation Negotiation (ICAN) event held in Abuja in December last year.

Sirika said that following these successful deliberations with the ministry of works and transport and Uganda Civil Aviation Authority, an MoU was concluded and signed to pave way for the commencement of direct flights from Entebbe to Lagos.

In addition, the Nigerian minister highlighted that it was agreed that Abuja is reviewed and included as an additional route to the existing Bilateral Air Service Agreement (BASA) with Nigeria.

The current BASA had initially only designated the Lagos route for Uganda Airlines.

The Nigerian Minister commended the exceptional, visionary leadership of president Museveni and Nigeria's Muhammadu Buhari and said both leaders are united in their commitment to achieve socio-economic transformation for Africa as well as attain sustainable advancement for human capital development.

He said the government of the Federal Republic of Nigeria was committed to bolstering bilateral relations in key sector areas of cooperation for the mutual benefit of both countries.

Odongo said Uganda is committed to boosting air connectivity and the quest for Uganda Airlines to operate direct flight into Nigeria.

He said current efforts are in line with the government's policy of commercial and economic diplomacy with strengthened bilateral trade and investment.

He paid tribute to the role played by Nelson Ocheger, Uganda's High Commissioner to the Federal Republic of Nigeria and Ismail A. Alatise, the Nigerian High Commissioner to Uganda whose concerted efforts and coordination with relevant ministries, departments and agencies from respective countries culminated into the signing of the MoU that would ensure direct flights between Entebbe, Lagos and Abuja.

The meeting noted the need for technical cooperation and collaboration between the Nigerian College of Aviation Technology (NCAT), Zaria and the East African Civil Aviation Academy (EACAA), located in Soroti, Uganda.

Equally, the Uganda Civil Aviation Authority also solicited technical support from Nigeria Civil Aviation Authority (NCAA). Nigerian minister Sirika underscored the importance of air transportation on the continent.

Africa has a population of over 1.37 billion and urged African nations to leverage the opportunity of the Single Africa Air Transport Market (SAATM) to attain the 2065 Africa Agenda.

He said Nigeria would facilitate all necessary efforts to ensure air connectivity became a reality for both countries.

11 AFRICAN DESTINATIONS

The Dubai-based carrier will double the frequency of flights from June 1, 2023. — Supplied photos

Flydubai has announced the launch of a daily service to Mogadishu Aden Adde International Airport (MGQ) starting this month.

The Dubai-based carrier plans to double the frequency of flights from June - making it the first carrier to connect Somalia directly with Dubai and the UAE.

"We continue to look for opportunities to grow our network in East Africa and open up underserved markets. This region has seen significant economic growth and development in recent years, our direct flights will further stimulate the economy and help create free flows of travel and trade," Hamad Obaidalla, chief commercial officer at flydubai said.

With the start of flights to Mogadishu from March 9 flydubai expands its network in Africa to 11 destinations, providing passengers from the UAE and the region with more convenient options for travel.

This includes Addis Ababa, Alexandria, Asmara, Dar es Salaam, Djibouti, Entebbe, Hargeisa, Khartoum, Juba and Zanzibar.

Sudhir Sreedharan, senior vice-president of commercial operations (UAE, GCC, Africa and the Indian Subcontinent) at flydubai, said the airline will offer convenient and reliable travel services between both countries.

"This route will be operated by our fleet of Boeing 737 MAX aircraft, offering customers the comfort of our Business Class cabin or a more customised experience in Economy Class. We are looking forward to doubling our frequency to Somalia from 01 June 2023 and further connecting the market to Dubai and beyond," he said.

Somalia is a country with a unique cultural heritage and a strategic location at the Horn of Africa, where the Indian Ocean meets the Gulf of Aden.

Somalia is home to some of the longest and most beautiful coastlines in Africa, which has made it an important centre for maritime trade and fishing.

Flights will operate daily between Terminal 2, Dubai International (DXB) and Mogadishu Aden Adde International Airport (MGQ).

BIGGEST TRENT XWB-97 ENGINE ORDER

Rolls-Royce announces it has received an order from Air India for 68 Trent XWB-97 engines, plus options for 20 more making this - the biggest-ever order for the engine that powers the Airbus A350-1000.

