

#ISSUE 18

# THE Aviator

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June, 2023

AFRICA



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# 55<sup>TH</sup> AFRAA

ANNUAL GENERAL ASSEMBLY  
19TH-21ST NOV 2023



Uganda Airlines  
Fly the Crane to the Heart of Africa



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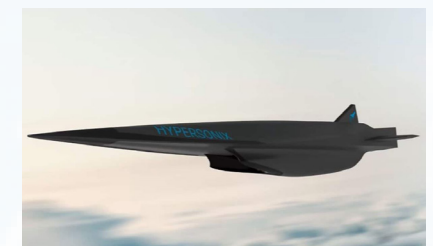
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# The 55th AFRAA Annual General Assembly & Summit Launches, Registration Open



**A**t a colorful ceremony that was graced by the Minister of Transport of the Republic of Uganda – Hon. Gen. Katumba Wamala, AFRAA and Uganda Airlines officially launched the 55th Annual General Assembly (AGA) & Summit of the Association.

The 55th African Airlines Association (AFRAA) Annual General Assembly (AGA) and Summit will be held from 19-21 November 2023 at the Speke Resort in Entebbe, Uganda – The Pearl of Africa. The AGA will be proudly hosted by Uganda Airlines under the high patronage of the Government of Uganda. The event is expected to attract about 500 high profile delegates from the aviation industry in Africa, Europe, Middle East, Asia and North America.

Speaking at the launch, AFRAA Secretary General, Mr. Abdérahmane Berthé stated: "AFRAA is excited to host the 55th AGA in Uganda. This will give Uganda Airlines a unique opportunity to show case its profile and its developing role in African aviation. Uganda Airlines being a young and vibrant player in aviation industry in the Eastern African sub-region, staging the AGA at the airline's home base and hub will be a great opportunity to achieve this objective. AFRAA looks forward to host the African air transport ecosystem stakeholders in Uganda for a memorable Assembly."

In her speech, Ms. Jenifer Bamuturaki - Chief Executive Officer and AFRAA 2023 President said: "This year, Uganda Airlines pledges to open its doors of hospitality, warmth, and service to all delegates of the 55th AFRAA-AGA. This will be no ordinary General Assembly; it will be exciting and engaging, with many learnings drawn from industry developments."

"I believe that this year's Annual General Assembly will embark on a journey to address these issues and fragility

points that the industry grapples with. I also look forward to plenaries that will discuss industry action-based topics dear to my heart, like increasing safe spaces for women to thrive in aviation, creating optimism for the youth in the industry and beyond sustainability. The event will also bring together cross-industry players in Tourism, Regulation, and Taxation that impact the industry. Uganda Airlines is honoured to host the 55th AFRAA Annual General Assembly as the official carrier." She added.

The AFRAA AGA is the biggest aviation Summit in Africa and will be attended by Chairmen and CEOs from African airlines and decision makers from ICAO, IATA, AFCAC, civil aviation authorities, airport companies, air navigation services providers as well as aircraft and engine manufacturers, component suppliers, and many other service providers. The event will discuss issues on the development of air transport in Africa in general and development opportunities for African airlines in particular. Air transport in Africa is an economic bridge – linking people, goods and capital to markets and industries and integrating the vast continent.

In addition to statutory Assembly matters to be discussed, there will be an exhibition of products, solutions and the latest technologies in aviation by reputable service providers from across the world. Further, the AGA also avails quality time and opportunity for networking and business meetings among African airlines, industry partners and service providers.

Air transport leaders and decision-makers will adopt industry resolutions that will set a roadmap for transformation and the economic development of air transport in Africa at the Assembly.

## IN THE NEWS



### Establish Strategic Partnership

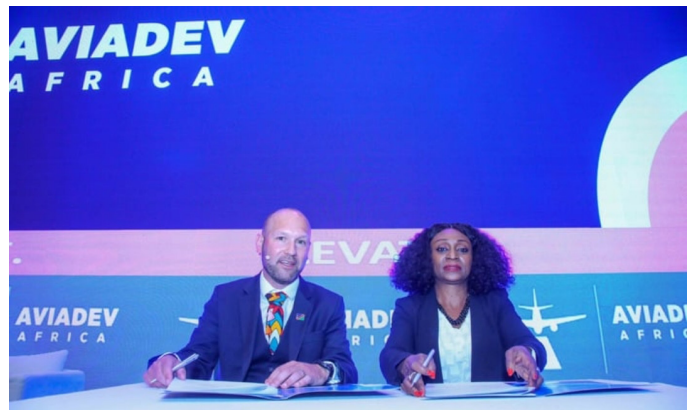
The African Civil Aviation Commission (AFCAC) and AviaDev Limited (AviaDev) have signed a Memorandum of Understanding (MoU) to promote and develop cooperation in the African aviation sector, specifically related to route development activities and advocacy for the implementation of the Yamoussoukro Decision (YD) and the Single African Air Transport Market (SAATM). The MoU signifies the commitment of both organizations to enhance their effectiveness in serving the interests of the AFCAC Member States and Stakeholders.

AFCAC is a specialist agency of the African Union on all Civil Aviation Matters in Africa and the Executing Agency of the YD/SAATM is responsible for facilitating cooperation and coordination among African States towards the development of integrated and sustainable Air transport system, and foster the implementation of ICAO SARPs by Member States. Whereas, AviaDev is a platform dedicated to improving air connectivity to, from, and within the African Continent.

AFCAC and AviaDev have a shared objective of promoting a safe, secure, affordable, efficient, and environmentally friendly operating environment in Africa

Under the terms of the MoU, the Parties will engage in various cooperative activities, including information sharing, events attendance, podcast participation and collaboration at relevant industry events. AFCAC will join the AviaDev Insight Africa podcast regularly to provide updates on the SAATM implementation.

AFCAC will also participate in AviaDev Africa's annual event to engage with aviation stakeholders from across the continent. Similarly, AviaDev will attend relevant AFCAC events to strengthen cooperation in the civil aviation sector.



### Air France-KLM Opens New Africa HQ in Nairobi

Air France-KLM has announced the official opening of its new Africa headquarters in Nairobi, as part of its strategic plan to bolster its network and enhance services in the region. The new region now consists of seven markets, including Kenya, Uganda, Tanzania, Rwanda, Djibouti, South

Africa, Nigeria, and Ghana, with the addition of South Africa, Nigeria, and Ghana as new markets.

The new office is situated in Merchant Square on Riverside Drive and will serve East and Southern Africa, as well as Nigeria and Ghana. The office will be headed by Mr. Marius van der Ham, who will serve as the Group's General Manager (GM). The new office will provide customers with a wide range of services, including ticketing, sales, and customer support.



As part of its commitment to boosting the travel experience, Nairobi is connecting the region to the world via the Group's two hubs in Paris Charles de Gaulle and Amsterdam Airport Schiphol hence affording customers greater choice and flexibility when it comes to their travel needs.





## Bar Aviation Suspends western Uganda Scheduled flights



**B**AR Aviation Uganda an air services company based in Uganda has suspended all western Uganda scheduled flights according to the statement issued on Monday 29th May 2023.

In a statement issued to their clients and all tour and travel agents, the company said it would cease western Uganda operations effective immediate. The company also suspended

three of its staff.

It important to note that despite having enjoyed successful uninterrupted and unrivalled private charter and scheduled flight services in Uganda, the company has in recent times faced various challenges including crash landings.

In the afternoon of Friday 12th May 2023, a Bar aviation aircraft registration number 5X-RBR crash landed at Kajjansi airfield in Wakiso district shortly after take-off as it experienced difficulties and attempted to return for landing.

The co-pilot and pilot of the aircraft sustained injuries. Investigations that led to the incident are still on going.

Bar Aviation Uganda offers airline charter, pilot training, medical evacuations, aircraft maintenance and scheduled domestic airline flight services. Bar aviation is the leading private aircraft charter services company in Uganda.

## Egypt Announces Launch of Egypt Airshow 2024

**T**he highly anticipated Egypt Airshow is set to take place in May 2024

Egypt has announced the launch of Egypt Airshow 2024; the gateway to Aerospace in Africa and Middle East.

The highly anticipated Airshow was officially announced during a press conference on 8th June 2023. The event is officially supported by the Ministry of Defence, the Egyptian Air Force, and the Ministry of Civil Aviation.



The event is set to take place at El Alamein New International Airport, in one of Egypt's most prominent new tourist cities, and will showcase cutting-edge advancements in defence, space and commercial aviation.

It was announced at the press conference that the four-day event will include a

range of features including a world class exhibition with space for VIP hospitality chalets and hospitality, a high-level conference, a fully-hosted VIP delegation programme in addition to a static park and flying displays featuring the latest aircraft.

The event expects participation from more than 250 exhibitors, alongside a display of 50 aircraft on the static park. Over 100 distinguished VIPs are set to attend, engaging in a tailored delegation program that includes personalised meetings with exhibitors. Esteemed delegations are anticipated to attend from Air Forces, Civil Aviation Authorities, and Space Agencies, further enhancing the international significance of the event.

The Airshow will be organised by Arabian World Events with the full support of the Ministry of Defence, the Egyptian Air Force, and the Ministry of Civil Aviation.

# Emirates goes digital, phases out paper boarding passes

In-line with Emirates' drive to offer customers the convenience and assurance of digitally enabled travel journeys, Emirates will transit from paper based boarding passes to digital versions of mobile passes effective may 15th 2023.

Passengers checking in at Terminal 3 will receive their mobile boarding pass via email or SMS. Passengers who check in online

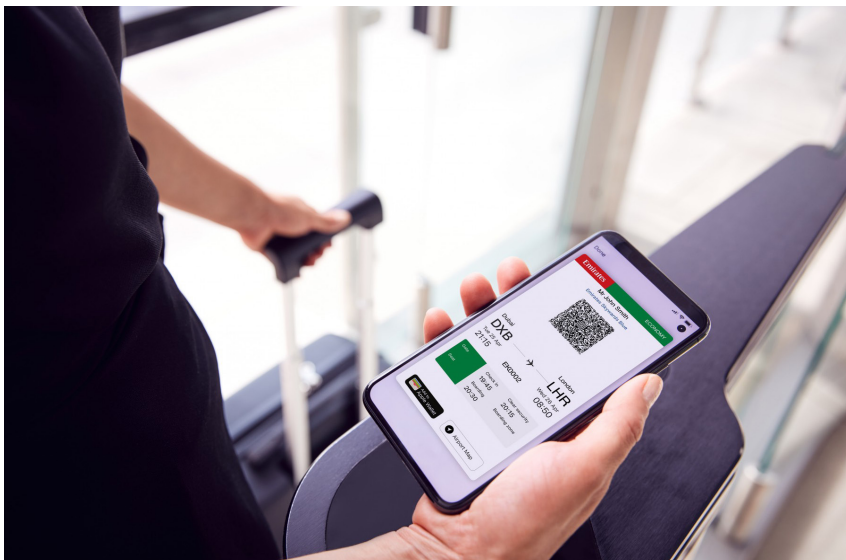
can load their boarding pass into their Apple Wallet or Google Wallet, or retrieve their boarding pass on the user-friendly Emirates App. The checked-in baggage receipt is also emailed directly to passengers, or available in the Emirates App.

This initiative will significantly reduce paper waste while simultaneously offering a convenient and speedy digitized

check in experience for passengers departing Dubai. It reduces the risk of lost or misplaced boarding passes, giving passengers peace of mind when travelling.

The mobile boarding pass can be used throughout the travel journey – in Dubai Duty Free, at security and for boarding, simply by showing the boarding pass on the phone. Emirates agents and airport staff will simply scan the QR code on the mobile boarding pass as passengers move through the airport and onto the aircraft.

Some passengers may still require a physical boarding pass to be printed – for instance when travelling with infants, unaccompanied minors, passengers requiring special assistance, passengers with onwards flights on other airlines, and all passengers travelling on flights to the US.



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**TAAG**

## Taag Angola Airlines Formalizes Order For Nine Airbus A220 During Paris Air Show



**T**AAG Angola Airlines formalized three leasing contracts during the Paris-Le Bourget International Air Show, ordering 9 brand-new Airbus A220-300 overall via lessors, namely ACG, Azorra, and NAC.

As part of the company growth plan and «multi-brand» fleet strategy, TAAG Angola Airlines has just signed multiple commercial agreements during the Paris Air Show 2023, regarding the incorporation of Airbus A220-300 model aircraft into TAAG's operation.

The Company formalized the order for nine aircraft in three days event at Paris Air Show (June 19, 20, and 21 respectively). All the agreements complied with a long-term dry lease contract. From a local content empowerment perspective, the aircraft will have an Angolan crew and an in-country maintenance program, while proper training will be provided to the staff. Currently, and via international partners (lessors), TAAG has a total of 15 aircraft in the order book with Airbus, with first deliveries (in stages) expected from April 2024 ahead.

The A220 family's advanced aerodynamics, combined with specifically designed turbofan engines, contribute to an aircraft that delivers 25% lower fuel burn per seat, with half the noise footprint and decreased emissions, making it a true community-minded jetliner. TAAG expects savings of around 20% reduction in operational cost globally.

The TAAG's A220-300 will have a capacity for 142 passengers (130 in economy class and 12 in business class). The aircraft is a smart, tech-advanced equipment suitable for nowadays gadgets and passengers will experience the innovative cabin and superior comfort.

