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15 - 17

Africa's Air Cargo Market taking shape 42 - 44

MEBAA 2022 Show Review 53 - 54

Tricks of Travelling on Budget











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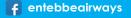
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Contents

AFRICA:

Africa's air cargo market taking shape



AFRICA:

Magical kenya expo returns to Nairobi after 3 year hiatus

P: 19 to 21



Interview with Imperium Jets CEO Lidor Revah P: 23 to 26

GLOBAL:

Abu Dhabi Air Expo 2022 28 to 29



GLOBAL:

Air Arabia showcases the Airbus A321NEO at the Abu Dhabi Air Expo P: 30 to 32



GLOBAL:

Elektra Trainer: The Pilot Training Electric Aircraft P: 36 to 37



How to Avoid Breaking Airport Rules P: 55 to 56

TRAVEL AND FASHION:

A traveler's guide to a comfortable Journey P: 57 to 58



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ICAO Secretary General's Statement on the ICAO Day 7 Dec 2022



his International Civil Aviation Day, ICAO is once again promoting the key importance of enabling innovation for aviation development, while celebrating countries' recent and very successful negotiations toward a new vision for more sustainable and resilient global flights.

This agreed long-term global goal of net-zero air transport carbon emissions by 2050 is ambitious and attainable, and cutting edge innovations in aircraft fuels, design, and propulsion will play a major role in how we achieve it.

States have also adopted some key strategic decisions this year in the triennial Assembly on how to better prepare the sector for future public health and other types of crises, and here too innovation will play a critical part in assuring every passenger's expectation in terms of the safety, security, health, reliability, and convenience of their air travel experience. Several world regions have seen a full return to prepandemic air traffic levels for commercial passenger

travel, and there continues to be a positive outlook for a full world air transport recovery, as we continue our collective efforts in the aviation community to reconnect the world. A sustainable and more resilient future for aviation is fully achievable, and as always we will accomplish it by working together with our Member States and other partners and stakeholders.

About ICAO

ICAO is a specialized agency of the United Nations. ICAO was created by governments in 1944 to support their diplomacy on international air transport matters. Since that time, countries have adopted over 12,000 standards and practices through ICAO which help to align their national regulations relevant to aviation safety, security, efficiency, capacity and environmental protection, enabling a truly global network to be realized. ICAO forums also provide opportunities for advice and advocacy to be shared with government decision-makers by industry groups, civil society NGOs, and other officially-recognized air transport stakeholders.

IN THE NEWS

osted by the Senegal Air Force, the two-day forum hopes to effectively empower the aerospace community to cooperatively advance tactics, training and MRO supply-chain management and improve response to regional conflicts.

Chief of Air Force Staff, Brigadier General Papa Souleymane SARR welcomed the global aerospace community and renowned solution providers and leading discussions about the evolving role air operations for counterinsurgency efforts and enhancing the security landscape for Africa's defense and security aviation sector.

The opening panel highlighted leadership and cooperation in action by leveraging allies and partners to sustain foundational readiness followed by a presentation on the growing presence of international air force in Africa and having a role beyond counterterrorism and counterinsurgency. The first day also

The Inaugural Africa Airforce Forum



saw attendees, the region's Airforce leaders and global solution providers discussing solutions to combat regional security challenges.

Attendees also received industry insights on the importance of an efficient air defence chain to defeat air threats and the latest technologies in air force security. Panellists discussed how to counter growing threats and meet expanding

requirements through robust and flexible global integrated intelligence and surveillance capabilities.

With over 300 regional and international attendees from Air Forces, the Africa Airforce Forum is an ideal networking and knowledge sharing platform for the aerospace industry in the region.

The two day event concluded on the Thursday 27th October 2022.

Kenya Airline Pilots Association Announces Strike



n October 19, 2022, the association issued a 14-day industrial action notice to the Management of Kenya Airways, as the last resort in their attempts to seek better working conditions for the association's members and ensure that Kenya Airways is managed professionally.

The statement issued by Captain

Murithi Nyagah, the General Secretary and Chief Executive Officer of Kenya Airline Pilots Associations on the morning of Friday 4th November 2022 strongly emphasized that there shall be no Kenya Airways aircraft departing Jomo Kenyatta International Airport (JKIA) flown by a Kenya Airline Pilots Association (KALPA) member.

The general Secretary further reiterated in his statement that the strike notice has since expired as the association therefore is at liberty to exercise the right to withdraw labour forthwith, as enshrined in Article 41, Chapter 4 of the Kenyan Constitution.

"KALPA takes this opportunity to apologize to passengers who will

be affected and regret all inconvenience caused to your travel plans." Concludes the statement.

KALPA had earlier in the week warned that the industrial action will cost it 300 million shillings (\$2.47 million) a day, and jeopardize its recovery from the pandemic.

The Kenya Airline Pilots Association (KALPA) is an umbrella association for pilots in Kenya with membership drawn from major airlines within the country a union that represents more than 400 pilots. KALPA works towards ensuring good working conditions for its members, focuses on flight safety and acts as a representative voice for professional pilots in Kenya.

ganda Airlines, Uganda's national career has today November 23, 2022 received its first environmentally friendly electric kayoola bus from Kiira Motors Corporation to boost its operations. The bus will aid in transporting Uganda Airlines' Passengers between terminals on the tarmac.

The announcement was made on Uganda Airline's twitter page "Our CEO, Ms Jennifer Bamuturaki today received the Kayoola Bus from Hon. Prof. Sandy Stevens Tickodri-Toaboa. the Executive Chairman of Kiira Motors to support our operations. The new Electric bus marks a journey of running sustainable operations. Thank vou"

Eventually, the Ugandan public carrier will gradually replace its conventional buses for transporting passengers between the terminal and the planes with more modern and more ecological "e-buses" (electric buses).

The introduction of these buses is in line with repeated initiatives in favor of the environment, the company having already introduced two ecoefficient Airbus 330neo which show

Uganda Airlines



Receives First Environmentally Friendly Electric Bus



a 25% reduction in fuel consumption and emissions. CO2 per seat, 60% of noise footprint.

Besides Kayoola buses, KMC also offers the "Kiira EV Smack", a hybrid electric vehicle and a fully electric vehicle, "Kiira EV POC". It is estimated that Uganda spends up to \$2 billion each year on spare parts for fossil fuel vehicles and a large amount of

this money can be saved as electric mobility becomes popular.

At full charge, the Kayoola EVS has a range of up to 300 kilometers making it capable of handling the daily duty cycle. With a sitting capacity of up to 90 passengers. KMC was awarded as the African Company of the Year in the 2021 African Business Leadership Awards.

RwandAir Acquires Its First Cargo Aircraft

wandAir Limited has taken delivery of its first dedicated cargo aircraft B737-800SF. The acquision was announced in a communication released last evening on the 24th of November 2022 on RwandAir's LinkedIn page.

According to RwandAir CEO Yvonne Makolo, the new freighter will operate to several key destinations in Africa and the Middle East including Johannesburg, Nairobi and UAE.

CEO Yvonne Makolo said: "Cargo is of ever-increasing" importance for the aviation industry, and as a landlocked country, we recognize the importance and value of good cargo connections". "We want to ensure that Africa is



seamlessly connected to the world, driving economic growth and valuable trade deals." She added.Africa

RwandAir now joins Kenya Airways' KQ Cargo, which has been the only freighter in East Africa. The joining of RwandAir Cargo into the market is expected to greatly boost the region's cargo operations. RwandAir Limited is the flag carrier airline of Rwanda.

SAIRBUS

Airbus' haps connectivity business signs a strategic partnership with salam

irbus' HAPS Connectivity Business has signed a strategic partnership with Salam, a leading Saudi telecommunications and ICT company and part of the Mawarid Media & Communications Group (MMCG), to progress the development of private networks, IoT applications, disaster management solutions and other connectivity and high-altitude Earth observation services from the stratosphere to serve the Kingdom of Saudi Arabia.

Ahmad Al-Anqari, Salam CEO, said: "We see in Airbus' Zephyr platform a key asset to provide private network services, IoT solutions as well as civil, governmental and nongovernmental applications. There are numerous use cases for the platform's capabilities and we look forward to this partnership with Airbus to serve the Saudi market in support of the Kingdom's



Vision 2030 goals."

"In partnership with Salam, our Zephyr platform, with its demonstrated advanced capabilities, will be instrumental in serving several markets in the Kingdom of Saudi Arabia," said Jeff Smith, Head of Connectivity of Airbus´ HAPS Connectivity Business.

Airbus, a leader in the HAPS (High Altitude Platform Station) market

with Zephyr, will provide low-latency, direct-to-device 5G connectivity services, in addition to persistent high-resolution imaging and live-video, delivered from the stratosphere.

The company's solution will support in bridging the digital divide and will bring connectivity services to those who are currently unserved or underserved from a solar powered and carbon neutral platform.



Boeing and Ethiopian Airlines Celebrate 10th Anniversary



oeing and Ethiopian Airlines on the 18th October 2022 celebrated the 10th anniversary of the first 787 Dreamliner delivery to the African carrier. Ethiopian Airlines was the first airline on the continent to take delivery of the 787 and today operates a combined fleet of 27 787-8s and 787-9s that play an integral role in its long-haul fleet.

As part of anniversary celebrations, Boeing also unveiled an exhibition design for educational exhibits in the mobility hall of the Ethiopian Science Museum. The museum will feature permanent exhibits from Boeing and Ethiopian Airlines, including a 787 Dreamliner simulator experience.

"We are alad to mark a decade since we ushered in the first 787 Dreamliner into Africa, building on our pioneering role in African aviation," said Mesfin Tasew, Ethiopian Airlines Group CEO. "The 787 has been instrumental in expanding our long and medium haul flights and redefining onboard comfort for our passengers thanks to its advanced technology and remarkable cabin features."

Since the delivery of the first 787 in 2011, more than 80 airlines around the world have used the Dreamliner to open more than 335 new non-stop connections around the world. The 787 family has served on more than 1,900 routes, carrying nearly 700 million passengers on more than 3.3 million flights.

The 787 family delivers unmatched fuel efficiency to operators like Ethiopian Airlines, reducing fuel use and emissions by 25% compared to the airplanes it replaces. In total, the 787 has saved 125 billion pounds of carbon emissions since entering service in 2011.

Ethiopiar **የ**ኢትዮጵያ

to add three weekly flights to Zürich

thiopian Airlines, Africa's leading carrier and the world's 4th largest airline by the number of countries served has announced an inclusion of Zürich to its constantly expanding global network. The first flight from Addis Ababa to Zürich will take off on 31 October 2022, operated with the ultra-modern Boeing 787 Dreamliner.

Zürich will be Ethiopian Airlines' second destination in Switzerland next to Geneva, and its 19th gateway to Europe. The city is the financial and industrial center of Switzerland and hosts the headquarters of a number of international organizations including football's governing body FIFA.

Group CEO Mesfin Tasew while commenting on the launch said: "We are glad to open a new route connecting the financial capital of Switzerland, Zürich with over 130 destinations of Ethiopian Airlines via Africa's political capital, Addis Ababa. The new flight will expand our presence in Switzerland and Europe at large and provide enhanced air connectivity between Switzerland and Ethiopia.

The new service will also facilitate diplomatic and socioeconomic relations not only between Ethiopia and Switzerland, but also between Africa and Europe. As a pan-African carrier, we are committed to further expanding our global network and connect Africa with the rest of the world better than ever before."

Currently, Ethiopian Airlines flies to Geneva three times a week, which will increase to four weekly flights by end of October. With the launch of services to Zürich, Ethiopian Airlines flights to Switzerland will increase to seven per week.





Interview:

Mr. Hendrik du Preez; Qatar Airways Vice President for Africa



By Harriet Akinyi harriet.jimmy86@gmail.com



Qn: What inspired you to join the aviation industry?

I think I've always been intrigued by travel from an early age. Initially when I was in school, I thought that I would become a lawyer and when I got accepted into the university, I felt that being a lawyer was not something that I wanted to do with my life. I opted to study tourism and ended up with a degree in Tourism in Pretoria, South

Africa. I got an internship in the US and worked over there for two years before moving back again to South Africa and working for a travel management company for a couple of years.

I was in charge of business development sales all over Africa and this meant that I ended up traveling a bit all over the continent. In the last year that I worked for them, I was actually in Dubai when Emirates





approached me to join them. I was with them for ten years, worked in South Africa, then West Africa and then the last bit was in East Africa for three years. Two years ago, I was approached by Qatar Airways so I moved to Doha to look after the entire Africa.

Qn: How tough or easy is this role?

It's an exciting role. The last two years have been challenging because of the pandemic so there were a lot of things out of the norm. We had to move very quickly to get things done. Right from the start, we decided that Qatar airways was not aging to stop flying and to take as much people home especially those stuck on the other side of the world. However, the borders closed and then we started working closely with governments to get approvals for charter flights since the airports were closed for quite a while. We managed to get chartered flights to get people back to Kenya and others across the world. There were around 3 million repatriations all over the world. Also, with so many airlines not flying, we saw an opportunity in Africa and opened up eight new destinations right in the middle of the pandemic.

Qn: Which are the 8 new routes and how are they fairing at the moment?