Air India has also ordered 12 Trent XWB-84 engines that controls the Airbus A350-900.

This is the first time that an Indian airline has ordered the Trent XWB and the deal will make Air India the largest operator of the Trent XWB-97 in the world.

Financial details of the order are not being disclosed. CEO Rolls-Royce plc Tufan Erginbilgic said, "The announcement marks an exciting and truly remarkable occasion for Tata Group and Air India; the size and magnitude of this order reflects the level of their ambition for the future".

"I congratulate them on taking this bold step towards becoming one of the world's greatest airlines and I would like to thank them for putting their trust in Rolls-Royce to power them on this journey. With a dynamic and growing aviation industry, India is a strategically important market for us and we look forward to working with Air India as they connect their passengers across global communities and cultures."

The choice of the latest generation of Rolls-Royce engines also reflects Tata Group's vision for Air India to become the world's most technologically advanced airline, with a focus on service, competing on the world stage to deliver best-in-class customer experience.

As the world's most efficient aero engine in service, the Trent XWB will also allow Air India passengers to travel in the knowledge they have chosen the most sustainable long-haul aviation option available.

With a 15% fuel consumption advantage over the first generation of Trent engine, the Trent XWB goes further on less fuel, and offers leading performance and noise levels. It is also ready to operate on a 50% Sustainable Aviation Fuel blend.

Campbell Wilson, CEO Air India said, "We are delighted to commence this partnership with Rolls-Royce, and to have their Trent XWB engines power our new fleet of A350 aircraft. We are confident that they will provide us with the reliability and efficiency consumers expect of today's leading airlines, and thereby play an important part in Vihaan.AI, Air India's comprehensive transformation and growth strategy."

The size of the Air India order reflects the increasing demand for air travel in India, which now has the third biggest airline market in the world and is ranked as the fifth largest economy globally.

The rise has been fuelled by continued business growth, favourable government policies, sustained infrastructure development, rising disposable incomes and the travel aspirations of its young, affluent middle class.

Rolls-Royce already has long-standing partnerships with the Tata Group across the supply chain and manufacture processes.

BOEING SECURES **BALLISTIC MISSILE SUPPORT** WORK

Boeing has been selected by the US Air Force as the prime contractor for the nation's intercontinental ballistic missile (ICBM) guidance subsystems support.

The contract is worth up to (US) $1.6 billion over 16 years and will be primarily performed in Ogden, Utah, and Heath, Ohio, in the US. It is expected to support a significant amount of direct and indirect jobs in the area.

In September 2021 Boeing reported repair and maintenance of the inertial guidance systems would continue through 2039 at the company's facility at the Central Ohio Aerospace and Technology Centre in Heath.

"The September 2021 announcement was more the routine repair of the guidance systems to make sure it's done to specifications and most of that work is done in Heath," Boeing spokesman Josh Roth said.

The latest contract, Roth said, refers to the sustainment engineering for the guidance systems. Some of that work is performed in Heath, but more of it is done in Utah, he said.

The two contracts mean that the work that has been done at the Boeing Guidance Repair Centre in Heath will continue through at least 2039. Employment at the Heath facility is at its highest level since about 2000.

The work came to the town partially because the area is the second most geological stable point in the United States after the Cheyenne Mountain in central Colorado, according to Boeing.

Boeing's Heath site leader, Mike Murasky, said in a 2020 story on the Boeing website that the area is rarely impacted by earthquakes or tremors because it is situated on a geologic "sweet spot" without major fault lines and significant seismic activity caused by shifting tectonic plates.

"The geological stability of our site matters as our calibrations must be precise," Murasky said.

"That's absolutely critical when you're dealing with keeping a nuclear weapon headed in the right direction. Because of our location, nothing can throw off or interfere with our measurements and instrumentation."

Boeing will maintain the around-the-clock readiness and accuracy of Minuteman ICBM guidance systems - which have logged more than 40 million hours of continuous operation - to ensure safe, secure and effective strategic deterrence into the late 2030s.