## RwandAir CEO Yvonne Manzi Makolo assumes her duties as IATA Board of Governors Chair



**T**he assumption of her duties followed the conclusion of the 79th IATA Annual General Meeting (AGM) in Istanbul, Türkiye on Monday 5th June 2023.

Makolo is the 81st chair of the IATA BoG and the first woman to take on this role. She has served on the BoG since November 2020. She succeeds Pegasus Airlines Chairperson of the Board Mehmet Tevfik Nane who will continue to serve on the BoG.

"I am honoured and pleased to take on this important role. IATA plays a critical role for all airlines, big and small, various business models, and in all corners of the world. Leading a medium-sized airline in Africa gives me a unique perspective on issues that airlines hold in common.

At the top of the agenda are decarbonisation, improving safety, the transformation to modern airline retailing, and ensuring we have cost-efficient infrastructure. I am particularly pleased to be taking on this role as IATA launches Focus Africa with the aim of unifying the continent's stakeholders so that together we can strengthen the contribution of aviation to Africa's social and economic development," said Makolo.



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# Uganda Gears up to SAATM Implementation

By Vincent M. Mupenzi  
[v.mupenzi@theaviator.co.ug](mailto:v.mupenzi@theaviator.co.ug)



Uganda is set to sign the Single African Air Transport Market (SAATM) treaty by close of 2023. The Single African Air Transport Market (SAATM) is a project of the African Union aimed at creating a single market for air transport in Africa. Once completely in force, the single market is supposed to allow significant freedom of air transport in Africa, advancing the AU's Agenda 2063.

Speaking on the sidelines of the launch event for the 55th AFRAA AGM, which Uganda will host from 19-21 November 2023 in Kampala, Uganda's Minister for Works and Transport, General Katumba Wamala noted that as a country, we cannot be an island, and so we are going to sign the treaty. We have completed the review of the treaty vis-à-vis our aviation law and found that we aligned up to 90 percent. But it is a world of give and take, so we shall have signed by the end of the year.

He added that there have also been detailed discussions with the African Civil Aviation Commission (AFCAC) and "the consensus within government is that we are ready to sign for SAATM." Gen. Katumba's revelations come on the heels of an April 26 stakeholders meeting during which industry opinion on joining SAATM was sought. They are also in consonance with the theme of the AFRAA AGM





### Need to Reduce Bureaucracy

Uganda Airlines Chief Executive Officer and AFRAA Summit President for 2023 Ms. Jenifer Bamuturaki noted that she has made cutting the red tape that impedes the growth of intra-African connectivity a priority during her term because Uganda Airlines was a victim, with its expansion stymied by protectionism.

Bamuturaki says partnerships and collaboration were crucial for the survival of African startups and it was necessary for countries to fully open up and operationalize SAATM.

More than 500 delegates representing airlines, airports, regulators, air navigation service providers, manufacturers, and industry suppliers are expected to converge on Kampala for the AGM.

The decision to join SAATM came at the end of a multi-stakeholder meeting called by sector regulator Uganda Civil Aviation Authority (UCAA) on April 26, 2023 to build internal consensus around the country's participation in the continental initiative. The proposed committee will be made up of representatives from the core government agencies such as the Ministry of Finance, the Ministry of Works and Transport, the Uganda Tourism Board, and select players from the private sector.

### About SAATM

The Single African Air Transport Market (SAATM) is a flagship project of the African Union Agenda 2063, an initiative of the African Union to create a single unified air transport market in Africa to advance the liberalization of civil aviation in Africa and act as an impetus to the continent's economic integration agenda. SAATM will ensure aviation plays a major role in connecting Africa, promoting its social, economic and political integration and boosting intra-Africa trade and tourism as a result. The SAATM was created to expedite the full implementation of the Yamoussoukro Decision, a decision relating to the implementation of the Yamoussoukro declaration of 13-14 November 1999 concerning the liberalization of access to air transport markets in Africa



whose key themes will be sustainability, interconnectivity, and affordability of air transport in Africa.

### Connectivity in Africa still a major challenge

African Airlines Association Secretary General Abderahmane Berthe Speaking at the launch of 55th AFRAA AGM set to be held in Kampala in November 2023 noted that intra-African connectivity was still a challenge, and 22 percent (2019 data) of air passengers still have to fly out of the continent before they can connect with another African country. Affordability is still a challenge with only 10 percent of Africans able to purchase an air ticket. Berthe attributed this to a high-cost environment, driven by excessive taxation on the industry. Even with 35 member states representing 80 percent of traffic signing up, SAATM was struggling to take off because of a slow pace in aligning bilateral air service agreements with SAATM protocols and lingering reservations about the near-term impacts of SAATM on flag carriers.

He reiterated that airlines are not fully comfortable with the implementation of SAATM and some countries are not fully implementing the Yamoussoukro Decision. They are not granting fourth and fifth freedom rights, so we still need to talk and show them the benefits of liberalization. Berthe not that as AFRAA, they are pushing airlines to talk and cooperate and working to get governments to see the benefits of opening up skies.





# 11th Aviation Stakeholders Convention Review



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**Mr. Abderahmane Berthe**  
AFRAA Secretary General

By **Vincent M. Mupenzi**  
[v.mupenzi@theaviator.co.ug](mailto:v.mupenzi@theaviator.co.ug)

The 11th African Airlines Association (AFRAA) Aviation Stakeholders Convention was held from 07 - 09 May 2023 at the Ethiopian Skylight Hotel in Addis Ababa, Ethiopia under the theme "Changing the African Aviation Narrative" under the patronage of the Government of the Federal Republic of Ethiopia and was graced by two Ethiopian Ministers - Her Excellency Nasise Chali,

Ethiopia Minister of Tourism and His Excellency Dr. Alemu Sime, Ethiopia Minister of Transport and Logistics- who was the Guest of Honor.

Speaking at the Convention on the importance to change the future of our industry with transformative ideas and actions, Mr. Abdérahmane Berthé emphasized that African Airlines face many challenges that the industry needs to contemplate and find lasting solutions with serious consideration.

"Critical among the challenges facing our industry is sustainability.

Only 10% of African citizens can afford air transport, meaning there is a huge room for growth. Reducing the cost of operation, cooperation among airlines, partnerships, and consolidation are part of AFRAA's initiatives and advocacy to make air transport affordable for Africans."

He said. The main objective of the Convention was to convene stakeholders to dialogue and deliberate on subject matters to pave the way for the air transport industry's development and change the narrative of African

Aviation.

This Convention also aimed at establishing lasting interactions and partnerships among aviation players and airlines in the aviation value chain for win-win relationships that will benefit African aviation.

While the air transport recovery trajectory continues post-COVID-19 and with the headwinds arising from other geopolitical-related developments, it is critical for the air transport ecosystem stakeholders put their weight behind concerted actions for air transport business to thrive and contribute to the continent's sustainable rapid development. It is timely to redefine the narrative of Africa's air transport

**Event Highlights**

There was a total of 31 African airlines that attended the conference, out of which 14 were represented at the CEO level. Overall, the event was attended by 455 participants from 42 countries. Aviation ecosystem stakeholders at the Convention deliberated on the following key subjects that were lined up in the programme:

- The Pillars for African Aviation Sustainability
- Roadmap to Fast-Track the Implementation of SAATM
- Enhancing Cargo Operations, E-Commerce Networks, and Logistics
- Keeping Track of Abuja Safety Targets for Africa
- How to Remarket Aviation
- Training the Next-Gen Aviation professionals for the Sustainability of Africa's Air Transport Industry
- Accelerating Intra-Africa Tourism for Sustainable Growth
- Digitalization: Enhancing the



Digital Customer Journey

**Master classes**

There were master classes where cutting-edge ideas, industry best practices, new opportunities, and practical solutions were presented and discussed. The master classes that took place included the following;

- Class 1: The journey towards more efficient and sustainable flights by: SITA
- Class 2: The Digital Twin by Star Navigation
- Class 3: Showcase of AFRAA Data intelligence tool and AviAnalysis solution.

**Meeting of the Air Transport**

Sustainability Steering Committee The Steering Committee of the Laboratory on Air Transport Sustainability in Africa held a meeting at the Convention to take stock of achievements made

since 2022 and deliverables for 2023 and beyond. The laboratory brings together air transport, trade, and tourism stakeholders under a roadmap structured into five projects for the sustainability of the industry, namely:

- Project 1: Taxes (Fuel and customs)
  - Project 2: High Taxes and Charges
  - Project 3: Navigation – Free Routing Airspace (FRA)
  - Project 4: Implementation of the Single Air Transport Market (SAATM)
  - Project 5: Partnerships - Airlines and Tourism Bodies to improve intra-African Tourism
- In the discussions, stakeholders took note of the following achievements made under the roadmap of the laboratory outcomes, among others:

On the development of a new model of sharing critical infrastructure to reduce investment costs, a data gathering process has





been launched in the field of technology used by Air Navigation Service providers (ANSPs), procurement, and investment practices. This will be used for comparison and best practices to guide all the ANSPs.

Regarding the FRA progress, two member airlines volunteered participation in a total of 5 city pairs in the FRA trials. FRA implementation on these routes is estimated to avoid burning 3,200 metric tons of fuel, emitting 10,100 metric tons of CO<sub>2</sub>, and yield savings of US\$ 2,784,000 annually. The FRA trials are planned to start in 2023.

On SAATM, a total of 20 States have committed to the Pilot Implementation Programme (PIP) as of April 2023. For each of the States lined up for the PIP roadshows, States are being engaged to sign MoUs to carry out the gap analysis of the BASAs.

#### **CSR event for youth development in aviation**

Upon conclusion of the Convention, AFRAA, in collaboration with Ethiopian Airlines and Collins Aerospace, staged a 1-day youth event on 10 May 2023 as part of CSR activities aimed at empowering and motivating the next generation of aviators at the Ethiopian Aviation University. The event was sponsored

by Ethiopian Airlines and Collins Aerospace. A total of 130 high school students from 10 schools in Ethiopia benefited from the initiative, which is aimed at supporting youth development in aviation.

#### **Exhibition**

A total of 21 aviation-related companies showcased their products and solutions through an exhibition at the Convention. The current exhibitors include: ACI Africa, Aeroplay Entertainment Pte Ltd, African Airlines Association, African Civil Aviation Commission, ATNS, Aviators Africa, Boeing, Collins Aerospace, East African Aviation, EgyptAir Holding Company, Embraer, Ethiopia Ministry of Tourism, Ethiopian Airlines Group, Fokker Services Group, Lufthansa Systems, Rolls Royce, Silks of Sheba, SITA, South African Airways Technical, Star Navigation Systems Group, and Turkish Airlines Aviation Academy.

#### **Sponsors**

The 11th African Airlines Association (AFRAA) Aviation Stakeholders Convention was proudly sponsored by Ethiopian Airlines, ASECNA, ATNS, Boeing, Collins Aerospace, Rolls Royce, and South Africa Tourism.

**Source: AFRAA**

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## 3<sup>rd</sup> IMDEC

**Consolidating the gains  
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# HUB & SPOKE MODEL:

## *Viabile for Africa's Goal of Connectivity?*



By Evans Kimani

The hub & spoke model has been the 21st century goal for many airlines around the world. From its definition hub which is a central location where operations are carried out while spoke is the smaller locations that feed to the main location. The concept, which became highly lucrative after the deregulation of aviation in the United States in 1978, meant that airlines were no longer tasked with flying passengers from one small point to another but rather

a main hub would be allocated to enable them be connected to other places. While this model of aviation has proved to work since then, it has been rendered to be an expensive operation to carry out for both airlines and airports.

In Africa, the concept has been in utilization for decades, as airlines and governments with the resources were able to create their own hubs in various parts of the region which resulted to the opening of smaller regions that were previously not easily reached. As the model became more profound in the continent, this

resulted to some airlines either owned by the government or private to protest on the success of some of the hubs, mainly due to the competition that resulted to the ineffectiveness of their airlines.

Among the key hubs for Africa are Addis Ababa which is currently the largest in the continent currently being dominated by Ethiopian Airlines, and other cities such as Nairobi, Johannesburg, Cairo, Lomé and Casablanca. As many governments and organizations have continuously tried to slow down the hub dominators into their regions, the



model has proved to be relatively successful. This is as crucial cities in various regions have been opened within the continent. For example, Ethiopian airlines currently serves more than 28 destinations in Africa, which means that a passenger travelling from the southern part of Africa is to travel to the Western Part of Africa through Addis Ababa, without necessarily connecting to a further European city as was witnessed as early as the start of the century. This is seen as a crucial benefit as the passenger is able to save additional funds needed for travel, time as well as contribute positively to the current issue of carbon emissions.

In addition to, the hub and spoke model has increased the efficiency of travelers as the airlines operating in the hubs are able to provide a consistent schedule that will enable the passenger be able to adequately plan themselves, and has enabled airlines to be able to plan their operations in a seamless manner, such that they are able to have their aircrafts planned for in the long term and accommodate other operational issues such as scheduled maintenance.

Point to Point Model: Practicability in the Africa

Africa is the largest continent in terms of total area. This means that a passenger travelling from Nairobi to Dakar would take nearly 9 hours due to its sheer size. While as this could be beneficial to a traveler from the Southern or Northern part of Africa, the distance used in travelling poses a challenge to a person travelling within West Africa. This is where the point-to-point model serves as a critical formula for handling such challenges.