We started in Zimbabwe, Angola, Zambia, Accra in Ghana, Abidjan in Ivory Coast, Abuja, Kanu and Port Harcout also in Nigeria. They are all doing very well. We were looking at these destinations right before the pandemic and it accelerated during the pandemic because all the other airlines stopped flying there and we saw it as an opportunity to connect people. Because we started this at this time and people got this assurance from us and now we have become even the most preferred



airline in these countries because we were there when nobody else was. This has given people a lot of assurance that we will be there for them.

Qn: How is the partnership with RwandAir faring and what future plans do you have for it?

We work very closely with RwandAir but we have many partnerships across Africa like 20 interline agreements with different airlines and then we've got the cache partnership agreements and we work closely with RwandAir team to see how we can closely develop and assist each other. When RwandAir started flying to Doha directly, then we stopped flying to Kigali. So now they are taking care of that route. We have also developed



another partnership with Airlink in South Africa and they have over 45 destinations in Africa that they fly to. These partnerships are very important because we fly into their hubs and they then can take the people that we bring to the rest of their networks.

Qn: How vital are such partnerships especially when it comes to connecting Africa?

The key to that is that we are able to assist our partners grow. We fly to 160 destinations in the world and we can bring people from all over the world to Africa and then our partners can take it from there to their hubs in Africa. By helping our partners grow, it will enable them to open up new routes again in Africa that will again assist with inter Africa connectivity. It is beneficial because if we help our partners grow they can grow their business and that again will help to grow interconnectivity in Africa.

Qn: Apart from connectivity issues, which other challenges in Africa have become your solutions?

I think Africa is still an underdeveloped aviation market. If you look at the total traffic globally, Africa makes up to 2 percent of the global traffic which means a great opportunity for us. By 2030, Africa will be the fastest growing aviation market since there is a growing middle class of people that will want to travel for whatever the reasons are. Travel in Africa has historically been fairly consistent and there is a great opportunity if the continent develops. The one thing that aviation does best is assisting countries grow their economies. For instance, in Kenya, if we bring in tourists, the amount of money that they bring in, the jobs created in the aviation industry is big. When countries look at their source market, we have the power to bring these people to the countries.

Qn: How is Qatar airways involved in sustainability?

Sustainability is a real concern and we have pledged with IATA that by 2050, we will commit to the savings that we need to make on those side. If you look at our fleet, it's young and fuel efficient and this is an efficient way of travel. We are working with world governing bodies to commit to this.

Qn: You are the official sponsors of the World cup. How can Africa plug

There is five countries in Africa that have qualified for the world cup and we have been working very closely with them with the football unions, with the governing bodies to ensure that we are able to bring their fans to Doha. We are expecting fans from Ghana, Cameroon that is going to attend. We have also put together packages for the world cup for the tickets, accommodation and the flight. As we saw the demand for this increase, we have increased the number of packages that we are offering as well for people to buy. I think with the world cup that was in South Africa in 2010, that was the first time that it came with such proximity. This time round it's also close and it's a five hour flight which means that the distance is convenient enough for our visitors. We have also worked closely with some of the closest neighbors around so there is going to be shuttle flights that's running between Oman, Kuwait and the UAE and Saudi so that people can experience the broader Middle East.

Qatar Airways in November 2022 took home four new awards at the prestigious 2022 Business Traveller Awards. The award-winning airline was named Best Long-Haul Airline, Best Business Class, Best Middle Eastern Airline and Best Inflight Food and Beverage. The Airline was also named 2022 Best Airline in the world by SkyTrax Awards held on the 23rd September 2022 at the historic Langham Hotel London, United Kingdom. The win coincided with its 25th year anniversary celebrations.



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AFRICA'S AIR CARGO MARKET TAKING SHAPE



Vincent M. Mupenzi v.mupenzi@theaviator.co.ug

frica's airfreight and logistics business is expanding as it recovers from the pandemic, drawing major investment. There is an investment in new and modified freighter aircraft, upmarket cargo drones, cargo ground handling sector convergence, and more. Astral Aviation is adding three Boeing B757-200Fs and two Airbus A320 P2Fs to its 14-freighter fleet, while Kenya Airways Cargo has received a number of fleet extension proposals, which are now being examined and assessed by the leadership board. Ethiopian Cargo & Logistics Services recently announced the launch of a new domestic cargo route to Dire Dawa and Jigiiga, which would operate three times per week beginning

August 30 and on the 24th of November 2022, RwandAir Limited took delivery of its first dedicated cargo aircraft B737-800SF which will operate several key destinations in Africa and the Middle East including Johannesburg, Nairobi and UAE. The African air cargo sector is confronting challenges like fuel pricing and connectivity within the continent and with the rest of the world, particularly since the world views Africa as an opportunity.

Aero Africa, a leading air cargo management group, has announced the opening of a new regional office in Nairobi, ideally placed at Jomo Kenyatta International Airport, to better serve their customers with neutral airfreight import



consolidations from across the world to East Africa.

"The new office will look after the group's interest in the region, operating as a control tower and centralized service center in East Africa for its overseas partners and clients. It will focus on promoting Aero Africa's digital airfreight portal, developing BSA scheduled consolidations from the USA, Asia, and Europe to East Africa, and providing innovative air cargo solutions & value-added services to the East African freight & logistics community," said Absolom Ngari, General manager, Aero Africa.

During the month of October 2022, African airlines, which account for 1.9 percent of the global air cargo market, saw cargo volumes decrease by 8.3 percent compared with Oct 2021 which was a significant drop from the 0.1 percent growth recorded in September 2022. Cargo capacity shrank to 7.4 percent below Oct 2021 levels. Globally, demand saw a 3.5% rise on September 2022 figures, but overall was down 13.6 percent compared with Oct 2021. A key factor in the performance has been the sharp appreciation of the US Dollar, which has pushed up input and operating costs for manufacturers, freight forwarders and airlines when they are incurred in other currencies as per IATA October 2022 report.

The African market is particularly intriguing because aviation traffic is predicted to double in the next 20 years. High-profit margins and consistent passenger growth make Africa an attractive market for many multinational airlines. With traffic expected to double in the next years, Africa will draw not just additional stakeholders, airlines, investors, and financiers, but also the whole business world.

"Yes, opportunities do exist, but a lot needs to be done in fasttracking and implementation of policy frameworks including the Single African Air Transport Market (SAATM) as envisioned three decades ago as the first flagship project under AU Agenda 2063. The challenge that Africa must deal with and do so with some urgency, is to consolidate its aviation assets to enjoy

economies of scale and the efficiencies that come with it. Currently, the aviation sector in Africa is fragmented and risks the fruits of the opportunities envisaged going to foreign carriers," said Dick Murianki, the former Director of Cargo, Kenya Airways. Start-ups and new businesses are also eyeing Africa to be the next hub to boost their aviation business. One such company is Airblox, a pioneer in aviation fintech, which offers a live feed of worldwide scheduled air freight aircraft capacity to help clients of its eBSA booking service.

Airblox is new to the African market and is looking forward to starting to serve African airlines. "As infrastructure in Africa improves, charter flights and consistent air cargo capacity for items such as pharma, food, and other perishable cargo will also increase. Utilizing standardized eBSAs will help establish the foundation for this market to be more efficient and transparent in pricing," said Edip Pektas, Founder, Airblox

According to UN data, Africa offers a higher return on investment than any other emerging market. For several reasons: Competition is less intense and few foreign companies have a presence there, and pent-up consumer demand is strong. Companies that desire revenues and profits, we believe, can no longer ignore Africa. With the accelerated economic growth



on the African continent and the matching increase in logistics activities from direct trade with the Far East as well as the world, it has become critical to provide the logistics and aviation sector with a tailor-made simplified neutral air cargo solution, supported by a secure financial transaction platform in which to conduct air cargo business with Africa.

"Africa is greatly investing in infrastructure development that supports alobal trade, modernization of airports. seaports, airlines, etc. Africa airlines' investments are a priority, with Ethiopian Airlines and Astral Aviation's fleet expansion on the top of the list. Liberalization of markets and initiatives to reduce the imbalance of trade between countries. Recent avocado export to China out of Kenya is seeking to reduce the adverse imbalance of imports to Kenya and export to China from Kenya. The truth is, this is just the first step of a very long journey as Kenya's trade deficit is very wide," said Jade De Costa, CEO, Aero Africa. Global air cargo volumes continue to outperform pre-pandemic levels.

Demand in Africa was the strongest of all the regions with consistent CTK levels above 25% compared to 2019 data. Challenges and Solutions Following the capacity constraint difficulty caused by the pandemic, which increased airline rates, the industry is concerned about rising fuel prices and their effects. Global demand is high, owing to the reopening of airspace and increased travel. Prices will be heavily contingent on the resolution of geopolitical concerns in the future. "We have seen



very volatile fuel prices in recent times and the same has caused disruptions in the supply chain and erratic supply/ stock-outs in some locations. Customers will have to adjust their expectations and accept some elements of increased freight costs as airlines will be forced to transfer part of the increased fuel costs to them. Already, several carriers have imposed some form of fuel surcharges," said Murianki. The fuel price increase is an issue and Aero Africa thinks that the government can intervene and find a balance for a smooth trade.

"The government can negotiate bulk order purchasing costs at the individual or regional level. Authorities can provide subsidies to people who import fuel. Regional integration, as well as bilateral and multilateral trade agreements, can help to improve connectivity. For example, the African Union, East African Community (EAC), Economic Community of West African States (ECOWAS), and African Growth and Opportunity Act (AGOA) and the purpose of this legislation was to assist the economies of sub-Saharan Africa and improve economic relations between the United States and the region. A revision of the present fuel taxation scheme is necessary to provide the airline access to more competitive fuel. Fuel prices in some locations are artificially regulated by monopolistic techniques, primarily by governmentaffiliated fuel marketing entities. These can be avoided for Africa's aviation sector

Regional integration in terms of bilateral and multilateral trade agreements within the continent, e.g. EAC, ECOWAS, SADC, etc., government prioritization of development of supporting infrastructure, e.g. airports, customs bonded warehouses, cool chain facilities, and highways, and harmonization of intra-border trade tariffs, levies, and taxes." Africa is ready to welcome all the opportunities coming their way. According to the 2021 Airbus Global Market Forecast (GMF), the continent's predicted economic development would propel air traffic to a full recovery to 2019 levels between late 2023 and early 2025. The industry experts believe that investors sometimes neglect Africa as the smallest region for aviation services. Operational and policy difficulties contribute to increased perceptions of risk and operating expenses.

However, as the globe slowly recovers from the epidemic, there are numerous programs available to reduce these issues and help the rehabilitation of a more robust and sustainable sector. These will require time and discipline to accomplish, but the continent's underserved market offers substantial prospects for investment and growth, particularly in the regional and air freight sectors. Additional information from LUA magazine

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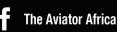


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Magical kenya expo returns to Nairobi after 3 year hiatus

By Evans Kimani evans.kimani@theaviator.co.ua

he 12th edition of the Magical Kenya Expo took place in the Bomas of Kenya Facility in Nairobi, Kenya between the 5th and 8th of October 2022. The event, which is hosted annually, saw its return to a physical setting since 2019 after being affected by the Coronavirus Pandemic. The expo saw a wide range of exhibitors from the continent including tour companies, airlines as well as government representatives of the tourism industry.

The expo was opened officially by former Cabinet Secretary of tourism, Naiib Balala who encouraged people to travel to different destinations and to use tourism as a tool of peace, interaction, and cohesion among different people. This comes as the industry continues its steady recovery from the Pandemic that saw tourism being among the most heavily affected industries in the globe. The Cabinet Secretary emphasized on the government to continue with the efforts to ensure that the proposed sky policies are implemented to enable more tourists to be able to travel much easier with lesser restrictions.

"To boost tourism, Africa should work towards improving its security, and infrastructure and promote it positively. Today we have the issue of Ebola which is a negative story. This and many other issues are denying us the chance to sell our products to the outside market and it is a discouragement for tourists to visit our country" the former CS retaliated." The Magical Kenya Expo saw 4-panel discussions being held among them;

Airlines & Access where the discussion focused on post-pandemic travel and the role destinations can have to make travel



easier for tourism.

- Sustainability and Inclusive Tourism focused on the transformation of the tourism industry and the growing emphasis on socially responsible practices and responsible travel.
- E-travel discussed the technology in greas of marketing and distribution & the impact of advancing and expanding digitization and automation in the travel industry.
- The future of tourism and its resilience, which took a look at the merging travel trends in a post-pandemic world.

The event further saw Netflix premiere their documentary "Our Great National Parks" which was in honor of the works in the Tsavo National Park. Among the key sponsors of the expo were the Kenya Tourism Board, Kenya Airways, Netflix, and Mastercard.

Airlines & Access Panel Discussion

Panel: Marting Gitonga; Head of Planning & Alliance-Kenya Airways, Hendrick du Preez, Vice President Commercial Africa-Qatar Airways, Abderahmane Beerthe-Secretary General-Africa Airlines Association (AFRAA) and Alicia Taljaard-Sales and Operations Manager-Rovo Rails, Karanja Ndegwa- CEO- Jambojet (to appear below the image)

The first-panel discussion of the day saw the various key stakeholders

of the industry discuss various issues including the growth and tourism in Kenya, Open Skies, the role of travel experience, emerging airline alliances, and the effects of the covid-19 pandemic and its recovery.