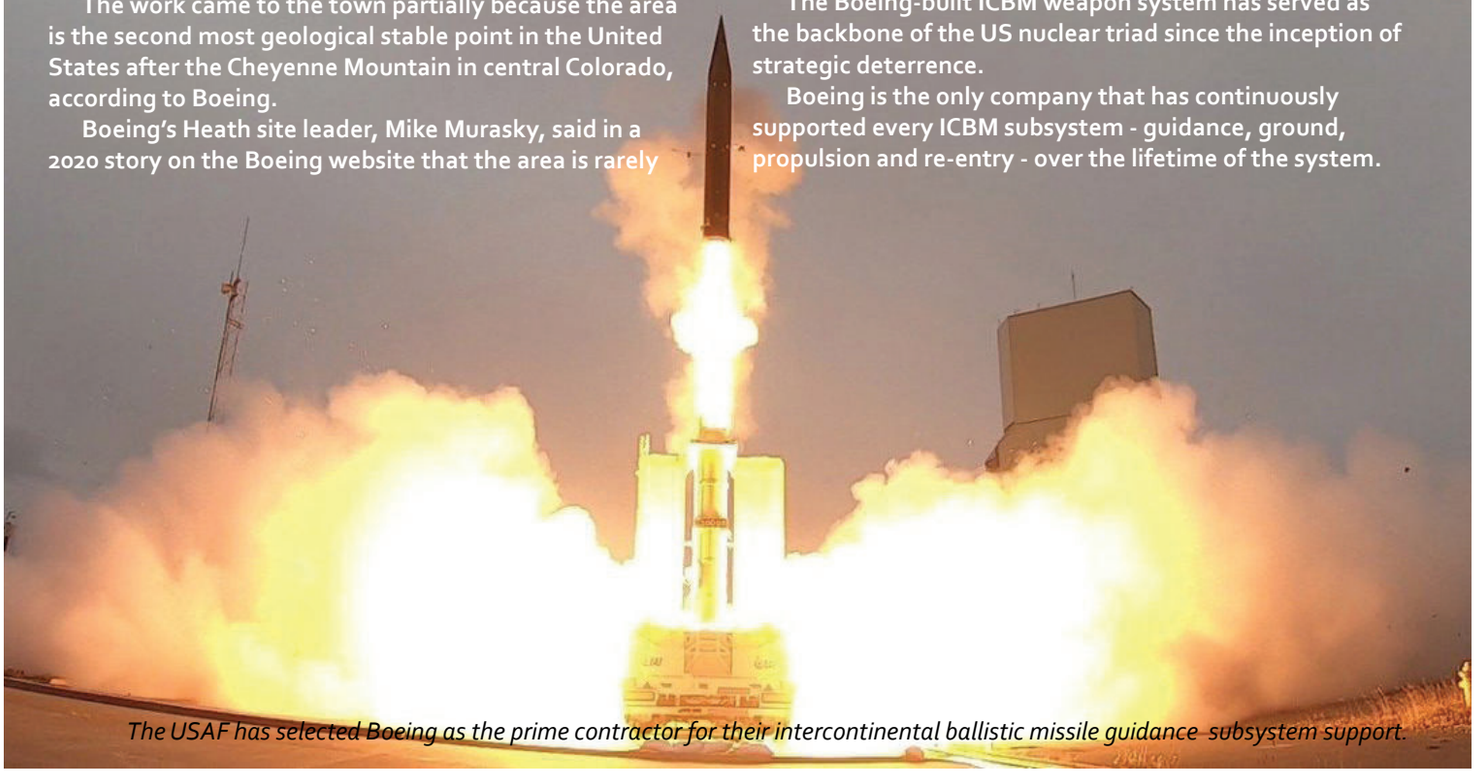
"We built the Minuteman's guidance system, so no one knows it like Boeing. Our highly-specialised facilities and top-flight engineers enable us to sustain it with unmatched quality and precision," said Ted Kerzie, programme director of strategic deterrence systems.

"We look forward to continuing our partnership with the Air Force on this all-important mission."

Boeing's navigation and guidance systems on nuclear-capable platforms like the Minuteman, aircraft and submarines need to work perfectly, the company said, requiring precision tuning to the smallest system components under perfect test conditions.

The Boeing-built ICBM weapon system has served as the backbone of the US nuclear triad since the inception of strategic deterrence.