The model, often used by low cost carriers, enables more non-stop flight options for travelers who intend to take a lesser time to travel to a particular region, while most of the airlines using this model have a single type of aircraft, the airline operations are often simplified as the aircrafts used are able to serve multiple destinations in a given day and a series of routings, as it has been seen with airlines such as Asky who operate a series of stopover flights between Lomé and Johannesburg.

Conclusion & Perceived Benefits.

The hub & spoke model is critical for the achievement of AFRAA's Single African Air Transport Market (SAATM) as more routes and inter-African travel is increased, thus boosting the economies of the states in the agreement. Furthermore,

the Presence of Airlines in hubs, this provides a mechanism for smaller airlines serving point to point be able to collaborate and ensure that their underserved markets are accounted for. However, as the model is costly to airports due to varying peak times and requires a higher cost to run for both passengers and operators, the model forms as a foundation to enable increased connectivity in the continent.

The model can be improved by the harmonization of costs incurred to airlines, as various expenses such as fuel and taxes in the different regions form as a crucial bottleneck to the operations of the airlines. Furthermore, the airlines using the point-to-point model can form as an essential fact in partnering with other airlines to enable seamless connectivity. This is as this model too is relatively costly due to the higher risks in the event of a ripple effect.

Therefore, the Hub & Spoke model is viable and can be made stronger through partnerships and coordination of airlines (regardless of the model they use) and to actively encourage their governments to support the goals of SAATM.



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# A BRIEF OVERVIEW OF THE AIRLINE MARKET IN AFRICA

By James Kamali  
[Jk2000@gmail.com](mailto:Jk2000@gmail.com)

**A**frica is the continent with the lowest number of air passengers per year. It represents only around 2% of global traffic, including passengers and cargo.

In 2010, Africa's population reached one billion and will totalize over 2 billion in 2050. Despite representing 15% of the world's population, the 230 airlines operating in Africa only operate around 5% of the world's commercial passenger and cargo aircraft; the average age of the African airline fleet is the highest of all regions in the world (17 years compared to the world average which is around 12 years).

Considering that the distances between countries and cities in Africa are important and the limited road and rail networks which are often in bad condition, air transport

appears to be the best option for freight, business, and tourism.

Air travel is primarily driven by international tourism in Africa. South Africa is the leader in terms of air passengers transported, with more than 25 million passengers carried per year, and is followed in the top 10 ranking by Egypt, Morocco, Algeria, Tunisia, Nigeria, Kenya, Ethiopia, Tanzania, and Mauritius.

The main factor driving air travel to/ from Africa is tourism and Morocco, Egypt, South Africa, and Tunisia are among the most popular tourist destination on the continent, so it is not surprising to see these countries in the top ranking of countries having the highest number of passengers.

The continent has slowly started to liberalize its intra-African air markets. Only 13 African countries have direct flights to more than 20 other African states. Kenya and Ethiopia lead the way, with direct flights to more than 30 other African countries, although this is perhaps not surprising given that Ethiopian

Airlines and Kenya Airways are among the three largest operators in sub-Saharan Africa.

With 19 billion dollars in cumulative losses between 2020 and 2021, the main African airlines have suffered significantly from the global health crisis. In 2022, three years after the beginning of the pandemic, despite the resumption of international travel, African air transport is struggling to regain its former results and volumes, however some companies like Ethiopian Airlines have the ambition to reach the top 10 world airline ranking.

The most efficient and reliable African airlines like Ethiopian Airlines, Royal Air Maroc, Air Senegal are facing fierce competition from non-African airlines like Emirates Airlines (EK), Turkish Airlines (TK) and Qatar Airways (QR) that are expanding their network in Africa. This situation has greatly impacted the air cargo divisions of African airlines.

Only a few African airlines participate in alliances with non-African carriers because few of them can attract capital investment, and therefore are unable to develop networks that are attractive to airline alliances.

However, a number of African flag carriers have been able to join global airline alliance networks: South African Airways became a member of Star Alliance in 2006, Kenya Airways became an associate member of SkyTeam in 2007, and a full SkyTeam member in 2010. EgyptAir became a member of Star Alliance in 2008, and so did Ethiopian Airlines in 2011. Royal Air Maroc joined One World in 2020.

Source: [Africa-container-shipping.com](http://Africa-container-shipping.com)





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# Who is who in African Aviation Industry?

## Profiling Key Giants of the African Aviation Industry

By Vincent M. Mupenzi  
[v.mupenzi@theaviator.co.ug](mailto:v.mupenzi@theaviator.co.ug)

**T**he African Aviation sector is steadily growing and continues to develop thanks to the great brains of aviators who have continued to steer African Aviation industry forward.

In spite of African Aviation Industry still being heavily under-developed as compared to the rest of the world and Africa continuing to heavily rely on International travel and remaining vulnerable to external shocks, the future of aviation industry in Africa is promising

as more African skies are opening up also through continued implementation of the Single African Air Transport Market (SAATM).

*In this edition, The Aviator Africa highlights in no particular order profiles of principle aviators on the African continent who have tremendously shaped the African Aviation Infrastructure and have helped steer African Aviation Industry to greater heights.*



### Mr. Abderahmane Berthé

#### Secretary General, African Airlines Association (AFRAA)

Mr. Berthe is the current Secretary General of African Airlines Association abbreviated as AFRAA, the leading trade association of Airlines in Africa which hail from the nations of the African Union.

Prior to joining AFRAA on the 1st of January 2018, Mr. Berthe was the CEO of Air Mali and Air Burkina. He has 28 years' experience in airline industry and a total of 16 years as an airline CEO. Mr. Berthe built his career in various Airlines and multicultural environments both in Europe and Africa at positions such as aircraft performance and dispatch engineering, maintenance and operations quality, ground operations and Chief Executive Officer.

Abdérhmane is graduated from: - French Civil Aviation school in Toulouse (1987 Master of Science degree). French Aeronautical and Space school in Toulouse (1988 Master of Science degree) - Business Institute in Toulouse (1989 Master degree) He also obtained a Private Pilot License in 1985 for Single Engine Aircraft.





## Ms Adefunke Adeyemi

### Secretary General, African Civil Aviation Commission (AFCAC)

from the Nanyang Business School, NTU, Singapore, during which she simultaneously completed a collaborative Advanced Management Program in Aviation, Leadership and Innovation between the Nanyang Business School, Berkeley Haas School of Business, University of California and the Wharton Business School, University of Pennsylvania.

She has held several positions of responsibility through her education and career, and has positively led or contributed to many key industry or social initiatives, including initiating an industry advisory group to accelerate the growth of aviation in Africa, being a focal point for the Oxford and Cambridge Alumni Association for over 10 years, co-founding the Law Ladies Society in University of Lagos, and co-founding a charity that provided health care and supplies for the disabled elderly, indigent children and fertility treatment to women in need, to highlight a few.

Adefunke is a member of the Most Influential People of African Descent (MIPAD), the African Leadership Network, an Associate of the worldwide Institute of Directors, member of the Nigerian Economic Summit Group and avid supporter of the African Philanthropy Foundation. She has recently been recognized as one of the 200 globally Most Influential People of African Descent (MIPAD) in affiliation with the United Nations Decade for People of African Descent.

Adefunke is a catalyst of change, a transformative thought leader and influencer, an accomplished public speaker positively impacting lives and the business environment through her passion, work and initiatives.

Ms Adefunke Adeyemi is the current Secretary General of African Civil Aviation Commission (AFCAC) an agency of the African Union headquartered in Dakar, Senegal. Ms Adefunke is a lawyer, advocate and global aviation expert.

Prior to joining AFCAC, Ms. Adeyemi was a Regional Director, Advocacy & Strategic Relations for Africa at the International Air Transportation Association (IATA) where she headed the Diversity & Inclusion initiative of IATA in Africa and Middle East, also leading its Women in Leadership program in the region.

She attended the University of Lagos for her undergraduate law degree followed by a Master of Laws (LL.M.) degree from University of Cambridge, U.K. She also holds a Masters in Business Administration (MBA)

## Mr. Ali Tounsi

### Secretary General, Airport Council International for the Africa Region (ACI-Africa)

Mr Ali TOUNSI is an Engineer holder of a Master in avionic and telecommunication and a Master in airports management. He has over 25 years' experience in airport operations, airport resources management, infrastructure development and IT projects, facilitation, passenger experience and

quality of service. He also teaches at many aviation schools and supervises several research projects. Since 2009, Mr. Ali TOUNSI has been appointed Secretary General of the Airport Council International for the Africa Region (ACI Africa), which includes 64 members in 51 countries managing 250 airports.





## Mr. Kamil Al Awadi

### IATA's Regional Vice President, Africa and Middle East (AME)

Kamil represents IATA in 68 countries, serving 57 airlines across AME. He leads the execution of IATA's priorities for the region and advocates on behalf of the airline industry to continuously improve safety levels, to enhance connectivity particularly across Africa, to reduce costs for airlines and to ensure the sustainability of air transport.

Prior to joining IATA in 2021, Kamil was the CEO of Kuwait Airways and held various key positions at the airline in the areas of safety, security, quality management and enterprise resource planning over his 31-year career in the aviation industry.

Kamil holds an MBA in Aerospace Management from the Toulouse Business School and an Engineering degree in Aircraft Maintenance Management from Air Service Training (AST) in the UK.

## Yvonne Manzi Makolo

### RwandAir CEO and 81st Chair of the IATA Board of Governors

Yvonne Manzi Makolo is the current Chief Executive Officer of RwandAir Ltd and the first woman to chair International Aviation International Air Transport Association (IATA).

IATA Board of Governors, a role she assumed on the 5th of June 2023 at the 79th IATA Annual General Meeting (AGM). Prior to heading Rwanda's National Airline on the 6th of April 2018, she served as the Deputy CEO responsible for corporate affairs at the same airline, from April 2017 until April 2018. An IT specialist, Makolo joined MTN Rwanda, a leading telecommunications service provider in the country in 2006 and rose through the ranks to the position of chief marketing officer (CMO) and also concurrently served as the chief executive officer (CEO), in an acting capacity.

Makolo has specialized training in information technology and has worked as a software developer, both in Canada and Rwanda. Yvonne Makolo holds a BA Hons degree from McGill University in Canada and a Post Graduate Diploma in Applied Information Technology. In June 2022, Makolo was recognized by the International Hospitality Institute on the Global 100 in Hospitality, a list featuring the 100 Most Powerful People in Global Hospitality.







## Alcinda Pereira

### Chairperson, African Business Aviation Association (AfBAA)

Angolan Alcinda Pereira, is the current chair of African Business Aviation Association (AfBAA) and the first female to take on that role in the association's history. Ms. Pereira was elevated to the AfBAA top job following a meeting during EBACE in Geneva, Switzerland in June 2023.

Pereira is also the co-founder of Bestfly, Angola's most successful Aviation Company. Ms. Pereira holds extensive experience in the aviation industry a business aviation operator and ground handling service, together with her international experience from NetJets Europe and EXXON where she worked as chief of department.

With more and more African Aviators coming on board, and the continued opening of the African skies, the future of the African aviation industry is promising and continues to bring hope towards the realization of the African aviation dream.





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# COMAC - C919

## A BETTER FIT FOR AFRICAN AIRLINES?

EVANS KIMANI

The single aisle airliner industry has over the past decades continue to blossom and exert its influence in the world. From their relative capability of handling small-medium sized markets, they have been a popular match for airlines whose key intention is to connect markets within their regions at a relatively economical fee that would be deemed an advantage to both the customers and the airlines.

With the current aviation market currently dominated by Boeing's 737 program, Airbus's A320 and A220 family and Embraer's E-jet series, the market continues to receive a high demand of aircrafts, with a current total backlog of nearly 11,112 aircrafts with 4,196 Boeing 737MAX, Airbus' A320 and A220 programs with 6,604 and Embraer's lineup with 312 aircrafts yet to be delivered.

As the industry continues to recover and the demand starts to increase for more aircrafts, more airlines are expected to order these aircrafts for their growth plans and schedule optimization needs. However, here is a new player in the Eastern part of the world who has slowly but steadily begun to make a stance in the battle for the single aisle airliners.

### COMAC C919; INTRODUCTION

The C919 was launched by the Commercial Aircraft Corporation of China in 2008 with its production starting 3 years later. While the program was hurdled with political and economic reasons within the company's other competing states, the program's first prototype made its maiden flight in 2017 after its roll out in 2015. The aircraft was later certified by the Civil Aviation Administration of China (CAAC) in September 2022 with the first aircraft delivered to Shanghai based China Eastern Airlines in



December 2022. While the airline slowly puts up its schedules of the aircraft in its domestic routes, analysts around the world have begun to take key note of the aircraft's capabilities.

### C919: SPECIFICATIONS

The aircraft is currently available in 2 ranges, the standard and the extended range (ER) models. The C919's higher variant has a range of 5,500km with a maximum payload of 15,000kg and it has a weight of 42.1 tones. The aircraft is currently powered by CFM International LEAP 1C engines which have a maximum takeoff thrust of 31,000lbf. However, COMAC have continuously expressed their desire to develop a new engine, the CJ-1000A which is currently ongoing tests as a bid to compliment the LEAP engine.

The aircraft has a maximum capacity of 168 passengers in a single class configuration and 158 passengers in a two-class configuration, which makes it suite for the small-medium sized market. It however seats slightly less its competitors who average at 187 at a single class configuration.