The panelists agreed that the Pandemic saw a rise in fuel prices during its recovery period, mainly due to the Russia-Ukraine war and as was quoted by Jambo Jet CEO, fuel remained a key concern of the airline as it saw the airline exceed its budget by nearly 128% which accounted for a 58% increase as compared to the beginning of 2022. This is as the Secretary General of AFRAA further elaborated that the average fuel price was at \$142 per barrel as compared to \$78 in the year 2021.

They expounded further that the lack of foreign exchange, which has been regarded as a 'worrying' challenge in the region saw them being affected by the ability to convert some of their local currencies which is detrimental to the revenue that is gained by the airline thus directly affecting their business.

Growth & Development of Tourism

The Secretary General of AFRAA emphasized that the improvement of connectivity is the most essential need of the continent and he elaborated that through the corporation between African Airlines in the continent, diversification of the tourism products and improvement of the quality of services offered form as the key component to boosting not only the tourism sector but also the airline industry. Furthermore, the simplification of health screening procedures needs to be done, as various countries in the continent currently have relatively strict

health policies that are directly hampering the movement of persons from one country to another, and through the improvement of incentives for travel destinations, tourism stakeholders could foresee an increase of volume of travels in their various destinations. Airline Partnerships

While this section formed a key point of discussion in the panel, Kenya Airways (KQ) acknowledged its role in partnering with South Africa Airways (SAA) and its role in building a pan-African airline that will see more



connections in the African region.

Kenya Airways believed that through the lessons learned in its Air France-KLM joint venture, there is a need to push the boundaries of partnership as many of the airlines tend to be relatively reluctant to share their markets with other airlines, thus hindering the main goal of increasing connectivity. There is also the need to give more options for passengers which will enable more airlines to be competitive which in turn, enables passengers to be able to spend less and for the airlines to further innovate their services to elevate the passenger experience.

The panelists agreed that there was a heavy reliance on big carriers to improve essential connections across the globe and they believed that if more African Airlines choose to work together, the dependency would significantly reduce as more people in the continent would be able to travel for shorter hours and more efficiently which will, in turn, benefit both the customer and the airlines involved in the process. This is as in Kenya, the local airlines have a 49% of the market share while the other international airlines such as Ethiopian Airlines (ET), Emirates (EK), and Qatar Airways (QR) occupy the majority of the share, representing the current state of aviation industry in the country.

The KQ-SAA partnership believes that it will see improvement in the collective bargaining aspect, as both airlines intend to order new/ leased aircraft as a group, which will in turn improve their sustainability in operations as well as their overall balance sheet, which has been a major strain in both airlines.

The AFRAA Secretary General highlighted that highly structured partnerships provide higher opportunities for airlines and their customers in the continent.

The Question of Low-Cost Carriers (LCC) was also discussed, as the Jambojet CEO believes that the opening of routes shall contribute to more connectivity in underserved markets but through the reduction of taxes in the industry, the LCC concept has the potential of performing in the continent and making it a crucial contribution to the Aviation industry in Africa.



DID YOU KNOW?

The youngest person to fly solo around the world

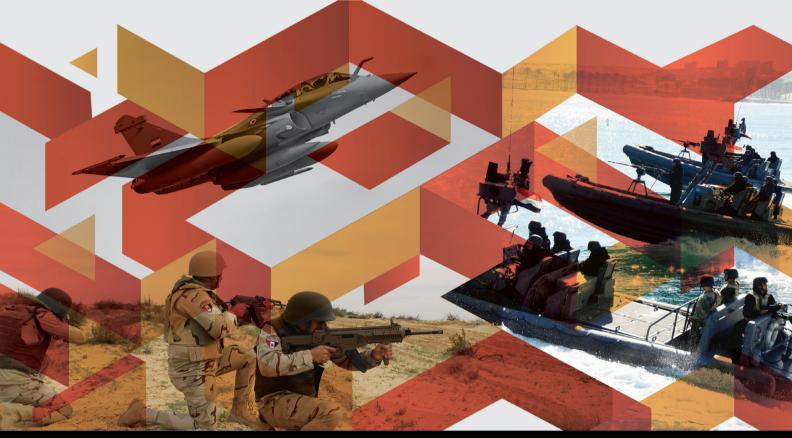


Mack Rutherford, A 17 year Belgian-British dual national became the youngest person to fly solo around the world. He landed on an airstrip west of Bulgaria's capital, Sofia on August 24 2022 to complete his task and claim two Guinness World Records.

According to Rutherford's official website and GWR. He first set off when he was still 16. Rutherford's route spanned 52 countries across five continents on a specially prepared ultralight Shark aircraft with cruising speed reaching 300 km/h His iourney was tracked on his website, which shows he set off from Bulgaria towards the Mediterranean then through the Sahara, onwards through the Middle East and then East Asia.

He smashed two world records, previously held by his older sister Zara Rutherford, as the youngest person to fly around the world solo and also the youngest person to do so in a microlight aircraft, the GWR website





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INTERVIEW WITH IMPERIUM JETS CEO LIPOR REVAH

Imperium jets is an online platform based in USA that mainly focuses on business aviation. The platform, which has been regarded as an 'Airbnb' of business aviation, sees its platform used to book flights on business jets in a bid to facilitate the convenient transportation of persons to different parts of the country and beyond. During the sidelines of the Abu Dhabi Air Expo 2022, The Aviator Africa got a chance to have a conversation with Lidor Revah the CEO of Imperium Jets.



Qn: Explain briefly about Imperial Jets.

So what we do in theory is basically a distribution platforms that allow jet operators to maximize profits. The goal for us is to help operators that have either unutilized times or empty lake flights and they want to address new audience customers and sell those flights by the seats. The advantage the operators will have by selling flights by the seat is one, they have an option to increase their profits because they can sell more seats and especially if it's an empty day flight. But the second thing, and what we believe is the most interesting one, is that we believe that eventually the operators will have to address and adopt the by these seat modes.

The reason we believe that is because from what we saw. they're going to be about 8,500 new aircraft delivered to the market by 2025-2030. And those aircraft are going to basically over flood the market with supply. The customer that are currently flying private jet, very large number of them are coming from their business and first classes because of their need for alternative flight solutions.

Now we are reaching the point that we are almost at let's say pre covid performance we just made this year as as a global commercial aviation industry, we made 780 billion. That means that we are almost 30 to 50 billion short of pre covid times. So, we are very good in performance in terms of commercial industry, but we believe that in 2025 to 2030 customers will go back to commercial aviation. I'm assuming if you flew here in commercial, you saw that aircraft is crowded and then they don't have anyone to sell it to. But we believe in this point that those operators will have to adapt to a new business model. We believe it's going to be the buy the seat model. That is why we started this company. We saw the opportunity of current position with selling private advice, buy the seats, and then we looked on into the future and we saw it in 2025. Jet operators will have to adapt to this new model. This is where we stand.

Qn: Can you say that it's like how you can have Expedia selling commercial tickets for commercial flights, but now this time your company model is that you provide for people traveling on business and private jets?

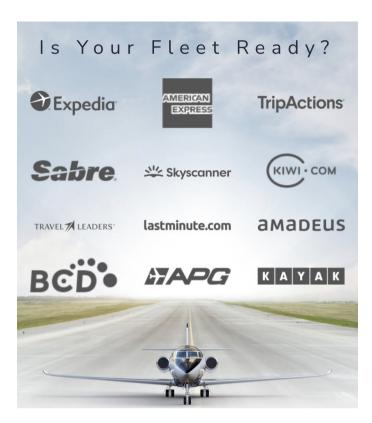
Yes, that is correct. So the booking process is going to be exactly the same as you book a commercial aircraft. we are not a travel agency and we are not an operator. We are a technology company. We present with the companies, with the travel agencies content they can sell on their websites. So basically, our job is to get the operators and help the operators put the content into the platform. This is their content. They control the pricing,



they control the dates, the aircraft, the whatever. And then once they are ready, putting into the platform, we get it approved by the regulator because you need to get approval to sell while you see it. And then we put it on the different companies, as you mentioned such as forexample Expeedia as you mentioned and then you can just purchase it directly from them. So, for you as a customer, you don't need to have membership, you don't need to download any app, you don't have to sign up to anything. Just do the same thing you used to do before. But now in \$1,000 balance an average, you can go on a private jet instead of first class.

Qn: What were the key factors that have been able to drive growth in imperial Jets.

Obviously, we are very much connected to business aviation. As an economy, we are serving business aviation. Jet operators don't want to sell rights by the seat. The



key factor for us is the same key factor for let's say the operators. It's how much demand you have in the market, what season that is. If it's travel season, not travel season, the cost, they are not affecting us directly. I mean, we are not buying the fuel, but they're affecting the operators, which affect us too because they're increasing prices So, it's the same exact force. I believe that as an industry we have three main challenges currently that we need to fix. The first one is obviously crew, everybody talking about consult by 2030, you're going to have about 70,000 people. Demand empty spots for pilots, pilot salary is up by 25%. United Airlines is investing a hundred million dollars in just opening training centers. Fuel and maintenance costs, you know, up by 30% average. And you have shipping shortage that, you know, parts are taking almost forever to get to the final destination. All of those things combined translate to higher operational costs, and this translate to increasing charter sales. Prices average is 21% We are 21% more expensive than we were a year ago. Not us as imperial Jets, but us as an industry in general.

Qn: What does the post covid outlook of Imperium Jets look like?

I believe the process is the same answer. I believe that post Covid 2025 Honeywell reports stated 8,500 aircraft are going to be delivered between 2025 to 2030. That deal is worth \$270 billion alone, that is going to go into the market. It's going to work for a lot of people to my personal belief and that is the time that we need to adapt a new business.

Qn: Sustainability; What steps has Imperium Jets together with its partners taken to, improve and promote sustainable aviation because we know that various organizations like ICAO have put up these policies that are expecting a general industry to adapt?

So, at the end of the day, our job is to serve the operators. If the operators have this in their agenda, we're more than happy to serve. For us personally, what we are aiming to do in within a year from now is to take a part of the revenue and invest in planting trees. That's something that we as a company will do. but from the operator's perspective, we are not purchasing the fuel. So we are working with the operator assets. So, if the operators have sustainable energy, facilities or features, that is operation is going to be great. It's going to be translated to the customer. If it's not, we're still going to give this operator service because at the end of the day, they are who we came to serve.

On: How is your market share looking at, especially in the Middle East at the moment?

So selling flights by the seat have been tried 17 times in the past from various companies. What we believe we



are doing different is number one, coming up with a different regulation. Number two, we are using different business models. We are not selling directly to consumer as a core business model. We are selling to, agencies or brokers, other type of companies. So, it's basically a B2B to C model. And in terms of the marketing itself, I think there is a lot of space for innovation in this field, specifically with the different, features that we are developing. One of the features, for example, is what we call a pegol feature.

So, take for an example that you have an operator that is based in X location, X city, and the next city nearby, you have seven passengers that want to fly from point X. The operator would never, ever identify this flight because it's not in his location. They have no way of knowing it. What we are doing is setting up a pegol with that to follow up the inquiries. So if a lot of people here are going to search for this flight, we're going to notify the operator and say, Hey, you might want to set up like here. And this is something unique that we are bringing to share more marketplace. At the moment, the marketplace is very open in terms of how many companies are in this field, the company that are competing in this marketplace, and normally company that works with semi regional aircraft, and with a membership B2C kind of model.





Qn: Let's just talk briefly about Africa. When I mention Africa and the Imperial Jets company, what are your general thoughts about a potential market in the region?

I think its absolutely strong market specifically for a lot of aircraft that will work on semi regional, semi private jet. So here we work strictly business aviation. But within business aviation you have very broad aircraft under operation. You can have aircraft with 16 seats and you can have aircraft with 46 seats. I believe though those bigger aircraft in Africa specifically are going to be great because they're going to help in developing the region specifically also for people that want to have daily commutes for different events for example, there's a lot of coal mine operations in Africa, for example, people that traveling back and forth, commuting back and forth to their work.

If you open a route with an operator on this route, you can have the workers and the managers and the people from nearby towns using the same route. So, in fact, you are serving kind of one company, but you can basically give value to a lot of people nearby if it makes sense on the operation. So the prospect of the Africa market is a very interesting one though we are currently not very familiar with it though it is something within our plans. Our current focus is mainly in the United States, kind of a little bit starting in the Middle East and well later Africa. To my personal belief as a CEO, I think Africa is an amazing market and whoever goes there first will win big.

Qn: As you have said, you are more of a technology-oriented company, so how important is technology in building your company?

Technology is super important in helping automate and improve operations, customer satisfaction and simplifying the process as well as increasing the distribution rate. Acquiring customers as well as creating a consistent, carefree, safe, and comfortable experience for our clients with the aide of technology is what is most important in our company.

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ABU DHABI AIR EXPO 2022

By Evans Kimani evans.kimani@theaviator.co.ug

he 10th edition of the Abu Dhabi Air Expo took place at the Al Bateen Executive Airport in Abu Dhabi, United Arab Emirates from the 1st - 3rd of November 2022. The expo, which was celebrating its 10th year, was hosted by the Abu Dhabi Airports Authority in sponsorship with Etihad Airways, Global Air Navigation Services, Department of Culture and Tourism, Al Futtaim Automotive, Saeed and Sanad: A Mubadala Company.