Boeing is the only company that has continuously supported every ICBM subsystem - guidance, ground, propulsion and re-entry - over the lifetime of the system.



The USAF has selected Boeing as the prime contractor for their intercontinental ballistic missile guidance subsystem support.

MOTOR SUPPLIER FOR HYDROGEN ENGINE PROTOTYPE

Airbus has picked a Japanese-owned French manufacturer to develop electric motors for a planned prototype hydrogen-powered engine.

The airframer is intending to bring a commercial zero-emission aircraft to market by around 2035 and the motor will be part of a proposed hydrogen fuel-cell energy system.

Airbus has selected Nidec Leroy-Somer - which is part of the Japanese-based Nidec Group - to develop the motor.

The design, engineering and prototype work will be carried out at the company's Angeouleme facility, western France with the aim of producing a prototype to meet high safety, reliability, power and efficiency requirements while remaining at the lowest weight. Initial ground-based testing will validate the technology before the project moves to in-flight testing.

Nidec Leroy-Somer commercial and industrial motors division president Jean-Michal Condamin described the project as "ambitious".

"This important milestone for more sustainable mobility, presents several challenges that we are committed to overcome, to serve the global community," he said.

Chief technology officer Eric Coupart said the company will offer "world-class" research and development capabilities to provide Airbus with "sustainable and powerful smart technologies".

Airbus has displayed various concepts for its 'ZEROe' future hydrogen-powered aircraft programme.

TWO DORNIER Do228s

In February last year it was announced that the first two Dornier Do228 belonging to the Thai Navy had arrived at Oberpfaffenhofen in an Antonov 124 to be upgraded by General Atomics (previously known as RUAG). The seven-strong fleet is being modernised to the Do228NG standard with the whole contract being worth in excess of €40 million. Last month, MAviO News crossed paths with one of the first upgraded examples being redelivered via Larnaca. Here are some photos of one of these. Photo credit EU / MAviO News.

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BOEING SUPPORTS STEM HUB

The Boeing Company has announced a (US) $1 million investment in support the construction of the STEM NOLA organisation's state-of-the-art STEM Innovation Hub.

Boeing's investment will further the organisation's mission to make science, technology, engineering and math or STEM education more accessible to under-resourced communities.

"Boeing invests in STEM education because it is the rocket fuel that will propel the aerospace industry forward - including our future space programmess," said Ted Colbert, CEO of Boeing Defence, Space and Security.

"These bright, young minds will one day take us to new deep space destinations, including Mars and beyond. And with the help of nonprofit partners like STEM NOLA, I know we're setting the future generation of aerospace leaders on the path to long-term success."

Later this year, STEM NOLA will break ground on the 40,000-square-foot (12 000 m²) building in New Orleans East in the United States, which will serve as the STEM Innovation Hub.

The Hub will house laboratory space, classrooms, meeting spaces and 21st-century technology to expose, educate, train and connect students to STEM careers and skills.

Calvin Mackie, the founder of STEM Global Action and STEM NOLA, envisions the new Hub as providing additional opportunities for students to learn the practical applications of STEM.

"We appreciate the support from Boeing and others helping to make this exciting STEM laboratory a reality," said Mackie.

"We will be teaching K-12 students how science, technology, engineering and math play major roles in our everyday life. Our goal is to create a destination for STEM innovation, entrepreneurship and workforce development."

Boeing's investment in STEM NOLA builds on the company's commitment to the state of Louisiana.

Over the past decade, Boeing has contributed nearly (US) $20 million to communities across the state. Boeing employs more than 1,100 people in Louisiana, where the company manufactures the core stage and exploration upper stage of NASA's Space Launch System (SLS).

SLS is the only human-rated rocket that can send the Orion capsule, astronauts, and heavy cargo to the Moon in a single mission. NASA will use the SLS to send the first woman and first person of colour to the Moon for its Artemis programme.