### C919: IDEAL FOR AFRICAN OPERATIONS?





While the aircraft has proved to be a success in China, and as various carriers and regulators in Europe and USA continue to understand its capabilities, the one continent where the question continues to linger is Africa.

As Africa is at recovery rate of over 90% from 2019, new dynamics begin to set in for the world's most capable continent in driving the global aviation sector. As many of the markets remain underserved in the various regions because of little to no connectivity, the conversation of single-aisle aircrafts has increased significantly, with many of the aircraft manufacturers, airlines as well as leasing groups have continuously discussed the way forward. This is as the demand has continued to grow for more improved services, there still lacks the methodology and actuation of the issues arising and as the aircraft leasing markets continue to grow in demand in the continent, it remains essential to factor in the role that the C919 can play in filling these markets.

As the aircraft is new in design, this gives operators the chance to factor in the aircraft in it's planning decisions, with key factors such as the efficiency and its durability while serving the various environments of the continent. While the aircraft remains to be relatively cheaper than the larger rivals, this provides the chance for other factors such as training and parts acquisitions to be developed in the long term to enable a sustainable service for the aircraft.

While the aircraft's range is less than that of the other manufacturers, the C919 has the capability of being able to connect crucial markets that have not being adequately served and this will enable the continent to achieve its SAATM goals. Furthermore, with the backlogs experienced by the top manufacturers, with airlines being



forced to wait for several years to receive their aircrafts, COMAC provides the ability to meet the customer's demands on a short- and long-term basis. With politics being crucial in the aviation sector, several countries have enjoyed positive relations in China and this could further aid in many airlines in the continent being able to acquire these aircrafts at possibly positive discounts thus enabling them to carry out their operations and strategic planning at ease.

In order to achieve this, several factors such as training of crew, provision of Maintenance, Repair and Overhaul (MRO) services need to be adequately established to enable a smooth cohesion between COMAC and future customers as this will enable operators to build the confidence needed to ensure the success of their operations and the future development of the aircraft.



# Interview:

# JON HOWELL

## *AviaDev Africa founder and CEO*

Harriet James  
Jk2000@gmail.com

### What inspired your passion for aviation?

When I was young, I never considered aviation as a career but my parents worked in aviation. I lived abroad and that gave me a taste for travel. I did basic jobs in France, Canada, Greece, New Zealand and Australia during my 20s. I came back to the UK needing a job and I found one at an events company that dealt with aviation.

I started working for them and started looking into the African market and that's how I fell in love completely with the industry particularly as I started traveling to Africa and seeing the opportunities. I did this for about ten years. AviaDev started in 2015 and our objective is to improve air connectivity specifically within the African continent because it is not well connected.

I believe that if we can connect the continent within itself then we can obviously take advantage of all the economic advantages that are going to come as a result of improved trade and tourism. It will also empower the next generation and Africa will take its place and really develop since it has a young demographic.

### How far have we come when it comes to the aviation industry in Africa?

First, it's been 35 years since they talked about open skies but they haven't done that yet. That has always been the biggest objective for the continent and in the African union agenda 63 along with the free trade area as well as free movement of people.



You have got to have the building blocks in place before anything and that means that it needs to be easy to fly over and do business and to get into the destinations visa wise. This has been the real challenge. But there has been some progress in pockets across the continent with more connectivity than there was previously. There are still certain airlines dominating.

There is also a push and pull between the private and state owned airlines which is something that happens everywhere. There is also improved infrastructure which in some places it's very good and in others it's a limiting factor hence investment in aviation is something that the continent really needs which has been tough for the past years since the industry hasn't been making money in Africa. Unless

you have revenues coming in you can't really reinvest into infrastructure. I'm still positive that there is a lot of opportunity for growth and maturity but we are not there yet.

**How is the airport real estate a solution to the financial issues affecting airports in Africa ?**

The Netherlands airport consultant, our previous partner did some research and they found out that 4 percent of revenue from an African airport comes from its real estate which could include things like leasing, selling land for development be it hotels, retail, cargo, food and beverage whatever it may be. Our belief is that that has got a huge wing to grow and what we have launched is Avia dev airport real estate, which is a platform that is going to offer airports access with individuals with the development expertise and money to assist airports increase this portion of their revenue.

What we also found during Covid is that airports generally, are very reliant on passengers coming to their airports and spending money and passengers on the airports paying passenger taxes and when the pandemic hit, there were no passengers to bring in that revenue. If the airports had a bigger chunk of their revenue coming from real estate then they would have been more resilient to the shocks. Through the platform, we are aiming at giving practical advice and support at how we can increase our real estate revenues. When airports get revenues from elsewhere then they can support airlines by discounting taxes for airlines which in turn will affect flight costs for the passengers.

**Which airports have incorporated this model?**

The biggest example would be Amsterdam , Seoul in South Korea where the airport is the center of attraction in the city, there is also Kwa zulu natal in south Africa , in Accra another one that is coming up is in

Madagascar. Kenya too does it as you would see there are maintenance facilities and hotels that have been built around airports. But the main point that I want to pass across is that you don't need to have just an airport or an airport city, you can simply look into it project by project basis and do it in small incremental steps by looking into what can be done to idle lands around airports.

**When you talk about real estate, does housing count and also how can we safeguard airports in such situations?**

Well, it's completely situational. Some airports will focus on car manufacturing to cargo , to maintenance facilities. It really depends on the makeup of the traffic. While for some it might be a great idea to live by airports, others might find the noise, sound pollution to be unbearable.

For us, we are looking at complementary industries that can be beneficial in creating additional sources of revenues to airports. For instance, in Kenya they have a huge flower growing industry, if the flowers were grown inside the airport, it would make it easy to transport them and cut short the journey of travel from the rural areas to the airport. Its about looking at those kinds of specific opportunities and connecting that to an investor or developer who will be interested in financing and making the vision into a reality.

**What can be done to make airports in Africa better?**

Generally, I've had great experiences in airports but there are certain things that can improve like cutting short on the queues. I understand security is a concern in airports but can we find technology or ways through which passengers can be able to do their check ins and security points check ups securely and seamlessly without being stuck in huge queues. But then again the challenge with that is that the queues make money for the restaurants and other services in hotels so it's such a tricky balance when it comes to that.





# Nigeria's Max Air takes delivery of a 16 year old Boeing 777-200



Sarah Kibisi  
Patlis2000@yahoo.com



**N**igeria's privately owned airline Max Air Limited has taken delivery of its first Boeing 777-200 to boost its passenger operations and enhance capacity on scheduled routes.

The aircraft arrived at Mallam Aminu Kano Airport (KAN) on June 11, where it was received by the Max Air team. Its arrival marks a significant milestone in the airline's history as it continues to add more widebodies to its fleet.

This has opened doors to a new era of expanded capabilities and an enhanced passenger experience. The aircraft landed at Kano Airport around 21:00, so only a few people were present to witness its arrival. However, a few airport employees and stakeholders were present to celebrate this exciting achievement by Max Air.

The triple seven is painted with a unique Max Air livery, slightly different from its other jets. According to Flightradar24, during delivery, it took off from Pinal Airpark (MZJ), where it was stored, on June 10 at 17:54 and made its way to Tucson International Airport (TUS) at 18:15.

Later that day, it departed Tucson at 19:55 and flew to Bangor International Airport (BGR), landing at 03:19. On June 11, the B777 took off from Bangor at 05:08 to make its way to Kano, where the Max Air team eagerly awaited. However, during the final leg of the flight, it diverted to Casablanca Mohammed V Airport (CMN).

It is unclear why the flight was diverted, but the aircraft is still in perfect condition. Following the diversion, it left Casablanca at 18:02 and finally arrived home at Kano Airport at 21:46. It is expected to enter service soon. Although the aircraft is new to Max Air's fleet, it was built in April 2007. It entered service in May 2007, operating flights for Japan Airlines as JA773J. It flew to various destinations from Tokyo Haneda Airport (HND) as one of the 14 B777-200s JAL has operated in recent years.

JAL laid off the triple seven in February 2021 and was out of service for over a year. In December 2021, it resumed operations as N808KW for Jet Midwest Group, where it flew for about seven months.



After exiting Jet Midwest service, the triple seven was unused until January 2023, when Max Air acquired it. The aircraft is now registered as 5N-BBN. With no significant safety incidents, it is ready to begin operation for the Nigerian carrier.

Max Air is one of Nigeria's most prominent domestic airlines, serving over 11 destinations on 11 routes from its hub at Kano. The country sees tens of millions of passengers traveling through its airports yearly, indicating why a domestic airline operates a fleet of widebodies.

The new triple seven has arrived during a busy season for the carrier. It is one of the airlines assigned to airlift Hajj pilgrims to Mecca, Saudi Arabia. The airline is expected to carry over 6,000 passengers throughout the religious exercise and will continue flying Saudi-bound passengers, as it has enough capacity.

The delivery of the B777-200 aircraft means it can boost its capacity on other routes. We are yet to see if the aircraft will be deployed on the Mecca route.



**Credit: Tatenda Karuwa**



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# SARA

## Emirates' new Robot Check-In assistant

Jane Makena

**E**mirates announced the introduction of the world's first robot check-in assistant, called 'Sara.' Especially if you are doing business in Dubai, the whole process presents the traveller with a considerable time saving, as when at the airport you can go straight through security. Emirates City Check-in and Travel store also features large 2.5 metre LCD screens showing destination content, as well as an interactive touchscreen map. Visitors can get expert advice and offers on trending destinations, while dedicated travel consultants can assist with purchasing tickets for future journeys, managing current bookings, purchasing upgrades, selecting preferred seats, and arranging extra baggage if required.

When it's time to fly, passengers can then connect directly to the airport via taxi, Emirates chauffeur service, or take a short 10-minute walk to Financial Centre Metro Station connecting seamlessly into the Airport Terminal 3 Metro Station.

### About Sara

Sara is an innovative portable robotic check-in system, who can match faces with scanned passports, check passengers in, and guide them to the luggage drop area. With an eye-catching 2.5 metre LCD screen showing the latest destination content from Emirates, and more screens showing an interactive touchscreen map, the City Check-in and Travel Store is a stylish and spacious contemporary space which offers the opportunity to book tickets, browse travel merchandise, drop luggage, and check in – with paid valet parking and self-parking ensuring an elevated, hassle-free check in experience for Emirates passengers.

Visitors can also get expert advice and offers on trending destinations, while dedicated travel consultants can assist



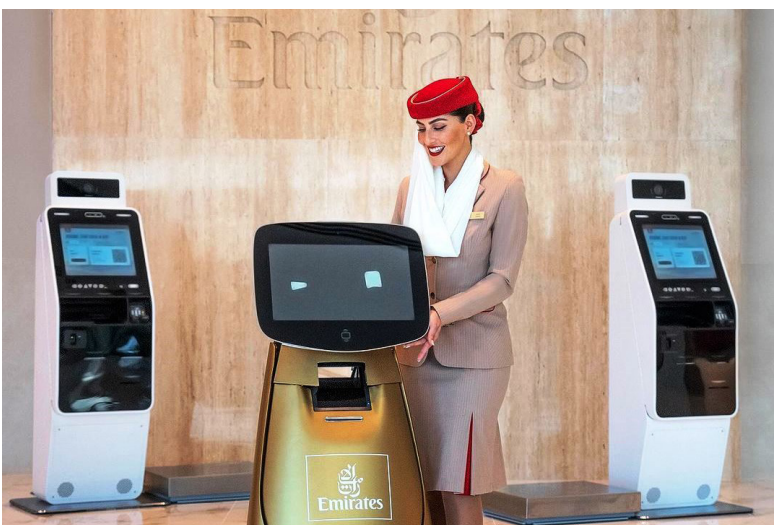
Emirates

with purchasing tickets for future journeys, managing current bookings, purchasing upgrades, selecting preferred seats, and arranging extra baggage if required. As part of Emirates' continuous investment into enhancing customer experience, the City Check-in and Travel Store has a prime and premium location for busy professionals in Dubai's finance hub and allows customers to drop their luggage as early as 24 hours and up to 4 hours before a flight, arriving at the airport at leisure.

Customers can visit the space and check in anytime from 8:00am to 10:00pm daily, beginning their travel experience with seamless service via self-check in kiosks, at dedicated desks with Emirates agents, or with the help of the world's first ever check in robot assistant - Sara.

Emirates passengers with valid boarding passes who wish to discover the area or spend time relaxing before their flight, will have complimentary access to select lifestyle facilities in the world-renowned ICD Brookfield Place, and exclusive discounts and special offers across





a range of restaurants, gyms, and luxury stores - including Josette, 1Rebel, Lulu and the Beanstalk, and Embody Fitness. Around the DIFC, visitors can enjoy a diverse range of services, shopping, world-class cuisine, and art galleries, including the extensive promenade at DIFC's Gate Avenue. When it's time to fly, passengers can then connect directly to the airport via taxi, Emirates chauffeur service, or take a short 10-minute walk to Financial Centre Metro Station connecting seamlessly into the Airport Terminal 3 Metro Station.

According to Adel al Redha, Emirates' Chief Operating Officer, Emirates City Check In is the latest addition to the Emirates travel experience, showing commitment to providing customers with an array of check-in options.

The new location is the first ultra-convenient check in and baggage drop facility conveniently located in the DIFC area. People can avoid busy periods at the airport and minimize queuing. Emirates city city check-in is in collaboration with ICD Brookfield Place.