The expo saw over 20,000 delegates from the country and beyond attend the airshow which saw several companies participate including The Aviator Africa, who formed as the only African Company in the expo. The expo not only had exhibitors of various companies but also had aviation giants of the region display their aircraft including Etihad Airways, RoyalJet Company, Gulfstream, and Etihad Airways among others.

The event had a range of panel discussions, which included;

- Women in Aviation.
- Sustainability in Aviation.
- Readiness of Education System Aligned with Technology Growth.
- Future growth & developments in Aviation.
- Making Aviation Green (Supported by Etihad Airways).
- The evolving role of Aviation Post Pandemic.
- Growth & Future of Air Cargo



(Supported by DHL)

- Changing role & importance of Aviation Training & Development.
- MROs & Future of Maintenance.
- Air Traffic Management & Airport Security (Supported by Global Aviation Services-GANS).
- Development in Green Mobility.
- Major Tech developments of the vertical take-off and landing (eVTOL) hybrid aircraft.
- Aviation & Robotics.
- Retail services post Covid-19.
- Aircraft Displays.

The expo featured a wide range of companies that displayed their aircraft in the general, business & commercial aviation sectors. The display included the Al Fursan aerobatics team who performed an air demonstration during the expo. Among the other participants in the static display front were Gulfstream who displayed their Gulfstream G600, Dassault Falcon 8x

aircraft, De Havilland Aircraft's Dash 8 Business Jet, Air Arabia A321-Neo, Etihad Airways A321, RoyalJet's Boeing 737 BBJ, Emirates Executive's A319 and the Abu Dhabi's police department who featured a wide range of their helicopters including the Bell 429. The event saw the debut of Jetka, a Swiss Based airplane company that seeks to build its first aircraft PHA-ZE100, an all-electric amphibious aircraft that seats 19 people.

During the launch, George Alafinov, Jetka CEO explained that the goal of building these aircraft is to reduce the total global emissions that the aviation industry has, further adding that the use of a new electric seaplane will create a segment of sustainable transport mobility for the population living in megacities and small settlements located on the coast of the seas and oceans, connect islands, and preserve the unique nature of

wildlife sanctuaries that have become popular as tourists' attractions.

VoltAero also showcased its new product, the VoltAero's no. 1 Cassio 330 prototype, which is targeted to make its maiden flight in 2023. Cassio 330 is the five-seat version, with a combined electric-hybrid propulsive power of 330 kilowatts. Various aviation academic institutions were present including the T3 Aviation Academy and the University of London as well as Airlines such as Middle East Airlines, Vistara, Air India & WizzAir.

The event saw thousands of aviation stakeholders get together & share their networking grounds that will see growth of the aviation sector in the Middle East & beyond.

















By Evans Kimani evans.kimani@theaviator.co.ug



ir Arabia is a low-cost Middle East Airline that is based in Sharjah, the United Arab Emirates that has been in operation since 2003. The airline forms one of the largest low-cost airlines in the region. The airline also has a base in the Abu Dhabi International Airport and Ras Al Khaimah with focus cities in Alexandria, Egypt, and Casablanca in Morocco. The airline flies to over 170 destinations across the Middle East, Africa, Asia, and Europe and is currently the largest

low-cost carrier in the region. The airline currently operates 56 aircraft consisting of 52 Airbus A320s and 4 of their newer Airbus A321Neo Long Range (LR). The airline currently serves two cities in Africa: Entebbe and Nairobi as it seeks to expand its network in the continent.

Air Arabia participated at the Abu Dhabi Air Expo as both an exhibitor and on static display. The Aircraft, ATA, was on display for two days during the Airshow together with its

crew members that saw hundreds of attendees view and explore the aircraft extensively. The airline signed a lease deal with Los-Angeles based Air Lease Corporation for 6 new Airbus A321NLR aircraft and was the first in the Middle East to receive this type of aircraft. The new aircraft have provided an added benefit to Air Arabia as they can optimize its current existing Medium-Haul routes and expand to newer routes using the aircraft.

Airbus A321Neo

The A321neo is the longest-fuselage member of Airbus' best-selling, single-aisle A320 Family, comfortably seating 180 to 220 passengers in a typical two-class interior layout, and as many as 244 in a higher-density arrangement. The aircraft, which is an advancement to the A321ceo and a longer range to the Airbus A321Neo, provides minimum change with maximum benefit through the availability of two advanced engine choices - CFM International's LEAP-1A and Pratt & Whitney's PurePower PW1100G-JM geared turbofan, along with Airbus' fuel-saving Sharklet™ wingtip devices. Together, they bring per-seat fuel improvements of 20%, along with an additional range of up to 500nm or two tonnes of extra payload.

Furthermore, the A321neo provides an extended range, capable of flying routes of up to 4,000 nm with 206 passengers by utilizing extra fuel in three Additional Centre Tanks (ACTs) which is ideally suited to transatlantic routes, the A321LR allows airlines to tap into new long-haul markets not previously accessible with current single-aisle aircraft.

The aircraft further provides new cabin adjustments, through its Airspace cabin which adds more space and comfort for the travelers onboard through the slimmer sidewall panels that increase personal space for passengers, better window views due to the updated bezels and integrated window shades as well as the full LED lighting technologies which provide mood lighting capabilities for the cabin, thus increasing passenger comfort.

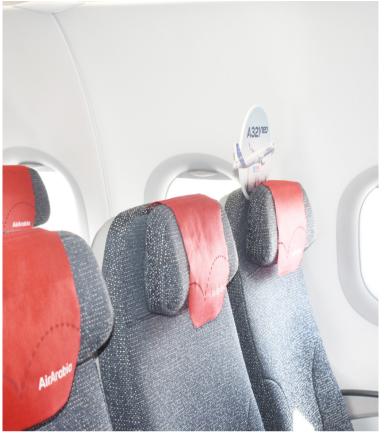
The aircraft's digital fly-by-wire control system provides cockpit commonality that reduces training and maintenance costs. Pilots certified on the A321 can fly any member of the A320 Family, and thanks to Cross Crew Qualification (CCQ), they can transfer to other Airbus aircraft through transition training, saving time and reducing costs, which is a key stronghold for Air Arabia's aircraft selection thus improving the airline's efficiency.

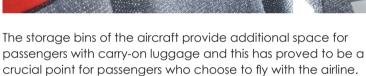
Air Arabia Cabin & Features

The Air Arabia A321NLR features a 32-inch seat pitch that has a reclining feature and a tray table that maximizes the comfort of the passengers during their flights. The best seats, arguably being the emergency exit row seats, further an extended leg room which may be optimal for those who desire to have additional space during their flight. The forward sections of the cabins have an extended inch for those who intend to pay extra for the comfort, however, in general, the 215 seater aircraft is an ideal aircraft for the maximization of the capacity for the airline, as well as the comfort of the passengers.







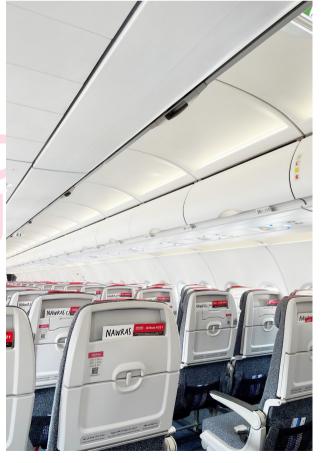


Furthermore, the aircraft features its inflight magazine, Al Nawras which contains the inflight menu, feature stories, and routes served by the airline, thus making the passengers understand the onboard product in a detailed manner. To increase the comfort of the passengers, Air Arabia offers Wi-Fi for all its passengers which is accessed through a QR code displayed on the seats, and the aircraft features a phone holder, that can be used to place the mobile equipment during the flight.

While in discussion with the crew, the pilots emphasized the ease of use of the aircraft during the flight and the commonality that the aircraft boasts with their other A320 aircraft, and do believe that the airline is in the right steps to growing not only the routes served but also the training of the crew on board. The flight attendants emphasized the additional space and the modern nature of the aircraft, which enables them to serve passengers with ease and maximize their safety.

Overall, Air Arabia has presented the region with an excellent product in the LCC sector, providing both comfort and safety to the crew and passengers it travels with, thus putting it in a better standpoint of competition with its other LCC operators including FlyDubai and Wizz Air.





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Agusta Westland 609 Tiltrotor

The versatile rotorcraft set to revolutionize air transport

Vincent M. Mupenzi v.mupenzi@theaviator.co.ug

he AgustaWestland (AW609), formerly the Bell/ Agusta BA609, is a twinengined tiltrotor VTOL aircraft with a configuration similar to that of the Bell Boeing V-22 Osprev. It is capable of landing vertically like a helicopter while having a range and speed in excess of conventional rotorcraft. The AW609 is aimed at the civil aviation market, in particular VIP customers and offshore oil and gas operators.

The AW609 is a tiltrotor aircraft capable of performing vertical landings whereas conventional fixed-wing aircraft cannot, allowing the type to serve locations such as heliports or very small airports, while possessing twice the speed and the range of any available helicopter.

AgustaWestland promotes the type as "combining the benefits of a helicopter and a fixed-wing aircraft into one aircraft". The AW609 appears to be outwardly similar to the military-orientated V-22 Osprey; however, the two aircraft share few components. Unlike the V-22, the AW609 has a pressurized cabin.

The world's first multirole tiltrotor



programme, designed to redefine a range of commercial and public services, set a major milestone with the maiden flight of the first ever AW609 production aircraft.

The aircraft introduces unprecedented capabilities under a dedicated powerlift category civil certification now under development. Designed AC5, the aircraft took to the air at Leonardo's Philadelphia based site on the 13th October 2022 performing as expected the initial in-flight evaluation systems and general handling.

The first production aircraft joins a prototype based in the US and two more located in Italy, all currently involved in the last stages of testing activities ahead of Federal Aviation Administration (FAA) certification. AC5 will be retained by Leonardo contributing

to customer demonstrations, mission capability evaluation and expansion, and supporting the manufacturer and the operators in the transition from the development to the operational phase once on the market. Currently, three customers' production aircraft are on the dedicated final assembly line at various stages of construction in Philadelphia.

Gian Piero Cutillo, MD Leonardo Helicopters, Said: "This amazing achievement adds to several milestones for the AW609 programme over the last year, through its technical progress and during its public appearances. Together, this testifies the level of maturity this groundbreaking programme has reached and Leonardo's credentials to pioneer in the emerging fast rotorcraft domain. Integrated team of skilled and committed people across geographies





has made this development possible as the team continues to work towards certification.

Earlier this year, the AW609 launch customer in the United States, Bristow Group participated in a demonstration flight in Philadelphia marking an important milestone as Leonardo and Bristow collaborate to introduce the AW609 aircraft into service. Also, in March 2022, the AW609 user base was further expanded with the addition of an undisclosed long-established European operator of Leonardo's helicopters who will aim to introduce four tiltrotors to carry out a range of passenger transport mission supporting its point-to-point operations worldwide.

The AW609 will revolutionize air transport thanks to its rotorcraft-like versatility and airplane-like performance. The AW609 excels at providing fast point-point transportation at long ranges, whether connecting city centers or providing timely access to remote locations. It can transport up to nine passengers in the comfort of a pressurized cabin, transforming private and business travel, EMS, SAR, offshore operations and patrol, serving those in both the private and government sectors.

To date, the programme has logged nearly 1.900 flight hours in the US and Italy. Users will be provided with



comprehensive support and training packages, primarily headquartered at Leonardo's new training academy in Philadelphia. Opened in 2021, it is home to the world's first AW609 full-flight simulator.

At the Farnborough Air Show in July 2012, AgustaWestland announced that it was to offer a higher-weight variant of the AW609 (up to 17,500 pounds or 7,900 kilograms); this model would trade some of its vertical takeoff performance for increased payload capacity. Officials from AgustaWestland have suggested that this short take off and vertical landing (STOVL) variant may be an attractive option for search and rescue and maritime operators.

Important to note:

- The aircraft took to the air in Philadelphia on 13th October 2022 testing general handling and systems.
- The AW609 tiltrotor will support mission capability evaluation and expansion as the programme moves closer to certification by FAA.
- Three customer's production aircraft are on the final assembly line in Philadelphia.
- The AW609 will revolutionize air transport thanks to its rotorcraft-like versatility and airplane-like performance.

AW609 first appeared in the Middle East with its official presentation in Dubai in the late 2021 which marked the global commercial launch of the revolutionary multirole aircraft as it gets closer to the world's first civil certification for a tiltrotor.

The AW609 will contribute to maintain Leonardo's leadership in the VIP multiengine rotorcraft market, which has accounted for a 45% global share in value over the last ten years, and will be part of the range of VIP solutions offered under the recently launched Agusta brand which embodies the company's distinctive design, technology and service philosophy and values in the executive transport sphere.



James Kamali Jk2000@gmail.com

lektra Trainer is manufactured by Elektra Solar GmbH, a spin-off from the German Aerospace Center (DLR), ■ Institute for Robotics and Mechatronics. Elektra Solar GmbH works in the field of manned and unmanned aerial systems offering ready to use products, services and technologies.

The main activities of the company are focused on the development and commercial use of aerial platforms with integrated automation and robotics technologies. The company offers optional piloted and unmanned aerial vehicles as well as ready-to-use aerial systems prepared for particular applications.