ETHIOPIAN AIRLINES IN MALTA

This Ethiopian Boeing 787 brought a high-level delegation to Malta led by Ethiopian prime minister Abiy Ahmed Aly. The discussions between the two governments focused on several themes including aviation. The prime minister's office later revealed that there have been talks aimed at having Ethiopian Airlines use Malta as a hub on flights to the United States. Maltese prime minister Robert Abela explained that such an agreement would attract global investment to Malta while leading to direct investment in Ethiopia. The aircraft is seen taxying out of Apron 9 ready to backtrack runway 13 at Malta International Airport on a governmental flight to Paris. Photo by Mario Caruana / MAviO News

5G IMPACT STUDY ON FLIGHTS

One of the reasons for the US government's concern is the poor quality of altimeters in aircrafts of old varieties.

A multi-stakeholder committee has asked aircraft gear makers and manufacturers to conduct a study on the possible interference of 5G signal with a plane's altimeter and the best possible solutions for it.

The panel, comprising officials from the US department of telecommunications and directorate general of Civil Aviation, has also asked gear makers like Honeywell and Thales, and aircraft manufacturers such as Boeing and Airbus about required restrictions on signal strength from 5G sites.

Simultaneously, the committee has also asked telecom operators for information regarding the power level being radiated by their 5G base transceiver stations (BTS) in the core 5G band of 3300-3670 MHz, which would help the aircraft gear makers in their study, according to people aware of the matter.

A base transceiver station is a piece of equipment that facilitates communication between user devices and a network.
The development comes after the US DoT in November last year asked telcos not to operate 5G base stations in the area of 2.1 km from both ends of runways and 910 metres from the centre line of runways.

Further, upon the DGCA's guidelines, the DoT had asked telcos to limit the radio power of radiation to 58 dBm per MHz at the base stations that are installed 540 metres around the surrounding area of the airport.

"It is not a ban but rather we have said that around airports the signal should not interfere with the runway and operations of aircraft," telecom secretary K Rajaraman said.

"The industry has made certain representations to us. We have forwarded them to the ministry of civil aviation. We are waiting for their response," he said.

Last month it was reported that the DoT will conduct a detailed study before allowing telecom operators to provide 5G services around airports.

According to sources, the 3300-3670 band for 5G services allotted to telcos in the country will not interfere with the aircraft altimeters but the government wants to be doubly sure considering that even an iota of risk could endanger the lives of passengers.

An aircraft altimeter is an instrument that provides direct height-above-terrain information to various aircraft systems.
One of the reasons for government's concern is the poor quality of altimeters in aircraft of an older type.

Considering the age of these altimeters, it may allow signals to interfere even in the frequency of 3670 MHz, which is far away from 4200 MHz band, not auctioned in the US.

Another challenge with regard to the issue is the availability of enough evidence of interference and the government's inability to test the 5G interference on the runways as that would again involve risking passengers' lives, sources said.

"Given the communication with DGCA, it is understood that the government is largely dependent on the recommendations of the International Civil Aviation Organisation (ICAO) to come up with a solution on 5G interference with aircraft," a source said.

ICAO is the specialised agency of the United Nations that sets standards and regulations with regard to international air transport and safety.

While the studies are going on, experts feel that a solution would mostly likely involve a reduction in the power of radiation from each BTS, which in a way would reduce the coverage of 5G services and therefore to make up for that telcos would have to install more BTS with limited power signals. However, the instaliation of more BTS would lead to additional investments for telcos.

With the instructions to reduce signal strengths in the 3300-3670 MHz bands, another argument is that the telecom companies utilise a spectrum in other bands to make up for the reduced speeds and coverage, the sources said.

In the US, the US Federal Aviation Authority asked telecom operators such as Verizon and AT&T to install certain radio frequency filters or modify the airline radio altimeters for smooth 5G services.

100% SAF FOR PW127 SERIES

Canadian Engine manufacturer Pratt & Whitney Canada & Franco-Italian airline manufacturer ATR will collaborate on an initiative to achieve Sustainable Aviation Fuel readiness in the PW127 series engines, including the new PW127XT powering next-generation ATR deliveries, by 2025.

Anthony Rossi, vice president, sales and marketing, Pratt & Whitney Canada said, "Our collaboration with ATR will be underway throughout 2023 and 2024 and builds on our recent 100% SAF test flight with Braathens Regional Airlines, which was an industry first for regional aviation.