ICD Brookfield Place CEO Rob Devereux notes that they are thrilled to welcome Emirates City Check-In and Travel store to ICD Brookfield Place, further enhancing their ecosystem as an attractive destination for workers, visitors, and residents. This exciting new addition will bring the convenience of city check-in to the central business district, allowing Emirates passengers more time to go about their daily routine, spend productive time at work and enjoy the wonderful lifestyle Dubai has to offer.

#### **About ICD Brookfield Place**

Centrally located on Al Mustaqbal Street, the distinctive, prismatic design of ICD Brookfield Place is instantly recognisable as a vibrant hub of business and leisure, where Emirates customers can access everything from fine dining restaurants, fitness centres, art galleries, beauty and hair salons, or simply relax in the five-storey Summer Garden filled with abundant natural light and year-round climate control.

ICD Brookfield features 990,000 square foot of office accommodation and retail space across 53 levels, designed by world-renowned architects Foster + Partners, and crowned 'World's Best Architecture' at the International Property Awards. ICD Brookfield Place is also renowned as one of the most sustainable buildings in Dubai, certified LEED Platinum and has committed to reach Net Zero Carbon by 2030.

#### **About Dubai International Financial Centre (DIFC)**

Dubai International Financial Centre (DIFC) is the leading global financial and innovation hub in the Middle East, Africa, and South Asia (MEASA) region, playing a critical role in leading and shaping the future of finance through innovation, sustainability, and inclusivity. Gate Avenue, an innovative retail and fashion experience close to the Emirates City Check In and Travel Store stretches from The Gate Building to Central Park Towers, offering a seamless walkway that connects the Centre's community year-round, including an outdoor promenade, over 370 retail options, including dining, fashion, global brands, regional designers, and lifestyle concepts.

#### **Emirates Home Check-In**

Making travel swift and smooth, Emirates also offers a home check-in service in Dubai and Sharjah, fulfilled by DUBZ. DUBZ agents complete the check-in process in the customer's home, hotel, or office, and take the bags to the flight while customers are free to breeze through the airport later. Book and pay for the service at least 24 hours before the flight and passengers can proceed to the airport check-in up to six hours before the flight departs. The Home Check In service is complimentary for First Class passengers.



# Top 5 Largest Private Jets in the World

*Traveling on your own private jet is one of the ultimate symbols of wealth and status, not to mention a supremely comfortable mode of navigating the globe. Below, The Aviator Africa brings to your attention the top five largest Private jets in the World.*

**Sarah Kibisi**  
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## 1. Boeing 747-8 Jet

The Boeing 747-8 features a lavish office space, several guest rooms, vaulted ceilings, as well as an onboard gym. An actual workout certainly beats walking up and down the aisle to keep circulation flowing on transpacific long-haul flights to help combat jet lag.

It belongs to Hong Kong real estate tycoon Joseph Lau, who boasts an estimated net worth exceeding \$13 billion. The longest and second-largest commercial aircraft ever built has a 445 square meter interior and, on Lau's version, its two levels are connected by a spiral staircase. The initial outlay reportedly set Lau back \$367 million, with modifications adding another \$153 million to the bill.

## 2. Boeing 747-400 Jet

When the Prince bought the plane in 2003, it still had 400 passenger seats fitted. These were torn out to make way for a dining room for 14 people, two luxurious double bedrooms, and, because why not, a golden throne in the middle of the cabin. The jet is reportedly serviced by 11 flight attendants.

The world's second-largest private jet, a Boeing 747-400, belongs to Prince Al Waleed bin Talal. Ranked number 45 on Forbes' list of the wealthiest people in the world in 2017, the Saudi Arabian royal and investor owns chunks of companies across the US, Europe, and the Middle East.







### 3. Airbus A340 Jet

The oligarch's Airbus A340-300 (registration: M-IABU) is approaching 15 years old and was delivered to Usmanov in October 2008. It was operated on his behalf by Margaux Aviation after 12 years with Global Jet Luxembourg, previously known as Silver Arrows, before its current operator Klaret Aviation took over in December 2021. According to Planespotters.net, the jet has been in storage at Tashkent International Airport (TAS) since February 2022 after Usmanov was sanctioned and had his assets frozen.

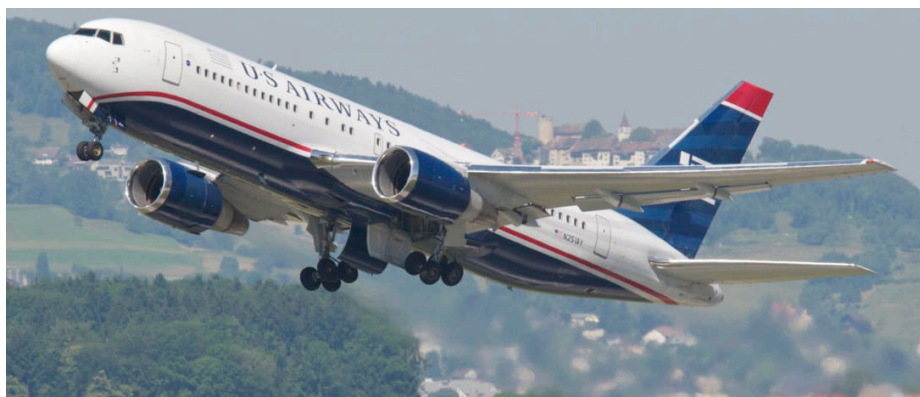
It belongs to Uzbek-born Alisher Bourkanovich Usmanov.



### 4. Boeing 787-8 Jet

It is fitted with a banquet hall that can accommodate 30 people, a full-service kitchen capable of conjuring up gourmet fare, and gold-gilded bathrooms. Moreover, it has the same anti-ballistic missile system as the US presidential aircraft Air Force One.

Abramovich swapped the aircraft out for a Boeing 787-8 in 2021. It has been reconfigured to transport 50 special guests. The eight-year-old \$350 million twinjet made its way to Moscow on December 19th, 2021 with registration P4-BDL to begin service with the billionaire.



### 5. Boeing 767-200 Jet

Its built with plush velvet sofas rather than stiff seats, a fully carpeted floor, gold and wood surfaces, a full-mirror wall, an entertainment room, and three fully-enclosed private suits. Introduced with Mid East Jet in October 1996, registration N767CJ is more commonly known as Air Drake. Meanwhile, that is not to say that the aircraft has not been outfitted in style.



Canadian rapper Drake acquired his very own Boeing 767-200ER early in 2019. Well, it is not exactly owned by Drake. Rather, it belongs to Ontario-based Cargojet. The plane is a free-publicity deal for the airfreight company, and why not, if you have a plane or two to spare? Who foots the fuel bill remains a little unclear.

# Avic's AC332 Light Twin Helicopter Makes First Flight



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**T**he AVIC AC332 is a Chinese civil helicopter that is under development by the Aviation Industry Corporation of China (AVIC). The AC 332's chief designer at AVIC is Li Shengwei. The aircraft is intended to be type certified for production. The design prototype had its first flight on 7 April 2023. The AC332 designation was previously applied to an unrelated project for a scaled down version of the Russian Mil Mi-26 that was to have first flown in 2032.

China-state-owned aircraft manufacturer Avic announced the first flight of its light-twin AC332 helicopter on Friday in Tianjin. Stylistically a cross between the Bell 429 and the Airbus H145, the AC332 features a four-blade main rotor system and ducted tail rotor and is designed for hot-and-high operations. It is powered by a pair of 1,800-shp Avic WZ-20 engines.







Performance targets include a capacity of up to 10 passengers and two crew, 8,487-pound mtow, 374-nm range, 140-knot maximum cruise speed, and 19,685-foot service ceiling. According to Avic, the AC332 has the capacity to take off at an altitude of 14,763 feet and transport a payload of 1,323 pounds over a distance of 324 nm.

To date, Avic reports receiving orders for 24 of the helicopters from China-based customers. Deliveries are expected to begin in 2025.

The AC332 designation was previously applied to a Sino-Russian heavy-lift helicopter joint-venture development program first announced in 2015. That design appeared to be a scaled-down version of the Mil Mi-26 and featured a seven-blade main rotor system and an 84,000-pound mtow. While the future of that program remains unknown, China first leased and later bought Mi-26s directly from Russia.

The aircraft is intended as a utility helicopter for personnel transport, search and rescue and law enforcement, including high density altitude operations. The design features a single, four-bladed main rotor, a fenestron tail rotor, twin engines, an enclosed cabin and skid-type landing gear. The design has seating for two crew members and ten passengers. It is expected to have a lower price than comparable western helicopters.

The aircraft has a gross weight of 3,850 kg (8,488 lb), a maximum cruising speed of 260 km/h (140 kn), a service ceiling of 6,000 m (19,685 ft) and a range of 693 km (374 nmi). Maximum take-off altitude is 4,500 m (14,764 ft).

The prototype was first flown on 7 April 2021 and type certification is forecast to be completed in 2025. Aviation writer Mark Huber described the design as "stylistically a cross between the Bell 429 and the Airbus H145

In April 2023, the company reported that it had orders for 24 aircraft, including six for an aircraft leasing company based in Xiamen and 18 for a consortium of Chinese general aviation operators.

**AC332 Technical Specifications**

General characteristics

- Crew: two
- Capacity: ten passengers
- Gross weight: 3,850 kg (8,487 lb)
- Powerplant: 2 × turboshaft engines

Performance

- Cruise speed: 260 km/h (160 mph, 140 kn)
- Service ceiling: 6,000 m (19,685 ft)





# Airport control towers and the future of their sustainability

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- Advising and updating pilots about nearby planes and potentially hazardous conditions
- Issuing landing and take-off authorizations and instructions
- Transferring control of departing flights to traffic control centers and accepting control of incoming flights
- Monitoring or directing aircraft within an airspace or on the ground
- Compiling information about flights from flight plans, pilots reports, radar, or observations

**With the help of air traffic control towers, the pilot has a second pair of eyes to ensure safety.**

## **Air Traffic Control (ATC)**

Air traffic control (ATC) is a service provided by ground-based air traffic controllers who direct aircraft on the ground and through a given section of controlled airspace, and can provide advisory services to aircraft in non-controlled airspace. The primary purpose of ATC worldwide is to prevent collisions, organize and expedite the flow of air traffic, and provide information and other support for pilots. Air traffic controllers monitor the location of aircraft

**A**n airport control tower is defined by Collins dictionary as a building at an airport from which instructions are given to aircraft when they are taking off or landing. Control towers are of great importance in aviation of which without them, it becomes difficult to control proper movement of aircraft especially in airports with huge traffic volumes.

Airport control towers coordinate takeoffs, landing, ground traffic and aircraft in flight within 5 miles of the airport. Their primary purpose worldwide is to prevent collisions, organize and expedite the flow of air traffic, and provide information and other support for pilots. At smaller airports with less aircraft traffic, the pilots communicate with each other on common radio frequencies. This has proven to be safe at lower volume airports, however as traffic increases and greater efficiency is required an Air Traffic Control Tower is opened.

## **Responsibilities of Airport Control Towers**

Airport Control Towers have various responsibilities some of which include;





in their assigned airspace by radar and communicate with the pilots by radio. To prevent collisions, ATC enforces traffic separation rules, which ensure each aircraft maintains a minimum amount of empty space around it at all times. In many countries, ATC provides services to all private, military, and commercial aircraft operating within its airspace.

Depending on the type of flight and the class of airspace, ATC may issue instructions that pilots are required to obey, or advisories (known as flight information in some countries) that pilots may, at their discretion, disregard. The pilot in command is the final authority for the safe operation of the aircraft and may, in an emergency, deviate from ATC instructions to the extent required to maintain safe operation of their aircraft.

Air traffic controllers are responsible for the separation and efficient movement of aircraft and vehicles operating on the taxiways and runways of the airport itself, and aircraft in the air near the airport, generally 5 to 10 nautical miles (9 to 18 km) depending on the airport procedures. A controller must carry out the job using the precise and effective application of rules and procedures that; however, they need flexible adjustments according to differing circumstances, often under time pressure.

### **Sustainable Control Towers**

USA's Federal Aviation Administration (FAA) has selected a sustainable design for new air traffic control towers that will be used primarily at municipal and smaller airports. The design by Practice for Architecture and Urbanism (PAU) of New York meets key sustainability requirements

and can adjust the tower height to meet each airport's traffic and sightline requirements, while also reducing construction and operational costs, according to agency officials.

The design incorporates sustainability elements, such as:

- All-electric building systems
- Materials and products free from chemicals known to pose health risks
- Thermally efficient façade
- High-recycled steel and metal products
- Renewable mass timber when usable
- Ground-source heating and cooling in some environments.

The FAA's preferences included that the design have standardized elements to reduce construction and operational costs while allowing for the building to be tailored to local climate and location issues such as very high and very low temperatures, wet and dry environments, and high winds.

The initial set of 31 control towers at candidate airports would replace towers that are functioning beyond their intended design life, according to FAA officials. The towers will range in height from 60 to 119 feet.

The FAA has set aside more than \$500 million from the Bipartisan Infrastructure Law to support site evaluation, preparation, and early construction activities. FAA officials said the first groundbreaking could begin in 2024.





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*Have you ever felt uncomfortable flying into busy, unfamiliar airports? Here are some tips to get you prepared for your next trip to a busy Class B, C, or D airport.*

#### **What's So Different?**

Increased ATC requirements, complex taxi routes, and procedural differences can make these airports intimidating. But depending on where you're flying, it might be your best, or only, option.