Elektra Solar provides services in operation of the aerial systems for scientific projects and commercial missions. Elektra Trainer, a two-seater electric ultralight aircraft from Elektra Solar GmbH (a spin-off of the DLR Institute of Robotics and Mechatronics) had its maiden flight on 29 June 2022, at Memmingen International Airport. Electric flying in Germany is becoming a reality step by step. The aircraft took off between business jets and



commercial aircraft in less than 100 m silently and emission-free. After about 20 minutes of flight, test pilot Uwe Nortmann landed, confirming the extraordinary characteristics of the aircraft, which even exceeded the expectations of the developers. Rising like a jet with over 8 m/s, flying in low cruising flight with only about 10 kW of power, without vibrations in the cockpit and perfect stability promise the aircraft a great market future. This aircraft accumulates the company's decades of experience in the development of solar-electric aircraft. Elektra Trainer is mainly based on the proven technology of Elektra One, the single-seat electric aircraft from Elektra Solar, which was certified last year in the German ultralight (UL) class.

Elektra Trainer was designed as an ideal aircraft for flight schools and flight clubs. The operating costs are less than 60 EUR/hour, which is about half the cost of a classic ultralight aircraft. This price difference will increase from year to year due to rapidly rising fuel costs.

With this aircraft, Elektra Solar GmbH takes into operation a cloud infrastructure for automatic system diagnostics and preventive maintenance (Digital Aircraft Platform). The system state data of the flight are uploaded to a cloud and automatically analyzed with the help of Al-algorithms. The errors and deviations from the normal condition are reported to the owner and/or a maintenance company. Thanks to this technology, the safety of operation will be increased, and the maintenance effort will be further reduced.

After this maiden flight, the company will begin the certification flight tests and are very confident of completing the German UL certification by the end of this year. The company has been preparing the series production and will open the European market in the next few years.

The highlights of Elektra Trainer are:

- Outstanding flight time: 2.5 hours flight duration and 300 km range (with 5kWh battery capacity reserve) Unlimited number of flight training cycles: 50 minutes flight, 35 minutes charging with 18kW power
- Dual redundant electric drive system: Each of two subsystems is composed of motor, motor controller, battery. Dual redundant power supply for avionics and autopilot. In case of failure of motor, motor controller, battery or all of them in the system the aircraft is able to climb with at least 1.5 m/s
- High comfort (1.25 m wide cockpit for 2 m tall pilots)
- Assembly time from transport trailer to ready to fly: about 30 minutes
- Portable 12 kW charging station (in the luggage



compartment)

- Variable pitch propeller
- Electric retractable landing gear
- Digital aircraft platform for automatic system diagnostics and preventive maintenance
- Very good aliding properties (alide number over 25)
- Extremely low noise level: 50 dB noise level (German LTF-UL 2020) moderate rainfall nose
- Low operational costs: 50 EUR/h, aircraft depreciation cost, electricity and battery, maintenance, insurance.
- Optionally Piloted System (OPS): Elektra Trainer Solar OPS is equipped with autopilot system. The pilot can switch to the autopilot mode and can fly a mission completely autonomously including take-off and landing.
- Digital Aircraft Platform (DAP): DAP is the basis for all control and monitoring elements of the aircraft. DAP performs real-time monitoring of all aircraft parameters, provides intelligent assistance to the pilot and activates protection algorithms automatically in critical situations. It amplifies aircraft operation and maintenance. The life of each essential part like batteries, motor, propeller and structure is monitored in real-time, analyzed and documented continuously.

Outlook

Elektra Solar will gradually expand its electric aircraft family to a 10-seater regional mobility and community-friendly (low-noise) electric aircraft. The company is very confident that in less than 10 years, a 10-seater regional electric aircraft from Elektra Solar with a range of more than 500 km will take off from Memmingen.

VOLTAERO CASSIO

The dual-source electric-hybrid propulsion concept



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he VoltAero Cassio is a family of hybrid electric aircraft being developed by startup company VoltAero. The company plans to produce three configurations of the Cassio aircraft: the four-place Cassio 330, the sixplace Cassio 480, and the ten-place Cassio 600 VoltAero was established in Royan in September 2017 by the CTO and test pilot of the 2014 Airbus E-Fan 1.0, with the support of the French Nouvelle-Aquitaine region. The company is assembling a testbed based on the Cessna 337 Skymaster, which was intended to fly in late February 2019. The clean-sheet, all-composite Cassio prototype should follow in 2020, deliveries were initially anticipated in late 2021 or early 2022

The Cassio airframe design is based on a sleek, aerodynamically-optimized fuselage, a forward fixed canard, and an aft-set wing with twin booms that support a high-set horizontal tail. By integrating VoltAero's proprietary electric-hybrid propulsion system into the company's purpose-designed airframe, the Cassio aircraft family will deliver an order of magnitude better performance as compared to the current competition, and provide

significant lower operational costs.

TESI will build the Cassio 330 certification prototype airframe at its Cicerale facility in the Campania region of southwestern Italy. The company is specialized in the production and integration of metallic structures and assemblies, as well as mechanical parts – with in-house capabilities from machining and forming to assembly, backed by resources for heat and surface treatment.

The VoltAero propulsion concept is unique: Cassio aircraft will utilize electric motors in the aft fuselage-mounted propulsion system for all-electric power during taxi, takeoff, primary flight, and landing. The hybrid feature (with an internal combustion engine) comes into play as a range extender, recharging the batteries while in flight. Additionally, this hybrid element serves as a backup in the event of a problem with the electric propulsion, ensuring true failsafe functionality.

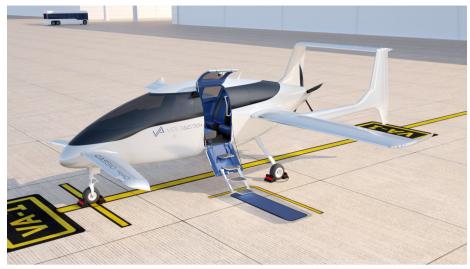
Since 2020, VoltAero's electric-hybrid propulsion system has undergone extensive airborne evaluations with the full-power 600-kilowatt version installed on the company's Cassio 1 demonstrator airplane, making it the world's first parallel electric-hybrid powertrain to fly. To date, Cassio 1 has logged some 10,000 kilometers with this electric-hybrid propulsion system in flights across France and to the United Kingdom, which has allowed the company to validate the operational cost assumptions for its future electrichybrid airplane through the large volume of data accumulated during 135 flight hours.

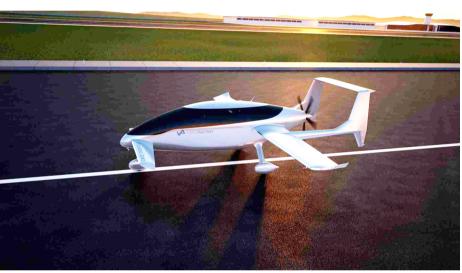
Production Cassio airplanes will be built in three versions, each sharing a high degree of modularity and commonality. The family will provide a highly capable and reliable product line for regional commercial operators, air taxi/charter companies, private owners, as well as in utilitycategory service for cargo, postal delivery and medical evacuation (Medevac) applications.

First to be certified is the Cassio 330. with five seats and powered by the 330-kilowatt electric-hybrid propulsion system. VoltAero's follow-on six-seat Cassio 480 will have an electric-hybrid propulsion power of 480 kilowatts, while the Cassio 600 is sized at a 12-seat capacity with electric-hybrid propulsion power of 600 kilowatts.

VoltAero is headquartered at the Aérodrome de Rovan-Médis in southwest France, and its Cassio aircraft are to undergo final assembly in a dedicated facility at Rochefort Airport in France's Nouvelle-Aquitaine region.

The Cassio aircraft family will be powered by two wing-mounted electric motors, each driving a







forward-facing propeller, and a proprietary hybrid power module that combines a 300-kW (402-HP) internal combustion engine with three 60-kW (80-HP) electric motors.

The engine will drive an aft-facing pusher propeller during cruise flight and charge onboard batteries. The Cassio is expected to have a range of approximately 800 miles and cruise speed of around 200 knots.

VoltAero began flight testing its Cassio 1 test bed aircraft, which is based on a Cessna 337 airframe, in March. The company is targeting the end of 2022 for the first deliveries of the 330 model.

Unveiling USA's Morthrop Grumman B21 Raider Steatth Bomber

The Long Range Strike-Bomber will be built upon what the Air Force calls an "open systems architecture," an engineering technique which designs the platform in a way that allows it to quickly integrate new technologies as they emerge.

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he United States Air Force has awarded a production contract to Northrop Grumman to engineer its new bomber. The Long Range Strike Bomber will be a nextgeneration stealth aircraft designed to introduce new stealth technology and fly alongside - and ultimately replace - the service's existing B-2 bomber.

"With the Long Range strike Bomber (LRS-B), I can take off from the continental United States and fly for a very long way. I don't have to worry about getting permission to land at another base and worry about having somebody try to target the aircraft. It will provide a long-reach capability," Lt. Gen. Bunch, Air Force Military Deputy for Acquisition, told Scout Warrior in an interview last year.

For instance, lower-frequency surveillance radar allows enemy air defenses to know that an aircraft is in the vicinity, and higher-frequency engagement radar allows integrated air defenses to taraet a fast-movina aircraft. The concept with the new bomber is to engineer a nextgeneration stealth configuration able to evade both surveillance and engagement radar technologies.

The idea is to design a bomber able to fly, operate and strike anywhere in the world without an enemy even knowing an aircraft is there. This was the intention of the original B-2 bomber, which functioned in that capacity for many years, until technological advances in air defense made it harder for it to avoid detection completely.

The new aircraft is being engineered to evade increasingly sophisticated air defenses, which now use faster processors, digital networking and sensors to track even stealthy aircraft on a wider range of frequencies at longer ranges. These frequencies include UHF, VHF and X-band, among others.

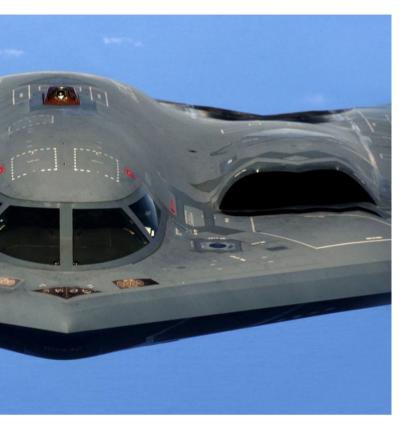
The formal rollout of the B-21 is planned for the first week of



December 2022. The timing of the rollout was announced by Air Force acquisition executive Andrew Hunter during a roundtable with reporters at the Air Force Association's Air, Space and Cyber conference.

The service has not cemented a final date for the event, which will take place at Northrop Grumman's facilities in Palmdale, Calif., where the B-21 is in production. "We are still working to nail down all the plans," Hunter said.

In a news release, Northrop Grumman stated that the event would be "invitation only" and provide an "exclusive view" of the B-21, hinting that those so lucky to see the new bomber in person may only be able to view it from a specific angle, allowing the Air Force and company to prevent any secret information about its design to be gleaned by onlookers.







"The B-21 is the most advanced military aircraft ever built and is a product of pioneering innovation and technological excellence," Doug Young, Northrop's sector vice president for aeronautics, said in the release. "The Raider showcases the dedication and skills of the thousands of people working every day to deliver this aircraft."

The B-21 contract was awarded to Northrop Grumman in 2015, which beat out a Boeing-Lockheed Martin team. So far, Northrop has disclosed that it has six B-21s in production, with the first flight scheduled for 2023. In March this year, then-Rapid Capabilities Office Director Randall Walden told Air Force Magazine that the first B-21 bomber had moved off the production line and into a calibration facility, where it will undergo testing to ensure the structure of the aircraft meets the Air Force's requirements.

"It got landing gear, it got wheels on it, it got the wings on it, it really looks like a bomber," Walden told the magazine. The Air Force requested \$5 billion for B-21 in fiscal 2023, including \$1.7 billion in procurement funding, although the service will not disclose how many bombers that will buy. Overall, the Air Force plans on buying at least 100 B-21s. Each B-21 is projected to cost approximately \$550 million in FY10 dollars.

The new aircraft will be designed to have global reach, in part by incorporating a large arsenal of long-range weapons. The LRS-B is being engineered to carry existing weapons as well as nuclear bombs and emerging and future weapons, Air Force officials explained. Earlier this year, Air Force security officials noted that there had been an upswing of strange security incidents at the Air Force's Plant 42, the Palmdale-based facility where Northrop is building B-21 and where numerous other defense contractors work on black programs.

Stealth Technology:

Stealth technology, also termed low observable technology (LO technology), is a sub-discipline of military tactics and passive and active electronic countermeasures, which covers a range of methods used to make personnel, aircraft, ships, submarines, missiles, satellites, and ground vehicles elude detection to radar, infrared, sonar and other detection methods. It is widely believed by many defense experts that the USA's B-21 new stealth bomber will revolutionize US' Air force response to future potential threats given its stealth capabilities.

Additional Sources: Kris Osborn

MEBAA 2022 REVIEW

SHOW



Vincent M. Mupenzi v.mupenzi@theaviator.co.ug

he ninth edition of the MEBAA show 2022 opened on the 6th December through 8th December 2022 at the Dubai Airshow site (DWC).

MEBAA Show is Middle East's leading business aviation exhibition and a must-attend event for companies across the entire industry. It provides the ideal platform to reach key business contacts and build relationships.