"Alongside our efforts to continually enhance aircraft engine efficiency, SAF has a critical role to play on the journey to achieve the aviation industry's goal of net-zero CO^2 emissions by 2050.

While all Pratt & Whitney Canada engines have already been certified for 50% SAF blends for more than a decade, ensuring readiness to operate with 100% SAF blends in the future will allow us to maximise their potential for decarbonisation."

ATR CEO Nathalie Tarnaud Laude said, "It is our collective responsibility as an industry to continue to take action to ensure that the vital connections provided by our aircraft across the globe are operated sustainably. We have recently demonstrated with our collaborators, Braathens Regional Airlines and Pratt & Whitney Canada, that ATR aircraft are SAF-ready. Now, we need to continue to join forces to increase SAF availability, as part of our common journey towards net-zero."

In June last year, Pratt & Whitney Canada, ATR and Braathens jointly conducted a successful flight test on an ATR 72-600 aircraft with both Pratt & Whitney Canada PW127M engines fuelled exclusively with SAF.

ATR is aiming to obtain the authorisation to use 100% SAF-compatible fuel for ATR 42 and ATR 72 aircraft in the next phase of the programme.

Working together, Pratt & Whitney Canada and ATR will conduct the necessary compatibility studies, engineering analyses, and aircraft ground and flight tests, among others.

Certification of 100% SAF will ultimately depend on ASTM International defining a specification for that fuel, which could happen as soon as 2025.

The programme will adhere to standards established by ASTM International.

WIZZING OFF

This Wizz Air Malta Airbus A321-271NX registered 9H-WAB is seen at the Malta international airport flying back to Budapest Ferenc Liszt international airport as WZZ4366. MAviO News is reliably informed that the airline's plans to launch a Malta base with two aircraft from this October but it is unclear exactly when this will take place. Photo credit Mario Caruana / MAviO News.

Cirrus Aircraft revealed the 2022 G6 SR Series, powered by Continental's 550 engine series in January last year featuring a refined aircraft design.

CONTINENTAL ENGINE ISSUE GROUNDS CIRRUS SR22

Customers and operators of certain models of the Cirrus SR22 series airplane were advised last month by engine manufacturer Continental Aerospace Technologies to ground their planes.

The pause in operations was set to continue until Continental could determine the specific serial number range.

Continental also sent out its own updated recommendation broadening the scope of the recommended grounding to encompass a wide range of powerplants and to call for a specific inspection of the crankshaft counterweight retaining ring within five hours for those new or rebuilt engines with less than 200 hours in operation since installation.

Models included those in the 360, 470, 520, and 550 series. Cirrus Aircraft was informed by Continental that the issue affected engines that power both Cirrus Aircraft's SR22 and SR22T models.

"While we are still working with Continental to determine the scope of the issue and the specific serial number range of affected aircraft, we are proactively making the decision - out of an abundance of caution - to pause all internal Cirrus Aircraft company flight operations on SR22s and SR22Ts manufactured and issued a certificate of airworthiness from June 1, 2021, through February 7, 2023.

"Cirrus Aircraft continues to operate without restriction all its SR20s, as well as SR22s and SR22Ts manufactured before June 1, 2021, or after February 7, 2023.

Continental was expected to issue a service bulletin that would detail the specific range of affected aircraft, the root cause of the issue, and corrective action. The Continental service bulletin will accompany a Cirrus Aircraft service advisory notification.

At the time of writing this article - no incident or accident involving a Cirrus connected to the issue – had been reported.

Continental engines with over 200 hours may continue normal flight operations.

Last year Cirrus Aircraft launched the 2022 G6 SR Series powered by Continental's 550 engine series that featured an aircraft design with reduced drag for increased fuel efficiency, Cirrus IQ mobile app updates, and the ability to pair premium Xi aesthetic options.

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NASA'S ELECTRIC PLANE

The experimental airplane X-57, developed by Nasa, is due to fly for the first time this year. It has an impressive 14 propellers along its wings and is powered entirely by electricity.

This sounds great, considering we have to get off fossil fuels, yet our demand for aviation is growing. How much closer will Nasa's plane bring us to this goal?