#### **Get Flight Following Early**

When you've picked up flight following, Air Traffic Control (ATC) helps you out with traffic, weather, and airspace avoidance. ATC can help find routes that will keep you clear of heavy traffic. They can also warn you of traffic that's approaching your flight path. Navigation is still up to you, and you don't have to accept ATC's advice as long as you stay in Class E or G airspace. But following their advice can be a big asset.

The best way to work with ATC in airspace is to be proactive, and that includes flying into Class B, C, and D airports. When you let them know your destination on the initial call, ATC will coordinate your arrival.

As you get close to your destination airport, ATC will likely hand you off to a local approach control for that airport. If you're flying into a Class C airport and you're in two-



way radio communication with ATC (they've said your callsign), you've been cleared into Class C Airspace. When you're flying VFR into Class B, you need to hear the words "cleared into the Class B airspace" from ATC.

#### **Know the Weather Requirements**

Class B airspace has some of the most relaxed weather requirements because, in Class B, Air Traffic Controllers are tracking your every move - altitude, speed, and heading. It's the only type of airspace where this happens for all VFR aircraft, and because of it, controllers can allow you to fly in worse weather and still allow you to "see and avoid" other aircraft.





The requirements are very simple: 3SM visibility, clear of clouds. What does staying "clear of clouds" mean? It means that your airplane can operate up to, but not touch a cloud. That's pretty close.

Class C minimum weather requirements exist so that you can see and avoid other aircraft. ATC wants you to stay far enough away from the clouds so you can see and avoid other airplanes, especially jets flying fast approaches.

An easy way to remember VFR weather minimums for Class C airspace is the phrase "3 Cessna 152s". Day or night, each number in the phrase stands for one of the distances:

- 3SM visibility
- 1000' above
- 500' below
- 2000' horizontal

### What Are Your Equipment Requirements?

In both Class B and C airspace, you'll need a two-way radio, Mode-C or Mode-S transponder, and ADS-B out onboard your airplane to enter the airspace, so that you can maintain communication with ATC and so that they can track your location and altitude on their radar scope.

### Have Your Frequencies Ready

Having ATIS, approach control, tower, and ground frequencies loaded in your standby comm is always a good idea. Keep in mind that at many large airports, there are multiple frequencies for each service, depending on your arrival direction, or your location on the ground. If you're using an EFB, which we highly recommend, load your destination airport page. All of the frequencies will be listed and available there for quick reference.

You May Have To Hold, and You May Be Vectored  
Flying into a Class C airport is usually no problem.

However, you may be asked to hold outside of the airspace at some Class B airports during a busy arrival/departure block.

If you really need to (or want to) fly into a Class B airport, calling ahead might be a good idea. Call the local ATC Approach Control to ask when a good time to fly in might be, which will usually fall between blocks of departures and arrivals, or at night. Some airports like Salt Lake City and Phoenix have a lot of GA traffic, with one runway located near FBOs. Others, like Chicago O'Hare or New York LaGuardia, often won't be able to fit you into the traffic flow under normal operations.

### Study the Airport and Find Your Parking Spot

Before your flight, or at least well before you begin descending, take a thorough look at the airport diagram. Find the FBO where you plan to park, and look at the runways/taxiways nearby. While you can never really plan out exactly how your approach/taxi will go, it's a good idea to familiarize yourself with the airport well ahead of time.

### Expedite, but Don't Rush

Airports are usually established as Class B or C due to increased traffic. That means busy frequencies and a lot of airplanes that are faster than you. Flying into these airports isn't the time to linger, take pictures, etc.

Keep your speed up as best you safely can, and anticipate flying either a long or short approach to landing. That's one way that ATC will sneak you in between faster jets. Don't rush yourself, maintain a sterile cockpit, and keep your eyes outside. If you need help, ask. The last thing you want to do is assume you understand an ATC instruction and create a traffic conflict.

**Credit: Swayne Martin**



# The smart manufacturing techniques implemented at Boeing's factories

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**S**mart tool tags, digital user interfaces, and wireless measurement devices are some examples of smart technologies implemented at Boeing factories.

Boeing's smart factories across the globe are embracing numerous advanced manufacturing techniques to strengthen and optimize their production systems. From advanced measurement devices to digital tool tags, Boeing aims to improve work efficiency by employing smart techniques in its aircraft manufacturing and testing processes. Like smart homes, smart factories offer automated equipment, controlled processes, and safer work environments for personnel.

The use of smart technology not only delivers quality products but also ensures the safety of personnel. According to the Vice President of Manufacturing and Safety at Boeing Commercial Airplanes division,

**Scott Stocker,**

*"Boeing is embracing multiple advanced manufacturing techniques to strengthen our production systems and deliver on our commitments to product quality and safety."*



### Smart manufacturing techniques

The manufacturing and fulfilment teams at Boeing use smart tags to search available or misplaced inventory. Moreover, digital tooling applications connected to factory-wide smart tags measure consumption and issue new orders just in time for a replacement. Production and tooling divisions at Boeing ensure that technicians always have tools on hand to work with.

The lost time due to missing tools incurs tremendous time and cost to the company. As such, continuous monitoring of equipment consumption ensures the availability of all equipment when it is needed. Digital applications also prevent the need for spares that take up storage (and floor) space.

### Operations Management System

The Boeing Sheffield facility in South Yorkshire, England, is the first to use an operations management system. The state-of-the-art intuitive user interface maximizes operators' efficiency by providing live machine performance data to the industrial engineering team. Downtime is significantly reduced by scheduling subsequent processes in a continuous production pipeline.

### According to Stocker,

*"Maintaining constant awareness of the manufacturing environment enables our teams to work safely and efficiently and helps us mitigate downtimes and stabilize the production process."*

Advanced systems are capable of notifying the teams in charge when attention is needed. For example, a smart tag device connected to the advanced user interface will notify the person responsible if the new order is not fulfilled in time. Smart sensors attached to machines send performance data to the monitoring dashboard.

Operators are able to monitor the dashboard in real-time to avoid any production delays. Lubrication indicators may notify technicians that the machine's calibration is required. Similarly, environmental sensors constantly survey for variations in temperature, humidity, vibration, and noise. Results from such sensors indicate the health and efficiency of the running system.

Smart user interfaces also predict production bottlenecks well in advance to alert teams about potential delays and corrective actions. While technicians can override almost all automated systems, smart interfaces and corresponding equipment optimize work efficiency.

Boeing's smart factory allows technicians to obtain aircraft wing measurements without having to climb onto the airplane. Technicians use wireless devices that automatically and accurately perform dimensional analysis of large airframe components. Dimensional measurements and analysis is required at multiple stages during the aircraft assembly. The Internet of Things (IoT).

**Inside the boeing  
manufacturing factory**







The Industrial Internet of Things (IoT) connects physical objects, including manufacturing equipment and tools, to automated control systems. Control systems store, process, and calculate large amounts of data to predict forthcoming processes. The information is fed into the production system to provide normal actions and deviations (if any) in near real-time.

Technicians take advantage of the live system to schedule their day-to-day production targets. With precise information about resources (material, machine, and human), technicians can achieve their daily production targets with little or no deviation.

Jonathan Vance, Boeing Associate Technical Fellow who has worked to integrate embedded and wireless electronic systems at Boeing since 2008, commented, "Through IoT connectivity, we get information we can use. The engineering, IT and data analytics teams rely on the IoT platform for

the connectivity that enables them to collect real-time data and gain insight into manufacturing processes. Connecting hundreds of pieces of automated manufacturing equipment, IoT helps inform smarter decisions about equipment use and streamline maintenance activities."

#### Connectivity across the factory

Bluetooth connectivity and radio-frequency identification (RFID) have significantly improved the efficiency and safety of production processes at Boeing. Within large manufacturing centers, such as Boeing's commercial airplane assembly line, technicians may work at heights or in confined spaces. A smart application connects an RFID tag on an aircraft livery painter's safety harness to a digital dashboard on the production floor.

The digital tag alerts the individual and the teammates if a disconnected or unsecured harness is detected. The digital dashboard not only identifies the problem but also provides one or more corrective

actions to resume safe work. If the corrective action is not performed by the user, the system may enter a safe mode to prevent adverse implications.

**According to Jonathan Vance,** "RFID technologies are used in more than 25 Boeing facilities to monitor inventory or to tag any number of production items, including assembly jigs, parts or toolboxes. You can pull up a particular building, get a bird's-eye view of the factory and see exactly where the tagged assets are located, he said. At Boeing South Carolina, teammates are piloting new uses of RFID tags to track the locations of hand tools across the expansive site where the 787 Dreamliner is built."

Digitally enabled tools allow Boeing to drive accuracy, efficiency, and predictability into its manufacturing processes. Since each process depends on the preceding, production stability is crucial for a successful project.

In one of the manufacturing sites in St. Charles, Missouri, floor mechanics use Bluetooth-enabled digital torque wrenches to install fasteners on various guidance kits. Digital wrenches have much tighter tolerances and require fewer recalibrations. The tool also records each measurement and sends the data to the production system.

**According to Jonathan Vance,** "This added capability enables us to use the digital thread to verify the work systematically and also affects closed-loop control in our manufacturing processes."

These data loops are essential to production quality across Boeing's advanced manufacturing centers, as data threads connect engineering and manufacturing teams and ensure everyone has the information they need in real-time.

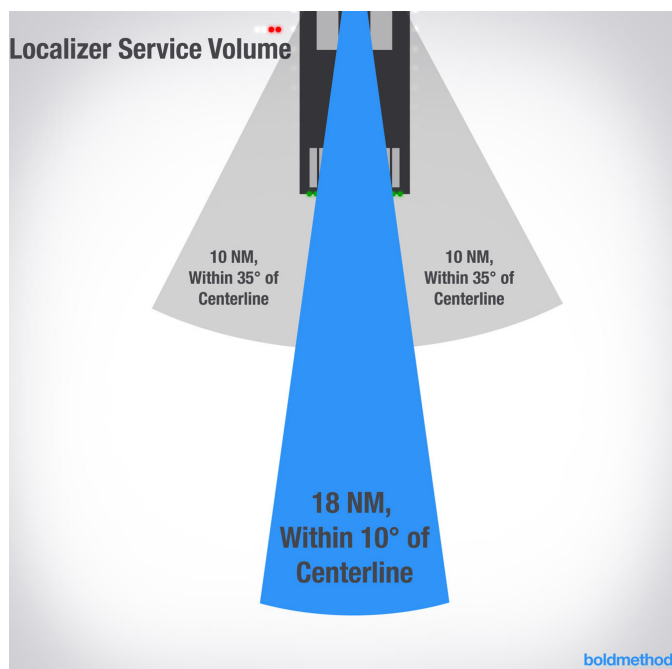
**Credit: Dr. Omar Memon (Ph.D. in Aerospace Engineering).**



# ILS

## Understanding how Instrument Landing System (ILS) works

Jane Makena



**T**he Instrument Landing System (ILS) is a radio navigation system that provides precision guidance to aircraft approaching a runway.

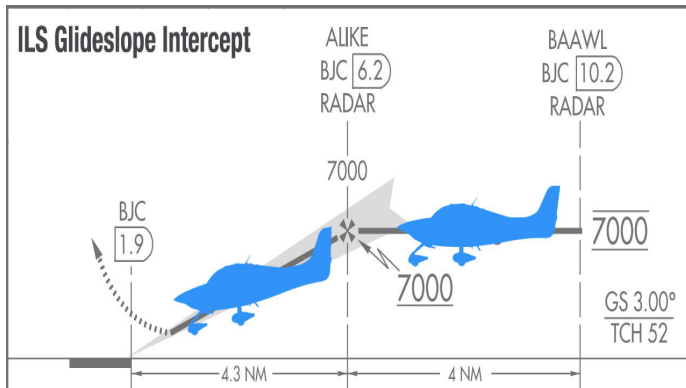
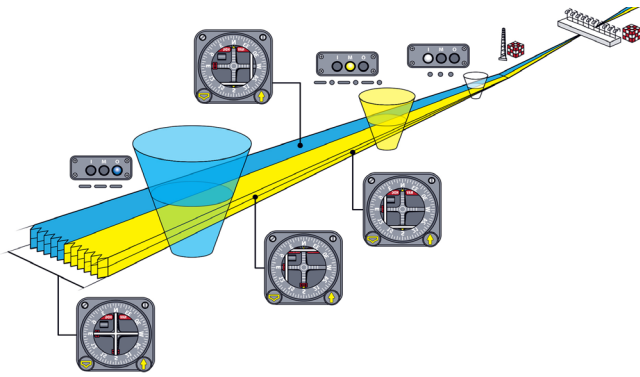
ILS approaches allow most general aviation pilots to land in as little as 1/2 statute mile visibility and as low as 200-foot cloud ceilings.

There are several components that make up an ILS system:

- Localizer for horizontal guidance
  - Glideslope for vertical guidance
  - Approach lights (optional)
  - Marker beacons (optional)
- Localizer

The localizer antenna is used for horizontal guidance, and it's positioned on the far end of the runway. The localizer transmits signals on 108.1 MHz, up to and including 111.95 MHz (odd tenths only). Localizers have an adjusted course width so the course is 700 feet wide at the runway threshold (full scale fly-left to a full scale fly-right).