His Highness Sheikh Ahmed bin Saeed Al Maktoum, President of the Dubai Civil Aviation Authority, Chairman of Dubai Airports, Chairman and Chief Executive of Emirates Airline and Group, opened the muchanticipated MEBAA Show reaffirming MEBAA Show's position as the foremost business aviation platform in the





The discussion focused on Sustainable Aviation Fuel and approaches to reducing the carbon footprint of the industry. They also highlighted technology advances on the road to sustainability.

Meanwhile on the show floor, a huge number of exhibitors displayed the latest aircraft, technology and solutions. In light of the business aviation industry's remarkable growth over the last few years, this has opened up huge opportunities for innovation – much of which was on display at the MEBAA show. With the global private jet market projected to reach nearly \$40 billion in 2025, from an estimate of almost \$26 billion in 2021, exhibitors presented a series of new innovative aircraft, all equipped with specialist features. These included the Boeing – 737, SkyLady Boeing 767-200ER, Dassault Aviation - FALCON 8X, Bombardier Aerospace

Middle East and wider regions, gathering key players in the industry from over 95 countries.

With an increased international presence at this year's show and an up-weighted focus on in-person networking, Day one saw business leaders from across the world connect with exhibitors, all working together to redefine the future of the industry and take it to new heights. Key themes for the event included future aviation, sustainability, emerging markets and regulations, as well as a focus on digitalization, block chain, Al and crypto based payments, all recognized as key trends that are driving the industry forward.

Ali Ahmed Alnagbi, Founding and Executive Chairman of MEBAA - the Middle East & North Africa Business Aviation Association, commented: "As we continue to witness huge growth across the business aviation industry, it's been fantastic to see so many new initiatives highlighted at this year's MEBAA Show. Day one saw the formation of many new connections between visitors and exhibitors, along with the launch of a series of market-leading new technologies and sustainable solutions that will play a vital role in the future of the industry.

MEBAA 2022 also saw the launch of the first-ever BizAv Talks conference, which included a series of seven presentations and panel discussions on the daily theme - Future Private Jet Business Models. With sustainability a key focus for this year's show, Rolland Vincent, Creator / Director at JETNET iQ, Alexandre Geahchan, MENA Commercial, General & Military Aviation Account Manager at Air BP, and Trine Braathen, Senior Manager Sustainability - Carbon Markets at World Kinect Energy, joined the panel discussion 'Strategies for business aviation sustainability', which was moderated by Douglas Carr, SVP, Safety, Security, Sustainability & International Affairs at National Business Aviation Association.







- Global 7500, Gulfstream Aerospace Corporation - G700 & G650ER, Embraer - Praetor 600, Airbus ACJ TwoTwenty, and Phenom 300E plus the Learjet 60XR and many more. Speaking of Airbus' participation in the MEBAA Show, Benoit Defforge, President of Airbus Corporate Jets, commented: "The Middle East is the leading market for ACJ and we are proud to be at the MEBAA Show this year, demonstrating our latest innovation within the business aviation sector. We see significant opportunities in the region for further growth and aircraft renewals, especially considering that more than 100 of the large private jets are older than 15 years old, which represents more than 40% of the fleet. Through our ACJ Connect solutions, we provide the most advanced and sustainable private aircraft, with cutting-edge connectivity, inflight entertainment and operations. We look forward to even more collaboration with our regional and global customers for years to come."

Mohamed Hussain Ahmed, CEO of RoyalJet, also commented: "MEBAA is an industry-leading event that brings together aviation enthusiasts, professionals, business leaders, policymakers, customers, and change agents from across the globe to network and interact, and we are delighted to participate. I am looking forward to having productive discussions at the event and I am also hoping to witness some of the latest technology and digital solutions in aviation that will facilitate rapid digital transformation in the industry."

There were also a series of key announcements on the first day, Lufthansa Technik awarded a contract for VIP cabin completion of an ACJ320neo. Meanwhile, Empire Aviation Group marked its 15th anniversary at the show and



announced the induction of a Boeing Business Jet (BBJ) into its regional managed fleet of business jets and signed an agreement with the Mohammed bin Rashid Aerospace Hub (MBRAH) at Dubai South to develop a new, multipurpose business aviation facility on a plot adjacent to the VIP Terminal.

The 9th edition of the MEBAA Show welcomed close to 10,000 attendees, 118 exhibitors and 16 aircraft on static. A key highlight for this year was the launch of the BizAv Talks which featured sessions from over 45 industry leaders throughout the show conference. With attendees and exhibitors from 95 countries, the MEBAA 2022 edition was a significant moment for the global business and private aviation industry.



HOW FLIGHT DISPATCHERS ENSURE FLIGHT SAFETY

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flight dispatcher, also known as an airline dispatcher or a flight operations officer (FOO), is a licensed airman who shares flight planning, releasing, and flight following responsibilities with a pilot in command (PIC).

In coordination with the flight crew, he or she works in the airline's operations center to make sure that the flight is properly prepared, takes off, is operated, and progresses safely while abiding by airspace and operational restrictions until it reaches its destination.

Duties of flight operations officers are outlined in the International Civil Aviation Organization -ICAO Annex 6 Operation of Aircraft part 1 provision 4.6. The Civil Aviation - Personnel Licensing laws detail the eligibility, knowledge, training, skills, and license renewal criteria as well as the privileges for flight operations officers. They play a variety

of responsibilities in airlines, including the ones listed below; Flight Planning

Aircraft dispatchers choose and plan for the safest and most affordable route and flight level/altitude for the flight using advanced computerized software, such as Professional flight planner X(PFPX), simbrief.com, with their inputs.

This flight preparation takes into account aircraft limitations and status by consulting the Minimum Equipment List (MEL) and Configuration Deviation List (CDL). Analysis of the departure, destination and alternate airports' weather conditions and ensure that they are above the required minimums for approach category at a particular airport and aircraft capability.

In order to take into account jet-streams and avert flight from hazards such as aircraft icing, turbulence, and dangerous thunderstorm activities, flight dispatchers are capable of analyzing a wide variety of weather products, including Pilot Reports (PIREP), significant weather charts, SIGMETs, wind and temperature charts, constant pressure charts, satellite and radar pictures for the route selected

Identify the fuel load.

Depending on their capacity, current and predicted flying circumstances, traffic load (passengers and luggage), and distance traveled, aircraft tanks must carry a sufficient amount of gasoline. As required by the fuel policy requirements, the flight dispatcher must compute the taxi, trip (burn off), contingency, alternative, reserve, and additional fuels.

The extra fuel may be added to preserve the flight's operational integrity and avoid detours due to in-flight contingencies that could result from changes in en-route traffic services, the amount of air traffic at the destination airport, ground de-icing or anti-icing, changes in flight level, and MEL/CDL additions.

Determine the mass and balance of the aircraft

Flight dispatchers also collect weight data from gate, check-in, and aircraft operations manuals to create a load and trim sheet that details the important masses and balancing information.

They produce take-off mass, landing mass, fuel load, traffic load in any compartment, and the position of the center of gravity through methodical calculations. In order to safeguard the structural integrity of the aircraft



and guarantee adequate flying stability, they make sure that these masses stay within their respective upper bounds and that the center of gravity stays within the predetermined range.

Turn around Coordination

In this, the flight dispatcher guarantees that the plane will take off on time. All around activities, including aircraft cleaning, refueling, catering preparation, boarding, freight and luggage loading, and filling out and managing crew documents are managed, communicated, and coordinated by this individual. Additionally, he or she must recognize passengers who require special assistance and provide wheelchairs for them if and when needed.

Perform Last Minute Changes (LMC)

The flight dispatcher modifies the finished load and trim sheet whenever a passenger or piece of luggage is dropped off or added right before takeoff so that the mass and balance data accurately reflects the aircraft's real loaded condition. These adjustments, sometimes known as Last-Minute Changes (LMC), are annoying. To minimize unnecessary flight delays or being left behind, passengers are kindly asked to adhere to check-in and boarding times.

Filing flight plans

Before the aircraft takes off, flight operations officers are also responsible for completing up the navigation flight plan and the ATC flight plan.

One hour prior to the scheduled departure time, the ATC flight plan is completed and submitted to the ATC. It gives precise information about the flight to the proper ATS units, allowing them to monitor the flight and support alerting services in the event of a search and rescue operation. To help pilots with navigation and safe aircraft operation, the navigation flight plan is created in line with the operations manual.

Pre-flight briefing

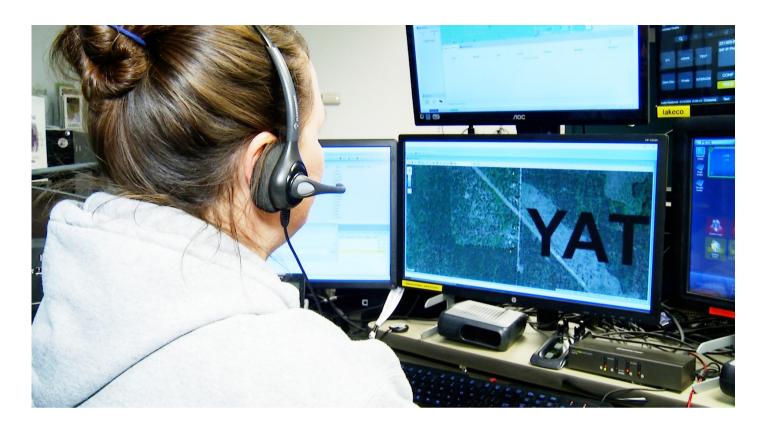
Prior to the flight, the flight dispatcher communicates with the flight crew/pilots through telephone, radio, or in-person pre-flight briefing to provide information crucial to the nature of the flight.

The briefing includes information on the flight's route and altitude, airports and en route weather, aircraft weights and loads, fuel capacity, NOTAMS (Notice to Airmen), inclement weather, and any special risks.

In the briefing, the flight dispatcher ascertains that the crew is competent, equipped, and in good enough condition to fly safely.

Printing documents for flights

It is a flight dispatcher's responsibility to compile and print paperwork for the flight crew. ATC flight plans, navigation



flight plans, passenger manifest, load and trim sheet, evidence of security screening of luggage and cargo, security and customs paperwork, NOTAMS, and weather reports are among these papers.

Flight Release

After finishing flight planning and being confident that the flight will be safe, the flight dispatcher has joint authority with the PIC/captain to release/dispatch a flight. In order to confirm that everything prepared for the flight is accurate, both parties will sign a flight release form. The first officer and other members of the flight crew should review critical information from the flight papers and notify the dispatcher of any adjustments or modifications in order to reduce or eliminate errors.

Aircraft Following

A flight dispatcher keeps track of the flight after the plane takes off. Using sophisticated software and radar screens, he or she tracks the flight in real time while constantly appearing in front of the airplane. They keep an eye out for impending weather patterns and monitor any other shifting conditions, modifying the flight plan as necessary. Through phone, radio, and the Aircraft Communication and Reporting System (ACARS), they are in continual contact with the flight crew.

The flight dispatcher has operational control authority to cancel, delay, or divert a flight in the event of extreme (poor) weather in order to maintain safety at all times.

Coordinate during an emergency

A flight dispatcher may declare an emergency if they determine that the flight is in urgency or in distress. He or she offers the flight crew all assistance required to fix the issue and resume stable flight conditions. If the plane has vanished and cannot be found, the flight dispatcher informs air traffic services right away to start search and rescue operations.

Arrange crew accommodation

The flight dispatcher makes arrangements for the crew's transportation and hotel once the flight is completed. He or she must make sure they remain in good health, comfortable and safe for subsequent flights. Also, when there are operational challenges and the flight is postponed or canceled, the flight dispatcher ought to disseminate the information and be reported to passengers, orchestrate accommodation and meals until flight is accessible.

Flight Operations Officer Training

According to laws, you must attend flight dispatch school and complete the necessary coursework if you're interested in working as a flight dispatcher. Take an oral exam with an examiner after passing a written or multiplechoice test that is substantially the same as the ATP (Air Transport Pilot) exam. The Civil Aviation Authority will grant you the license necessary for employment after you pass

RADIATION HAZARD IN FLIGHT

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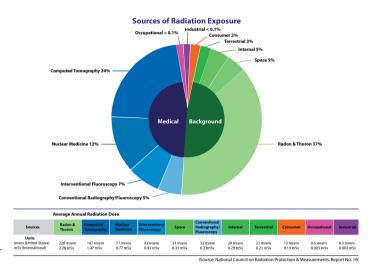
adiations are waves of energy traveling in a medium at different frequencies and energies. Radiation can be categorized as Ionizing and Non-Ionizing. Non ionizing radiation is found in the lower end of the electromagnetic spectrum including radio waves, microwaves, infrared, visible waves and lower part of ultraviolet waves and they have low frequencies and energies, therefore not harmful.

lonizing radiation, which includes x-rays, gamma rays, and ultraviolet waves, is characterized by high frequencies and energies strong enough to knock electrons out of their atoms. Once interacting with the human body, ionizing radiation can alter the molecular architecture of human cells and tissues, resulting in life-threatening disorders.

Effect of radiation on altitude and latitude

Thankfully, the majority of radiation sources on earth's surface are non-ionizing, and even those that are ionizing only emit very little radiation that is not hazardous. However, crew and passengers who fly at cruise altitudes above 30,000 feet are also exposed to solar radiation and galactic or cosmic radiation, which are additional types of ionizing radiation. At 35,000 feet above the earth's surface, the radiation level might be up to 10 times higher than it is at sea level.