Finding an alternative to aviation fuels, such as kerosene, will be key if we want to continue flying. The X-57 uses lithium batteries to run electric motors for its propellers.

But the energy you get from batteries, relative to their weight, is 50 times less than you can get from aviation fuel.

The X-57 is a modified, four-seater, Italian-built Tecnam P2006T aircraft. It relies on a combination of lots of propellers, a small motor, and many batteries spread out across an aircraft, known as "distributed propulsion".

This approach represents an exciting research and development area found in many experimental electric aircraft designs.

What's different about the X-57 is that the wings are completely redesigned with propellers positioned to optimise airflow around them. When a propeller is not needed, its blades can be folded back to reduce drag.

Propeller technology generally is having a rebirth. Designs are becoming not just more efficient, but also less noisy and more affordable. The speed and pitch angle of propellers can even be changed during flight to adapt to the different aircraft speeds required for take-off, landing, and cruising.

Air density changes with altitude and affects the thrust you get from a propeller.

Now that we can make propellers that work effectively at all altitudes and speeds, we can get the most out of the energy stored in the batteries. New designs, such as the first-ever 11-bladed propeller (on the Piper Cheyenne plane), can achieve very high thrust even at high air density.

Some aircraft even use "vectored thrust" by allowing the motors and propellers to rotate, which gives the option of vertical take-off and landing.

These aircraft might more resemble helicopters than planes and might mean conventional airports with long runways and large terminals will be a thing of the past.

BATTERY TECHNOLOGY

The X-57 uses off-the-shelf lithium-ion batteries. This is because the project primarily addresses the potential for new propeller and wing configurations rather than developing the perfect battery. But that will be an important challenge for electric aircraft developers to overcome.

Lithium batteries are the best we've got so far, but they are still heavy. Lithium metal is also hazardous as it catches fire easily.

There are advantages to using batteries. Their weight stays constant throughout the flight, meaning they don't need to be stored in the wings as aviation fuel traditionally has been.

With liquid fuel, the weight of the plane reduces significantly as fuel is consumed, and keeping the fuel in the wings ensures that the balance of the aircraft isn't changed.

However, it is energy density - the amount of energy a battery contains compared to its weight or size - that matters.

New advances are being made constantly, such as batteries created based on quantum technology. But while these charge faster than normal batteries they won't replace lithium batteries and are unlikely to transform the prospects for electrically powered flight.

What we're waiting for is a revolution in battery technology, one that gives an energy density comparable to aviation fuel.

IS X-57 THE FUTURE?

With a range of about 160km and a flight time of about one hour, the X-57 is not expected to lead to a replacement technology for long-haul flying. At least not straight away.

Instead, short-hop flights with ten or so passengers are a good and potentially possible target for early, battery-powered flights.

HYDROGEN

Hydrogen-powered planes are also of great interest because the energy density of hydrogen is nearly three times greater than that of conventional aviation fuel. But hydrogen is a gas and it needs to be stored in pressurized fuel tanks to reduce its volume.

This would require a complete rethink of aircraft design. Some work has been done with hydrogen stored as a liquid at -253°C. Hydrogen for aviation is, therefore exciting, but probably impractical.

Synthetic fuels are ready to go as a substitute for aviation fuels - at a price. Perhaps as technologies develop, they'll become cheaper, but it's still likely that the cost of flying will increase as we move away from fossil fuels.

Batteries will almost certainly be powering our short-haul flights in the near future, and if there is a revolution in battery technology, then the future of aviation will be completely changed.

As far back as 2021 NASA's all-electric X-57 Maxwell aircraft underwent high-voltage ground testing at NASA's Armstrong Flight Research Centre in California. The aim of the X-57 project is to help the Federal Aviation Administration set certification standards for emerging electric aircraft markets Photographer: NASA/Lauren Hughes.

Eventually, we will be faced with an ultimatum: either we figure out how to make planes that don't need fossil fuels, or we stop flying.

ZERO AVIA COLLBORATION

Zero-emission innovator ZeroAvia signed a collaboration agreement with Shell, Rotterdam The Hague Airport and Rotterdam the Hague Innovation Airport to target green flights and decarbonise airport operations by using hydrogen.