Two signals are transmitted laterally: one at 90 Hz and one at 150 Hz. Where the two frequencies intersect is usually aligned with the extended runway centerline, and is shown as "on-course" when viewing cockpit



instrumentation. The ILS receiver interprets the overlap of the two frequencies to determine which side of the localizer course the airplane is flying on, or if it's flying down the middle of the course.

While you might receive localizer signals outside of the service volume, the localizer is only guaranteed to be accurate up to 10 degrees on either side of the runway to 18NM. At an angle of 35 degrees on either side of runway centerline, the useful volume is limited to 10NM.

**Glideslope**

The glideslope provides vertical guidance, and the antenna is typically located 750 to 1250 feet down the runway, and 400 to 600 feet from the side of a runway's centerline. You can usually find the glideslope shed next to the runway's aim point markers.

The glideslope works the same as a localizer, but just turned on its side. The equipment transmits 90 Hz and 150 Hz lobes, which are interpreted by the ILS receiver. The beam is 1.4 degrees thick, with .7 degrees of glidepath projected on either side of the beam. A typical glideslope will take the airplane down toward the runway at a 3-degree angle.

**False Glideslopes**

Objects below 5,000 feet AGL have a tendency to reflect glideslope signals. This can create false glideslopes, which are often at 9-degree and 12-degree angles to the runway. Pilots are taught to intercept the glideslope from below to ensure they don't capture a "false" glideslope. If you were to actually capture a false glideslope, you would fly a much steeper descent angle to the runway.

**Approach Lighting**

The approach light system (ALS) helps pilots identify the runway environment in low-visibility. It's designed to help pilots transition from instrument flying to visual flying, and also to aid with identifying the runway's centerline.

**Marker Beacons**

The ILS was originally developed before DME was widely accessible. Because of that, marker beacons are sometimes included in an ILS approach. Each beacon designates a specific position on the approach, with an audible tone and/or visual light that illuminates in the cockpit.

Sometimes there may be one or two, but not necessarily all three kinds of marker beacons established on a specific approach:

- Outer Marker: Identifies glideslope intercept or the Final Approach Fix (light flashes blue)
- Middle Marker: Identifies decision height (light flashes amber)
- Inner Marker: Identifies decision height for a CAT II ILS (light flashes white - we'll talk about what CAT II means below)

**Flying the ILS**

To fly an ILS, you first align your aircraft with the runway, using the localizer as guidance. This is typically done by radar vectors from ATC, or with a procedure turn when flying a full procedure approach.

As you fly toward the runway following the localizer in level flight, you intercept the glideslope the final approach fix (The lightning bolt symbol in the image below). After you intercept the glideslope, you start a gradual descent. The glideslope typically provides a 3-degree descent to the runway.

There are several different ways that the localizer and glideslope can be represented on flight instruments, but in most glass-panel aircraft, they're represented as a green line or triangle for the localizer, and a green diamond or triangle for the glideslope.

The localizer and glideslope indications represent the center of the localizer course and the glideslope course. If you get off course, either left/right or high/low, you "fly toward the needle" to get back on course. As you get close to the runway, the localizer and glideslope signals become more sensitive, because the course width of both decreases the closer you get to the runway. Using small corrections, and avoiding "chasing the needle", is essential to fly an ILS all the way to minimums.

**The Precision Approach for Almost 100 Years**

The ILS has been used for nearly 100 years, and it's one of the few instrument approaches that can get aircraft to the runway in near-zero visibility and ceilings.



# X-wing Autonomous Aircraft



*The autonomous flight pioneer sets to expand air cargo operations in preparation for pilotless services*

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**X**wing is an autonomous aircraft company founded by Marc Piette in 2016, initially focusing on cargo operations.

Xwing is reporting rapid growth in both its commercial cargo operations and its workforce as it steps up efforts to gain approval for fully autonomous operations with converted aircraft like the Cessna Grand Caravan.

The company, which is working to introduce autonomous systems for regional cargo flights with no pilot onboard, announced that it has acquired Martinaire Aviation, an air cargo carrier based in Dallas. This announcement came shortly after Xwing's acquisition of Seattle-headquartered AirPac Airlines, another cargo carrier, as part of a plan to prepare for FAA approval of its autonomous operations.

As the company's cargo operations continue to grow, so does its workforce. The San Francisco-based startup reported that its staff has tripled to more than 180 employees in the past 12 months. Xwing also confirmed that it has received FAA Part 145 certification for two



aircraft maintenance facilities in Addison, Texas, and Lansing, Michigan.

Xwing made history in February 2021 when it conducted the world's first fully autonomous gate-to-gate cargo flight. A Cessna 208B Grand Caravan aircraft, adapted with Xwing's "Superpilot" autonomous flight system, taxied itself from the gate to the runway, took off, landed, and taxied back to its gate with no human intervention, although there was a pilot on board as a backup. A remote crew of pilots also monitored the aircraft.

While Xwing has yet to get its autonomous flight system FAA-certified for commercial use, it has been operating commercial cargo flights using unmodified and piloted Cessna Caravan airplanes since 2020, when it received the necessary FAA Part 135 air carrier certification through its acquisition of San Antonio Air Charter. The company is operating its converted Caravan under an experimental certificate for research and development purposes, and those flights are required to have a supervising pilot on board. It is now working to get that experimental aircraft cleared by the FAA to fly commercially.

According to Xwing CEO and founder Marc Piette, the company is focused on developing its autonomous flight technology specifically for the Cessna 208B.

Xwing now operates a fleet of 35 aircraft that fly more than 400 commercial flights per week from 58 airports across 14 U.S. states. The company, which has expertise in artificial intelligence and machine learning, says it has completed nearly 10,000 cargo flights to date, in which it has transported more than 4.9 million pounds (2.2 million kg) of cargo over 1 million miles (1.6 million km).

CEO Piette further noted that the commercial cargo operations are key to certification approach. When it comes to integrating unmanned aircraft in the airspace, the FAA operational approvals are just as important as certification of the technology on board the aircraft, using data gathered from our commercial cargo routes, X-wing can continuously optimize and refine their system end to end and get to the best solution for their customers.

Xwing's autonomous flight system utilizes detect-and-avoid sensors that analyze hazards in the air and on the ground, and it includes navigation and control software that manages



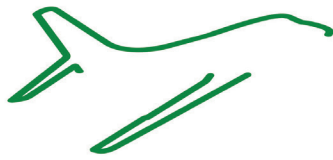
all aspects of the flight.

Initial piloted flights allow the company "to collect data at scale across all geographies and weather environments," which not only feeds into the safety plan for the certification of the autonomous technology on board the aircraft but also influences product development according to CEO Piette. Piette further notes that it also feeds into the training of algorithms, especially machine learning algorithms, whether it be deep neural nets or otherwise because we can collect data across all these routes and all of these operations.

Eventually, each of Xwing's remote ground-based operators will be able to manage multiple unpowered aircraft simultaneously. And without the need for pilots, Xwing says, its aircraft can fly more frequently and efficiently. Xwing's Superpilot is designed to optimize an aircraft's flight path to reduce fuel consumption, but it will also reduce the need for what Xwing calls "unproductive" flights, such as when a piloted aircraft must return to its home base without any cargo on board.

Piette did not disclose an estimated timeline for when Xwing might gain FAA certification to begin flying unpowered commercial cargo deliveries but says they are making a ton of progress, and it's moving out very nicely, but they're not ready for a full conforming vehicle to go through certification just yet.





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# HOW AIRPORTS GET THEIR CODES

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**Y**ou may have noticed a three letter acronym on your plane ticket, or next to your departure and arrival city when you're booking your flight online. Maybe you even refer to your airport as a three-letter code—JFK in New York, or LAX in Los Angeles.

After all, every official airport in the world—from the largest, Hartsfield–Jackson Atlanta International Airport (ATL), to the smallest, Juancho E. Yrausquin Airport on the Caribbean island of Saba (SAB)—is assigned a three-letter code. But what does that code mean, and how are they assigned?

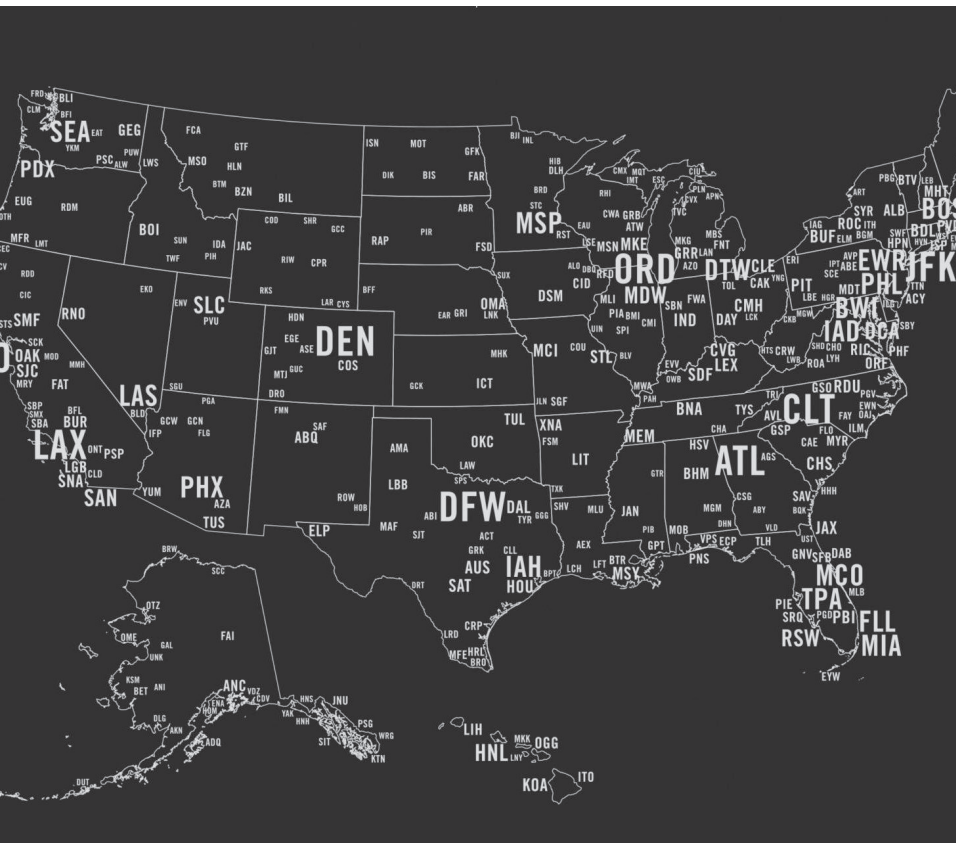
Two official entities assign distinct codes to every airport. The International Civil Aviation

Organization (ICAO), an arm of the United Nations that ensures aviation regulations jive across different countries and continents, assigns codes generally used by air traffic control and by airlines in crafting their flight plans. Those codes are actually four letters long: The first letter describes the country, and the remaining three letters mark the specific airport. For instance, Florida's Fort Lauderdale–Hollywood International Airport would be KFLH; the "K" is for U.S. and "FLH" is the specific airport code.

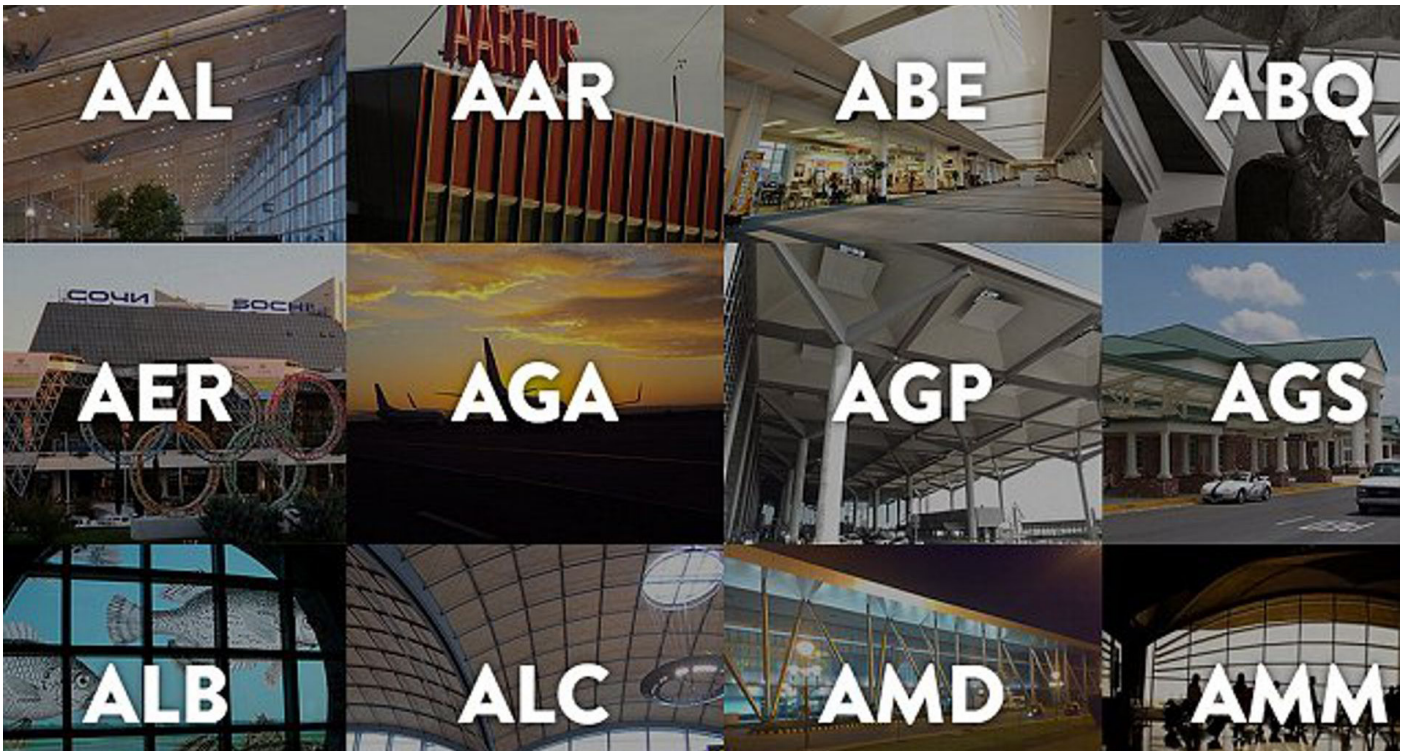
The International Air Transport Association (IATA), an airline trade association, assigns the airport codes you're most familiar with—the three-letters you'll see when you're booking your flight or on your ticket. Fort Lauderdale–Hollywood International Airport, for example, appears as "FLL," and Amsterdam Schiphol Airport is "AMS." Sometimes the code is the same as the last three letters that the ICAO assigns, but not always.