The earth's magnetospheric shielding, which protects against solar radiation, is strongest in the equator and weakens with increasing Latitude before becoming feeble at the poles, hence the effects of radiation also worsen with increasing Latitude.

Due to these implications, the UN estimated in 2000 that working in an airline generated more radiation exposure than even working in a nuclear power plant.

Radioactive Risks

When flying at high altitudes, not only passengers and crew members but also aircraft systems and other equipment are at risk from radiation exposure. Among the dangers are:

Regarding human health

Children and tissues containing large numbers of dividing cells, such as the blood, eyes, embryo, and reproductive organs, are particularly vulnerable to the harmful effects of ionizing radiation.

According to the International Agency for Research on Cancer (IARC) of the World Health Organization (WHO), ionizing radiation exposure leads to cancer in people, reproductive issues including miscarriages, genetic disorders, and eye defects like cataracts.

Because a parent was exposed to ionizing radiation before the kid was conceived, genetic abnormalities can be passed on to subsequent generations through DNA changes. Additionally, a child will have a higher lifelong chance of dying from cancer if a mother (crew member or passenger) was exposed to ionizing radiation when she was pregnant.



The chance of dying from cancer is estimated to be 200 per 1000 people in the USA alone, but among airline crew members, radiation exposure from 20 years of high altitude flying raises the risk to 225.

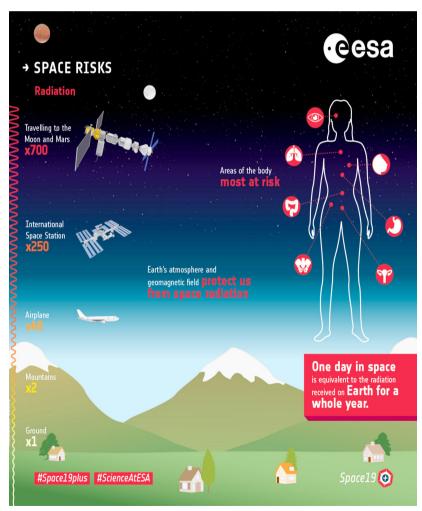
On the Avionics of aircraft

Cosmic radiation can induce soft errors in semiconductor devices which make up avionics systems of aircraft. They can reverse digital bits and create undesirable signals to operate the aircraft. For instance, the incident of Qantas Flight 72(QF72) suddenly pitching down the nose and rapidly descending twice is claimed to be caused by a glitch in the air data inertial reference system as a result of cosmic radiation.

On medical devices

Active Implanted Medical Devices (AIMD) such as pacemakers, defibrillators and insulin pumps are susceptible to the effects of galactic (cosmic) radiation and they have been reported to fail during or after high altitude flight. Their failure is associated with the alteration of digital bits in their microelectronics which control them, until the failure can be recognized and corrected by resetting the device.

Effects on High Frequency Communication High frequency (HF) radio communications



can be impaired or even completely stopped by solar radiation. The ionization of the upper atmosphere (ionosphere), which absorbs shortwave radio communications, is increased when X-rays from solar flares enter the magnetosphere undeflected and reach the earth's atmosphere on the side facing the sun.

Moreover, the magnetosphere deflects the impinging solar particles and directs them toward the poles of the planet, increasing the rate of ionization in the upper atmosphere and causing ionospheric absorption hence disruption on HF radio communications with comparable effects. For instance, HF communications with airplanes encountered different interruptions and a complete breakdown of HF services that lasted for many hours during the Halloween storms in October and November of 2003.

Mitigation Actions

Effective dose is the phrase for the entire radiation exposure to a person or electronic device, and it is measured in Sieverts (Sv). It is based on the duration and intensity of the associated radiation field in terms of dose field. As a result, the mitigation strategies comprise cutting down on both radiation exposure and radiation exposure time as follows:

Consider radiation alerts in flight planning

When planning a flight route and altitude, the airline should plan and select that reduces radiation exposure following solar radiation alert(s) during moderate, strong and severe transient solar radiation events (20uSv/hr and above). A solar radiation alert is transmitted worldwide and is accompanied by a message with estimates of radiation levels at altitudes from 20,000ft to 80,000ft at specific latitudes.

Also, an individual can find out the effective dose of ionizing radiation received in each flight using a downloadable computer program called CARI-6 or CARI-6M which were developed at the FAA's Civil Aerospace Medical Institute.

Pregnancy-related care

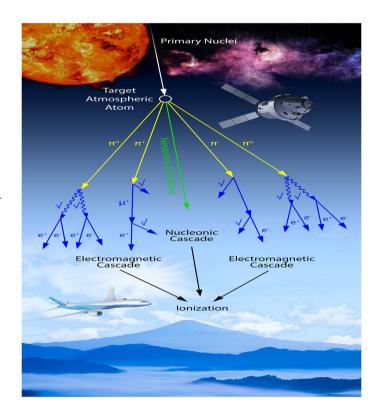
It is recommended that pregnant passengers and flight crew members think about trip-trading or delaying a journey to lower their risk of miscarriage. According to a National Institute for Occupational Safety & Health (NIOSH) study, miscarriage risk increases when exposed to cosmic radiation of at least 0.36mSv during the first trimester. The Personnel Licensing Regulation Part 138 mandates that pregnant pilots and cabin crew be

evaluated and excluded from flying duties between the time of preanancy's discovery and the end of the 12th week of gestation, as well as between the end of the 26th week of gestation and delivery, in order to protect them from the effects of radiation exposure and other effects. Radiation Exposure Level Guidelines

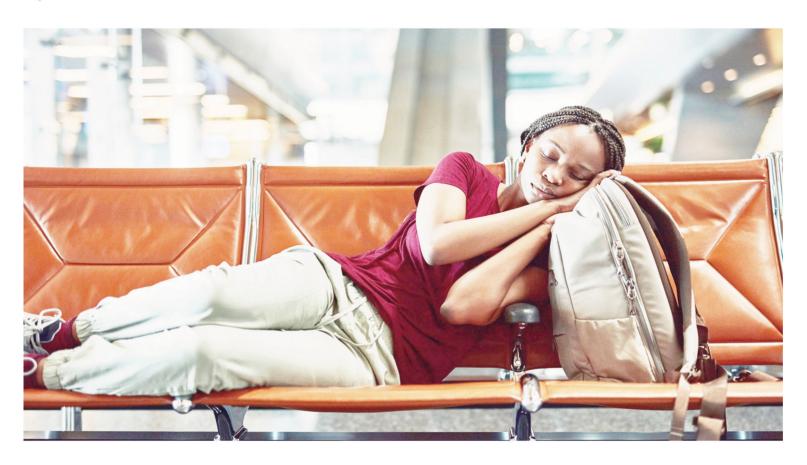
All aircraft that are designed to operate over 15,000m (49,000ft) must carry technology that can monitor and continually display the dose rate of all cosmic radiation being received as well as the cumulative dose for each flight, according to ICAO Annex 6, Provision 6.12. According to ICAO Annex 6 regulation 4.2.11.5, the operator must keep track of all flights exceeding 15,000 meters (49,000 feet) in order to calculate the cumulative cosmic radiation dose each crew member received during a 12-month period.

The International Commission on Radiological Protection (ICRP) is the primary body in protection against ionizing radiation and recommends an individual's effective dose limit of 20 mSv per year, averaged over defined 5-year periods (100 mSv in 5 years), with the additional restriction that the effective dose should not exceed 50 mSv in any single year.

Additionally, the recommended dose for pregnant crew members is 1mSv from the time of pregnancy discovery until birth, with a monthly maximum of 0.5mSv. The annual limit for the general public (passengers) is 1mSv.



SLEEPING IN AN AIRPORT



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he worst thing that can ever happen to a traveler is when they have to sleep at the airport. It happens in many instances like when your flight has been delayed, or when your seat gets bumped or you have an overnight layover. One of the questioned asked is whether it is safe to sleep at the airport. Well, the best answer to this is that, the same caution that you take while in public spaces is the same one that you should take while at the airport. So what should you do before you opt to spend the night in an airport? Make sure that you conduct proper research. Make sure that you know where the WiFi passwords are and the charging points to recharge your phone and don't be restricted to just spending time at your terminal.

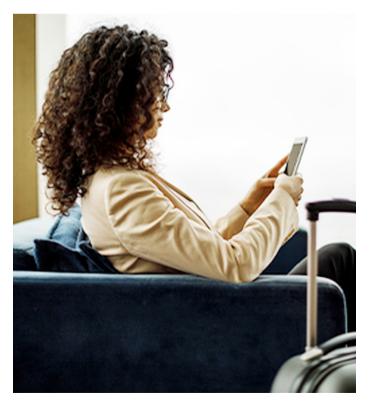
Ask an airport attendant whether there is a place to grab sleeping essentials. There are airports with places where you can pick up a blanket and pillow should you be stuck there overnight. Some even have cots available for those with children.

In most airport lounges, you're allowed to stay for 2-3 hours before departure or after landing. Some also offer extended stays for upwards of 5 hours. That said, these time limits are rarely enforced.

You might consider spending the night at an on-Site Hotels or Sleep Pods

It's not uncommon to find popular chains such as Hilton, Sheraton and Hyatt inside airports around the world. In some cases, inside means the hotel is actually inside the terminal, bypassing the inconvenience of going through customs and/or security. Additionally, airports from Chicago to Dubai to Munich offer hotels that are a short walk from the terminals, so if you have the money to spare, it's a sure bet for getting much-needed sleep without leaving the airport.

The growing trend of sleep pods (also called by some combination of nap, snooze, capsule, cab and more) are a good compromise for those who want to save money on a hotel, but don't want to camp out on a cold airport floor. Yotel, Minute Suites and GoSleep are some of the companies you'll find around the world, but the comfort level varies from actual rooms to enclosed flatbed seats. Pricing is usually reasonable and ranges from hourly to overnight rates. Some even offer showers, TVs, Wi-Fi, hot drinks and, the best part, bona fide beds.



Don't Choose an Isolated Location

This is especially true for solo travelers. Depending on the airport, yoga and prayer rooms might seem tempting for some shut-eye, but they could also increase the chances of getting robbed if they're empty for long stretches. Instead, you're better off sleeping at your gate near other people. For a greater chance of uninterrupted sleep, check the departure board before nodding off to learn if there's an early flight leaving from your gate.

Create a Restful Environment

This is easier said than done if you're sleeping in the terminal, but employ the same tactics that you would on a flight for some rest. For example, block out light with a sleep mask, and use earplugs or headphones to tune out passenger chatter and constant flight announcements. If you packed a toiletry kit in your carry-on, take a few minutes to brush your teeth and wash your face. Change into comfortable leisure clothes, unless you're already wearing them, and use a warm scarf or jacket as a blanket. (Airports are notorious for being freezing cold.) If you brought a neck pillow for the flight, put that on top of your bag with valuables for a more comfortable headrest.

Set an Alarm

Between jet lag and the wearying effects of stress, don't underestimate the possibility of oversleeping. If you use your phone as an alarm, make sure it's charged before you fall asleep.

Expect to Get Woken Up by Security

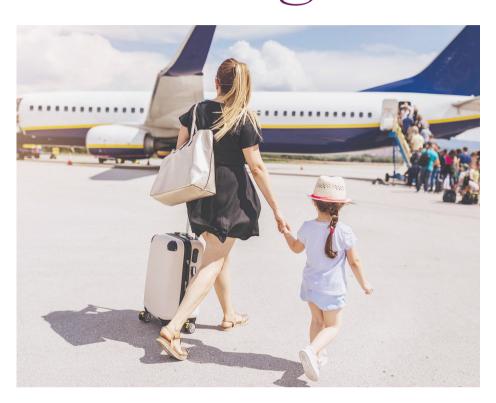
Some airports crackdown on overnight sleepers more than others, so don't be surprised if security rouses you before your alarm goes off. Be ready to show your boarding pass and explain your situation.

Head to Airport Lounges

The good news is that airline lounges aren't limited to just first-class passengers and members. The bad news is that most of them aren't open overnight. Many lounges allow you to buy a day pass, and with this you can get access to food, showers, somewhere to rest just in case you didn't sleep the previous night. If you are on a transit and incredibly jetlagged, the body may want to sleep during the day anyway and that might help you should you find yourself in that scenario.

Can you sleep on the floor of an airplane? It's not considered acceptable to sleep on the floor of the airplane. Not only is it fairly unhygienic, but you'll endanger your own safety and the safety of other passengers.

Tricks of travelling on Budget



By Bakalangudde Daniel B.Daniel@aviator.co.ug

here are cheap and easy ways for you to have an international flight on a tight budget. In fact, there are cheap means to enable anyone travel. With a little flexibility and a bit of know-how, you will be able to save money like it's nobody's business. Sadly, none of these tips will get you travelling for free, but they will definitely cut costs where it counts.

Travel with friends

When it comes to adventure, the memorable experience is when you will one day turn and look back at the photos of you and friends in Europe. Your group chats are already consumed with talk of fun and different ways to travel, so why not turn it into a reality? This is one of the best ways to save money while travelling because you can split up the costs. Groceries, accommodation, fun activities, car rentals etc. they will become cheaper because instead of paying for a single room in a hotel, you can choose to share with another friend.