The parties have agreed to develop a concept of operations for hydrogen in airports and demonstration flights to European destinations by the end of next year, gearing up for commercial passenger flights by 2025.

Following up on the co-operation commitment announced last year to launch the first hydrogen-electric commercial flight, this specific collaboration will focus on serving the first hydrogen flight from Rotterdam, including operation at the airport, developing on-the-ground infrastructure and operations to satisfactorily pilot distribution, storage, and dispensing of hydrogen for aviation, leading towards decarbonising the whole airport ecosystem.

Ultimately, the project targets supporting aircraft operations using gaseous hydrogen to fuel ZeroAvia's hydrogen-electric, zero-emission ZA600 engines.

For these specific demonstration flights the parties aim to establish routes to airports in Europe within 250 nautical mile radius of Rotterdam.

Last month, ZeroAvia demonstrated a first flight of a 19-seat aircraft powered by its prototype ZA600 engine.

ZERO-EMISSION FLIGHTS

Arnab Chatterjee, VP Infrastructure ZeroAvia said, "Having this consortium, including Rotterdam The Hague Innovation Airport and Shell, moves the ball a significant distance down the field towards our goal line of commercial operations. Some first passengers on zero-emission flights in the world could be flying from Rotterdam. There is still a lot of work to do, but with clear milestones and targets identified, the hard work really starts now towards delivering the infrastructure and exploring the protocols and standards required."

DIGITAL TECHNOLOGY INVESTMENTS RAMP UP

Faced with increased disruptions, baggage mountains, and staff shortages, airports and airlines are ramping up their investment in technology to digitalise their operations and speed up the passenger journey by offering more self-service options.

SITA's 2022 Air Transport IT Insights report, published recently has revealed that with the post-pandemic recovery CIOs want to ensure operations are agile, resilient and efficient with IT solutions seen as central to their success.

This has spurred an acceleration of digitalisation, with airlines and airports looking to key technology solutions to fortify their operations against disruption while automating the passenger experience.

The industry's IT spend is projected to continue its steady year-on-year growth trend since 2020 in support of this push with a full 96% of airlines and 93% of airports expecting their IT spend to stay the same or increase in 2023 when compared to 2022.

Last year airline and airport IT spend rose to an estimated (US) $37 billion and (US) $6.8 billion respectively.

CEO SITA David Lavorel said, "Air travel has recovered faster from the pandemic than anyone in the industry had initially expected, particularly in Europe and the US. While the recovery is welcome, airports and airlines have found themselves on the back foot with staff and resource shortages. This has put a strain on operations, resulting in an increased risk of congestion, delays, cancellations and mishandled baggage. Digitalisation is seen as key to addressing these challenges, providing more scalability and flexibility."

ACHIEVE MORE WITH LESS

Airlines are placing great emphasis on IT tools to manage irregular operations and provide the best passenger experience possible even amid staff shortages. Over the next three years, 90% or more of airlines are investing in IT service management enhancement and disruption warning systems, as well as business intelligence initiatives for aircraft turnaround management, passenger processing, and baggage processing.

Business intelligence solutions are at the forefront of airport IT investment priorities too, with 93% or more planning business intelligence initiatives for asset management and flight operations by 2025.

The emphasis on agility, adaptability to disruption, and prompt communication with customers and stakeholders is clear; by 2025 half of airports are seeking to implement automated predictive alerts prior to flight disruption events as well as business intelligence initiatives to enable scaling of operations based on demand.

STREAMLINING THE PASSENGER JOURNEY WITH SMART TECHNOLOGIES

Biometrics and self-service technologies are seen as important solutions to help manage irregular operations. This remained the top investment priority in 2022, with touchless solutions and biometric ID management following closely.

In support of effective baggage management and empower passengers following a period of significant disruption, a majority of airlines plan to provide real-time baggage tracking information to passengers by 2025.

Airports are similarly prioritising self-service initiatives, self check-in, self-bag drop with 86% planning implementation of this by 2025.

Airports' implementation of a secure single biometric token across all touchpoints has surged from just 3% in 2021 to 39% in 2022, with over half planning implementation over the next three years.

All of this signals a strong commitment to the next-generation travel experience where passengers can breeze through the airport using their face as their boarding pass.

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