Airport coding first began in the 1930s, and airlines typically chose their own two-letter codes. By the late 1940s, there were too many airports, and the system shifted to the three-letter code we know today. Los Angeles International Airport, for instance, was originally just "LA," but became LAX in 1947. The IATA stepped in during the 1960s when the airlines decided they needed a standardized process to avoid confusion.

"IATA codes are an integral part of the travel industry, and essential for the identification of an airline, its destinations, and its traffic documents. They are also fundamental to the smooth running of hundreds of electronic applications which have







been built around these coding systems for passenger and cargo traffic purposes,” Perry Flint, IATA’s head of corporate communications for the Americas, tells Condé Nast Traveler.

The three-letter code is determined by first ensuring that it’s unique and not in use by any other entity. The code might be assigned based on the name of the airport, the name of the city, or some other meaningful and relevant identifier if those letters are already taken. No two airports share the same IATA code, though officials say it’s possible we’ll have to rethink the process if more crop up than there are three-letter combinations to assign (this isn’t likely to happen anytime soon).

Some airport codes are easy to unpack: Miami International Airport is MIA; Athens International Airport is ATH. Other airport codes are harder to decipher. Louis Armstrong New Orleans International Airport’s code, for instance, is MSY, named after aviator John Moisant, the first to fly across the English Channel with a passenger, and who lived in Louisiana until his death in 1910. Chicago O’Hare’s airport code is ORD, named after the space’s previous incarnation as Orchard Field.

St. Pete-Clearwater International Airport’s code is PIE. (The airport marketing team took advantage of the fun code and created a website to attract tourists) There’s LOL (Derby Field airport in Nevada, serving Lovelock City); OMG (Omega Airport in Namibia); and EEK, (a small town in Alaska). Russia’s Bolshoye Savino



Airport code is PEE, and Brazil’s Poco De Caldas Airport’s code is POO. Sometimes a strange airport code is a perfect fit, like the aptly named Barksdale Air Force Base in Louisiana, which is coded “BAD.” (“Though we may be BAD, our world-class airmen are the best at projecting air power in defense of our nation,” says Captain Andrew Caulk, 2nd Bomb Wing at Barksdale Air Force Base.)

Sioux City, Iowa’s Gateway Airport is coded “SUX.” But rather than mope, officials have had fun with the unfortunate code assignment. “We embraced our designated airport code by partnering with a local retailer to offer a line of products with the slogan ‘Fly SUX.’ Both residents and visitors think it’s fun, and has given our city national attention,” says Sioux Gateway Airport director and assistant city manager, Mike Collett. “From bag tags to t-shirts, people love to Fly SUX!”

**CREDIT: Allison Hope (cntraveller.com)**

# DART AE



## Dart AE - a hypersonic jet that weighs less than a city car

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**M**eet Dart AE, a hypersonic jet that's lighter than a Fiat 500 and shorter than a MINI - it's fast as heck, though. This bullet-shaped aircraft is known as the 'Dart AE', and it is a hypersonic jet capable of flying at Mach 7.

Friendly reminder that Mach 7 is equivalent to 5,370 mph, and this means that this jet is nearly 10 times faster than a Boeing 737 or an Airbus 380 you may use to travel to your favorite destination in the summer.

Dart AE is being developed by Hypersonix Launch Systems, an Australian company, in partnership with the U.S. Department of Defense (DOD).

This jet is part of a testing program the DoD is working on.

As you can imagine, the DOD came up with a super cool and complicated name for this program.

They call it HyCAT, which stands for High-Cadence Airborne Testing Capabilities.





We presume this is because “Fast-As-Heck” was taken.

Dart AE is surprisingly compact. It is only nine feet, eight inches long, which means it is actually shorter than a Fiat 500 or a MINI.

It is lightweight, too, tipping the scales at just 660 pounds or 300 kg.

Part of the reason why this jet is so light is the entire airframe is 3D printed.

#### **Engine**

The best part about it is the engine.

This ultra-fast jet is powered by hydrogen, and it has a range of 620 miles when traveling at Mach 7.

At full chat, DART AE would theoretically be capable of covering the distance between Portland and San Francisco in just 10 minutes.

The propulsion system it uses is based on the same technology that space rockets use.

It is called Spartan and, according to Hypersonix, it can easily reach speeds in excess of 9,000 mph – or Mach 12.

#### **Powered by Spartan**

DART AE is powered by a single SPARTAN, Hypersonix's fifth generation scramjet engine. The hydrogen-powered SPARTAN is the world's first entirely 3D-printed airframe, delivering performance, reliability, lead

time and cost advantages over more bespoke manufacturing methods.

#### **Flexible, Affordable Launch**

DART AE can be launched using an unguided sounding rocket — reducing cost and adding flexibility to the launch and mission scenarios. The prototype test launch, powered by an unguided sounding rocket, was launched in March 2023.

The Brisbane and Sydney team worked so hard behind the scenes in their spare time to nail this internal building competition. The brief was to build a model of our Delta Velos launch vehicle that is made out of commercially available materials, is maximum 1m in size, looks realistic and has the ability to fly.

R&D Brisbane team, consisting of experts in various fields of Aerospace engineering and showing off their skillset, took home the well-deserved win with below presentation of their model.

The Sydney team had the slight disadvantage of an ongoing lockdown (now in week 13) with closures of Bunnings stores so strolling down the aisles for materials and ideas was not an option. But despite the challenges, Team Sydney still managed to hand something in.

**Source: Multiple Sources**



**BOEING®**

# BOEING FAMILY OF HELICOPTERS

Boeing Rotorcraft Systems (formerly Boeing Helicopters and before that Boeing Vertol) is the former name of an American aircraft manufacturer, now known as Vertical Lift division of Boeing Defense, Space & Security. Boeing Helicopters was created as Boeing Vertol when the Vertol Aircraft Corporation (formerly Piasecki Helicopter) company of Morton, Pennsylvania was acquired by Boeing in 1960; the Vertol name was an abbreviation for Vertical Take Off and Landing. Other names by which the division sometimes referred to itself in correspondence over the years were "Boeing Aircraft Company, Vertol Division" and "Boeing Philadelphia". The company was responsible for the design and production of the CH-46 Sea Knight and the CH-47 Chinook. The name became Boeing Helicopters in 1987, and the current name was adopted in 2002

## Boeing Vertol Products

*AH-6 Little Bird (acquired when Boeing merged with McDonnell Douglas)*



*Boeing Model 234 Commercial Chinook*



*AH-64 Apache (acquired when Boeing merged with McDonnell Douglas)*



*Boeing Model 360 (an all-composite, private venture, technology demonstrator)*





*Boeing Vertol 107-II*



*Boeing Vertol YUH-61*



*Boeing Vertol CH-46 Sea Knight*



*Boeing CH-47 Chinook*



## **Boeing Chinook (UK variants)**

*V-22 Osprey (built as a teaming arrangement with Bell Helicopter Textron)*



*Boeing-Sikorsky RAH-66 Comanche*



*Sikorsky-Boeing SB-1 Defiant*



*Boeing MH-139 (Military variant AW139M to be American-built)*





# Aviation Mental Quiz

The Aviator Africa brings you mental Aviation Maths Quiz to test your knowledge in Aviation and sharpen your mental capacity in the field of aviation. Test your Aviation maths knowledge by answering these six (6) mental Maths Questions.

Qn1. You're flying toward fix that's 20 NM away. You're flying 120 KTS ground speed at 10,000'. You need to cross the fix at 6,000'. How fast do you need to descend?

- (A) 200 FPM
- (B) 400 FPM
- (C) 800 FPM
- (D) 1200 FPM

Qn2. You're 30 miles from a VOR. If you're 1 degree off course, how many miles off course are you?

- (A) 1/8 Mile
- (B) 1/4 Mile
- (C) 1/2 Mile
- (D) 3/4 Mile

Qn3. If you descend at a 3-degree flight path angle for 2 miles, how many feet will you descend?

- (A) 300 feet
- (B) 600 feet
- (C) 900 feet
- (D) 1200 feet

Qn4. You're flying to an airport that's 17 NM away. Your ground speed is 90 KTS and you're at 7,500'. You want to reach pattern altitude, which is 1,500', 2 miles prior to reaching the airport. How fast do you need to descend?

- (A) 300 FPM
- (B) 400 FPM
- (C) 500 FPM
- (D) 600 FPM

Qn5. You're at 6,000' and you've been cleared to climb to FL260. What flight path angle do you need to climb to reach FL260 in 40 miles from your present position?

- (A) 2.5 Degrees
- (B) 5 Degrees
- (C) 7.5 Degrees
- (D) 10 Degrees

Qn6. You're flying at 300 knots ground speed. How far will you travel in 3 hours?

- (A) 600 NM
- (B) 900 NM
- (C) 1100 NM
- (D) 1200 NM



# Answers

## Q1 Answer:

### B 400 FPM

You need to descend 4,000'. You're flying 2 miles per minute (120 KTS), which means it will take 10 minutes to reach the fix.  $4,000' / 10 \text{ min} = 400 \text{ FPM}$ .

## Q2 Answer:

### C 1/2 Mile

The 60:1 rule states that when you're 60 miles from a VOR, 1 degree off course = 1 mile off course. Since you're half that distance from the VOR (30 miles), your course deviation is half of that as well: 1/2 mile.

## Q3 Answer:

### B 600 feet

The 60:1 rule states that for every 1 degree you descend, every mile you'll descend 100 feet. ( $1 \text{ deg} * 1 \text{ mile} * 100 = 100 \text{ feet}$ ). Since you're descending at 3 degrees for 2 miles, you'll descend 600 feet ( $3 \text{ deg} * 2 \text{ miles} * 100 = 600 \text{ feet}$ ).

## Q4 Answer:

### D 600 FPM

You need to descend 6,000'. You're 17 NM from the airport, and you want to be at pattern altitude 2 miles prior, which means you have 15 miles to descend. You're traveling 1.5 miles per minute, meaning you'll travel 15 miles in 10 minutes.  $6,000' / 10 \text{ minutes} = 600 \text{ FPM}$ .

## Q5 Answer:

### B 5 Degrees

You need to climb a total of 20,000 in 40 miles. For every 1 degree you climb, you'll climb 100 feet per 1 mile.  $20,000 / 40 \text{ NM} / 100 = 5 \text{ degrees}$ .

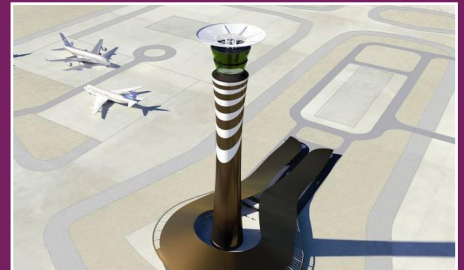
## Q6 Answer:

### B 900 NM

$300 \text{ Knots} / 60 = 5 \text{ miles per minute}$ . In 60 minutes (1 hr), you'll travel 300 miles ( $5 \text{ miles-per-minute} * 60 \text{ minutes} = 300 \text{ NM}$ ) In 3 hours you'll travel 900 NM ( $300 \text{ NM} * 3 \text{ Hrs}$ )

## DID YOU KNOW?

### THE WORLD'S TALLEST ATC TOWER



The ATC tower at Saudi Arabia's Jeddah King Abdulaziz International Airport (JED) is the tallest air traffic control tower in the world.

Only opened in 2017, and, at 136 meters (446 feet), it's taller than the Great Pyramid of Giza. Its height also exceeds that of Seattle's Cirrus skyscraper.

The world's tallest air traffic control tower with 136m, has been one of the most ambitious projects of Sagitario Lighting and undoubtedly one of the most complex in its more than 30 years of history.

To complete the job, it was necessary to manufacture and supply more than 400 light generators featuring high efficiency LED technology, which were distributed on different floors and heights of the control tower. They manage about 6,000 km of highest quality optical fiber, in terms of high light transmission and minimum attenuation, which serve more than 27,000 end light points.



# Entebbe Airways

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