Rent among locals

George Paul a regular traveler to Middle East says that you have little money on you; it may not be enough for accommodation. You don't have to go to a hotel, if you are a social

person and inquisitive. Ask among your peers, they could have a clue of some locals who open their doors to tourists looking for cheap accommodation. They can also tell you about the best fun places to visit, cheap restaurants, and beaches. You will have access to a wealth of knowledge that is not available on internet.

Look for opportunities for volunteer

Ivan a travel addict, historian who has been exploring the world since 2019, advises that volunteering helps the community to know you in case of future programs. Having the desire to help can earn you lots of good opportunities for your future. If you are planning to travel abroad, it's a good opportunity for you to look out for organizations that want such services.

There are different programs outside world; all you need to do is to search for them.

Get a part time job

Joshua who now works in Australia shares an experience of part time that secured him a work visa notes that perhaps your budget travel is not for you, you would rather live like Halle berry or Tom Cruz in movies. In a foreign country, you have to learn painfully to live within your means or else you are messed up. Instead of chilling in a top hotel with a view of the Indian Ocean, grow up, look for something to supplement on your pocket money. If you are on a visa that lets you work and you are happy to stay in one spot for a bit, talk to a local

employment agency about finding a short term role.

Search for affordable budget travel places

Joanna Louisana a mother of three with a passion for adventure for international travels, says that budgeting and saving are tricks for those who love international travels. Budget doesn't have to imply "not worth going there". In fact; several countries with lower costs of living can be great places to stop, get off the beaten path and save money. Beautiful countries like USA, Australia, Canada, and Sweden among others are safe to live and work in. There are also cheap hotels, restaurants, beaches, transportation and accommodation. So you can save money travelling there and spend less than expected in cheaper destinations in future.

Jobs are usually in plenty and if you are not interested, you may never know. Plan on one weekday and visit some offices, malls, groceries and make friends who knows, you may receive a call that a supermarket is hiring.

If you are on fellowship abroad

You probably would not expect studying abroad to be included in a list of budget travel plan. But it can be done! Depending on the university and location, studying abroad can be costly or cheaper on a semester if you have a funder. Going with one of the budget travel destination plan will guide you on how you will apportion the money and cut on costs. This can help you lower costs of even living expenses ideal for studying abroad. There are thousands of scholarships available globally too, so it can definitely be one of the cheap ways for a student to travel.

Stay with a relative

Don't stress, instead of paying for an expensive hotel to showbiz, call up a relative and ask for their help. Although some may turn you down, two may be happy to accommodate you for a short time, be happy to consult widely. One of the tricks to live with a relative is if you are earning something, you volunteer to pay up some bills. Don't be stingy and hide away whenever you have been paid a salary; ask if there is anything else you can do to help out. Instead of eating out, you are sure of having good accommodation which in reality could have cost you huge bills if you were renting an apartment or hotel.

Don't eat out for every meal

Eat out when you must. Buy your food and take it home because home meals are way cheaper than eating out. Eating out increases on your expenditure as opposed to eating at home. At home, you have a choice to disregard certain delicacies which is hard in a restaurant or hotel. As you enjoy your cooked food, you even have company which is not in the hotel where you are by yourself. Special



menus can be made from home because then you don't need to struggle with the long queues for orders.

Do everything as a local person

Brenda Mercy a mother of two from Nigeria says that some people are visiting the country for the first time but want to be like superstars. They want to go out of their way to eat from the most expensive hotels, hang out in casinos, and drink from one bar to another. Look for a local bar within the outskirts of town, you will find cheap eats and drinks. Don't sit alone; buy a drink and sit a distance from them because mingling with them may bring you trouble? Don't be shy to walk to a vendor and buy "muchomo" (roasted beef) because it's what you can afford.

Choose your destination carefully

By ensuring all the important details are included in the itinerary, there will be no time wasted travelling between places, activities or accommodations. You can manage your expectations with a more realistic view of how much can fit into your budget. How you decide where to travel next will depend on a lot of factors. Everything from the cost of living in a destination to the weather and seasons make a difference. Don't choose a place because a friend has made the choice but choose what fits in your expenditure. Otherwise you risk using up all your monies and before you realize it, you are calling up every friend for a bail out. Don't get trapped in a tourist trap and spend what you don't have.

Prow to Avoid Breaking



By Sarah Kibisi patlis2000@yahoo.com

ravelling in a flight may be your first time or second but when it comes to rules never make excuses. Don't break them and pretend that you didn't know about them. Today we bring to you some of the views from people who have travelled or have a history with the Airline industry.

John Faze an international consultant at Kansas City says never argue with an airport agent or security personnel. Don't give airport workers a hard time; try to be polite to everyone because this may work outside too.

"Don't shout "first class, coming through" as one woman behind me did once. I politely informed her that everyone in front of her was in first class except the disabled people who they were allowing to board first. She huffed and puffed but stayed put. One of my better days," says John.

Eryn Brooks materials Engineer and feminist in Canada says get your stuff together and sorted before you go through check-in. don't act ignorant about what is allowed in check in lugagae when there are signs bigger than you instructing you that your large bottle of deodorant is prohibited.

"Don't loiter in the middle of the way, in narrow corridors or just anywhere most people want to walk. Walk on the revelator. Basically just don't get in the way of people, seriously. You might be able to aimlessly meander, others might not," adds brooks.

Mark Powell a regular international traveler from Italy says if you are on a long-haul flight then it is considered the height of thoughtlessness to recline one's seat until after the meal is complete and the lights are dimmed. Trying to eat or get organized for sleep whilst cramped between two seats and staring at a cranium is not nice. People are there to get from one place to another as quickly as possible and often have limited time to get to their gate, make a transfer.

"Therefore, do not stand blocking any kind of passageway or walkway or walk slowly without making sure that there is room for faster people to go past you. People move on walkway chatting making it impossible for others to go past and get offended when you say "Excuse me. Got to get through. Got a plane to catch."

Dawna Lewis pursuing a master's dearee in Economics and Finance. University of California, Santa Cruz starts by sharing a story of a passenger, we'll call her Mary, who would have greatly benefited from these 'unspoken" rules being "spoken" prior to her attempted travels.

Mary was flying trans-con from Los Angeles to New York one afternoon this past fall, or at least she thought she was.

The day started ordinarily as she checked in one large suitcase at our ticket counter, which the customer service agent tagged and sent away on the carousel. When the agent handed her back her ID and printed boarding pass, she heard a yelp coming from Mary's faux Louis Vuitton. "Excuse me, ma'am, are you travelling with an animal?" The agent asked, pointing to her bag. The agent asked to see documentation.

Since Mary could not provide any, the agent advised her that she must pay the pet fee and use an approved pet carrier for the entirety of the flight. "This is ridiculous!" Mary turned her back and stormed off with her boarding pass in one hand and pet-carrying purse in the other. The agent immediately called her supervisor, Peter, and alerted him of the incident. "And she was wearing a purple backpack" she explained before hanging up.

About 30 minutes later, Mary nonchalantly strolled up to the gate. Peter recognized her instantly from the description he was given and strategically placed himself in between her and the boarding podium. "And now boarding group D, D as in Dog!" the gate agent with a sense of humour announced over the intercom. Mary flinched and kept her head down while



clutching at the boarding pass in hand. When she approached the podium, she looked up at Peter who asked her to step aside. "What is this about?" She said pretending and grabbing her purse a little tighter.

He cocked his head to one side and stated he had already spoken with the check-in agent that assisted her. Again, Mary claimed the dog was her emotional support animal. Again, she could not provide the required proof. Peter repeated what she already knew and emphasized Mary raised her voice and closed the distance between them. "You are letting me on this flight!" She said setting her purse down on the table. Peter remained stoic and did not move. "I can't do that." He replied shaking his head.

The dog let out another yelp. "You better let me on this plane because, Mary paused and Peter looked at her curiously. Then, without missing a beat she continued, "...because I have a bomb in my backpack!" Silence; Mary raised one brow and smirked, looking satisfied with herself. Peter cleared his throat. "Excuse me? Do you want to repeat what you just said?" he asked her rhetorically. "Yeah!

That's right. I have a bomb in my bag so you better let me on this plane with my dog or else!" She puffed up her chest while Peter looked at her non-reactively. Both refused to budge in their momentary staring contest. He picked up the telephone and dialed the police. "Yeah, hi, am at gate 67 and I have a passenger here who says she has a bomb in her baa." He paused and they maintained eye contact. "Copy that." Peter looked away to hang-up the phone and advised the gate agent to cancel Mary's reservation. When he looked back, she had disappeared. Law enforcement officials arrived a couple of minutes later only to find that Mary was long gone.

The FBI became involved in the investigation. Remember Mary checked in luggage at the counter? The first thing they did was pulling her bag off the flight and swept it for any traces of explosives (They didn't find any) next, they posted a surveillance photo of her around certain parts of the terminal with a contact number in case anyone recognized her. Two days later, Mary returned to the terminal.

Ensure not to mouth off at airport or cabin crews that have a job to do. Unless they are being specifically unprofessional you are waiting your breath and could end up ruining your travel even in future.

TRAVEL AND FASHION

A traveler's guide to a comfortable Journey

Going to an airport? What you wear can make your trip a lot happier. You should dress for comfortable, but that doesn't mean you still can't look stylish.

By Sarah Kibisi patlis2000@yahoo.com

Picking the right clothes for an airport

Patricia Megan online fashion consultant says when you are travelling, you might be changing airport climates, and it may be different air temperatures in the airplane or the airport. To be prepared for that, wear a lightweight sweater or jacket, or bring one with you, if it's too warm outside to wear it as you are travelling to the airport. Dark clothing is better because it will hide spills that could happen on the

"If you are travelling in winter, you might want to bring a puffy down jacket if you have one because it won't wrinkle if you need to place it into the overhead bin. A lightweight jacket could also work," says Patricia.

Put a bra with no metal in it

Joan Magalene a beautician in Canada states that it depends on the bra, of course but some underwire bras can set off airport metal detectors. It will cost you time. Instead go for a simple padded brassiere and sports bras for a perfect travel. If you really want to have it, stack it inside your suitcase especially if you are planning on having a long flight.

Wear comfortable bottoms

Joan adds that many women end up in the airport in sweatpants or a track suit because they are so comfortable. If that's not for you, try a nice pair of leggings instead. You can match them up with a long sweaters or long tops. Go for comfort but with a good sense of style. Wear loose clothing. Loose sweaters are extremely stylish, especially if you pair them up with jeans or leggings. Loose fitting dresses or pants are also good for flying. A loose sweater will keep you warm and make you feel happy, including if you end up sitting in the airport or the plane for long. You can blend it with an oversize scarf and it can double as a blanket on the plane. If you must keep away from T-shirts with offensive wordings, it can bring you trouble.





Layer it up

Often when you're traveling, you will be shifting between different climates or temperatures. Maybe you're going somewhere warmer or colder. Or maybe the temperature on the plane will shift. Come prepared.

If you layer clothes on your body, you won't have to pack as much. You can remove one layer and enjoy the tank top underneath once you land somewhere warmer. You should dress for the colder climate if you are flying between locales with different temperatures.

Wearing the Right Accessories:

Leave the belt off. If you wear a belt to the airport, it's going to be a big hassle. Save yourself some time, and leave it in your suitcase or at home. At security, you will probably be asked to remove your belt if you wear one. That means it will take you longer to get through the metal detector. A key point to remember when dressing for the airport is convenience is important. Consider how to make the experience easier.

Make sure to choose pants that will stay up without a belt if you forgot one, though!

Avoid lots of jewelry

If you are wearing a ton of jewelry to the airport or hard to remove pieces, like small earrings with small clasps it could be a hassle. At the metal detector, you may have to remove most of it. Body piercings could set it off and significantly delay you.

The other problem with wearing a lot of jewelry is that it could make you a mark for thieves or pick pockets. It's usually not a good idea to flash your wealth in an airport. You could keep the jewelry in a pocket within your carry on, and then put it on once you land and leave the destination airport.



Go simple on the beauty routine:

Lots of makeup and elaborate hair probably looks great when you board the plane and not so great after a multiple hour flight. Simpler is better! Your skin is likely to feel dehydrated after a flight. Pull your hair in a ponytail! You can only get bottles the size of 3 full ounces through security. Follow the rules, and it will go faster. Bring a big purse:

It can be really handy in an airport to carry a big purse. For one, you'll have somewhere to put items you buy, like reading material or gum. For another, a nice, statement purse can dress up an otherwise low-key outfit, allowing you to look chic in an airport while staying comfortable. A big purse can almost double as another carry-on bag. Some women like to bring a hair brush and makeup on the plane with them, so they can freshen up right before they land. Clothing with pockets can also be useful.

Wear comfortable shoes

You are going to regret it if you try to walk around an airport in heels. It will be even worse if you have to run because you are late. Save the heels for the suitcase. Sure, they look good, but you may have to walk for long distances, and if your plane is late for a connecting flight, they might be an inconvenience while rushing to reach your gate. Wearing your heaviest shoes, though, can reduce the weight of your luggage and free up more room for backing.

You will also want to avoid boots or sandals with excessive lacing, buckles, zippers or the like, again because they will take forever to take off and put back on at security. Avoid tight shoes because your feet will likely expand over a long flight. If you are a girl who is under 13, you can wear any shoes as long as they don't have metal. Or if you are pre-check you can wear anything as long it doesn't have metal, because you keep your shoes on.

