THE Aviator AFRICA

7: ISSUE | Your Number One Source of Avaiation News in Africa | JULY 2021

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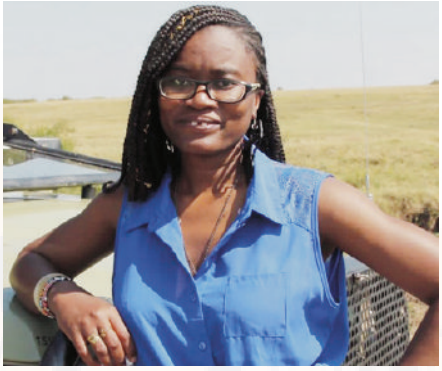
Writers' Profiles

Katatumba Tyson Tommy

Is an Aviation writer and CEO The Aviator Africa, Currently working with a team that is Building An Electric Air Race Aircraft. Very Passionate about the aviation industry. Here to add a thing or more.



Harriet Owalla

Is a travel journalist and consultant with 10 years in experience in the tourism industry. Her passion for travel and regional tourism has seen her work with various hotels, tourism boards, airlines in promoting travels across the region. She holds a Bachelors degree in Political Science and Sociology and a Masters in International Studies from the University of Nairobi.

Iddi Mshana

Is a Journalist - With a Bachelor Degree in Tourism, Iddi has a combined appetite of tourism and aviation. His diverse knowledge and experience of more than 6 years adds an exciting depth to his work. Currently, pursing Commercial Pilot Licence with IR & ME at EACAA Soroti Uganda.

Joan Kifuko

Is a communications enthusiast that is currently working as a writer at The Aviator magazine where you find your aviation news in one place. She is a journalist that has previously worked as a sales associate, guest relations officer, brand ambassador hence, the love for new adventures and roles. Joan graduated with a Bachelors degree of science in journalism.

Jesse-Alex Oparachi Omenazu

Is a Nigerian currently based in Amman, Jordan. He has overtime nurtured his undying passion for the African Aviation Industry, thus inspiring his progressive pursuits in Airport Operations from the Bridgewater Aviation Academy in 2013, Standard Flight Operations from the Nigerian College of Aviation Technology in 2015, Logistics and Transport Management from the Nigerian Institute of Transport Technology in 2018 and currently training as an Airline Pilot.

AFRICAN AIRLINES ASSOCIATION (AFRAA)

Air Transport Report 2020

Remarks from the Secretary General

The Covid-19 pandemic has severely impacted livelihoods and economies across the globe. The travel and tourism sectors have been among the most affected by the impacts of the pandemic.

With the alarming spread of the Delta variant, the havoc caused by the Covid-19 pandemic particularly on the aviation industry globally is far from over. Despite the seeming reduction in the number of new cases in many parts of the Western Countries, Africa currently accounts for a worrying number of new infections since the beginning of June. The countries most affected include Zambia, Uganda, Namibia, Botswana and Kenya, which are experiencing very high infection rates. Middle East too experienced a slight increase in infections. The global recovery rate stands at 97.6% as against 97.1% for Africa.

Africa passenger traffic volumes across remain low due to the inconsistencies in the messaging regarding border closures, health protocols and continued upsurge in Covid-19 infections in some countries. The result is significant losses incurred by airlines. In the first quarter of 2021, AFRAA estimates airlines' loss in revenues at US$2.6 billion. The estimated loss in revenues for quarter two is US$2.4 billion. In 2020, African airlines cumulatively lost $10.21b in revenues due to the impacts of the pandemic. This poor performance is a direct threat to the survival of the African aviation industry if the trend continues.

Mr. Abdérahmane Berthé, AFRAA Secretary General

> Under the auspices of the "Saving Lives, Economies, and Livelihoods" campaign, we call upon the use of digital technology as a means of facilitation and verification of passenger health credentials.

From the onset of the pandemic, governments, air transport institutions and key travel industry industry stakeholders stakeholders have taken a collaborative approach to find workable solutions for resilience to the pandemic and for post recovery efforts. On our part, the African Airlines Association (AFRAA) – the leading

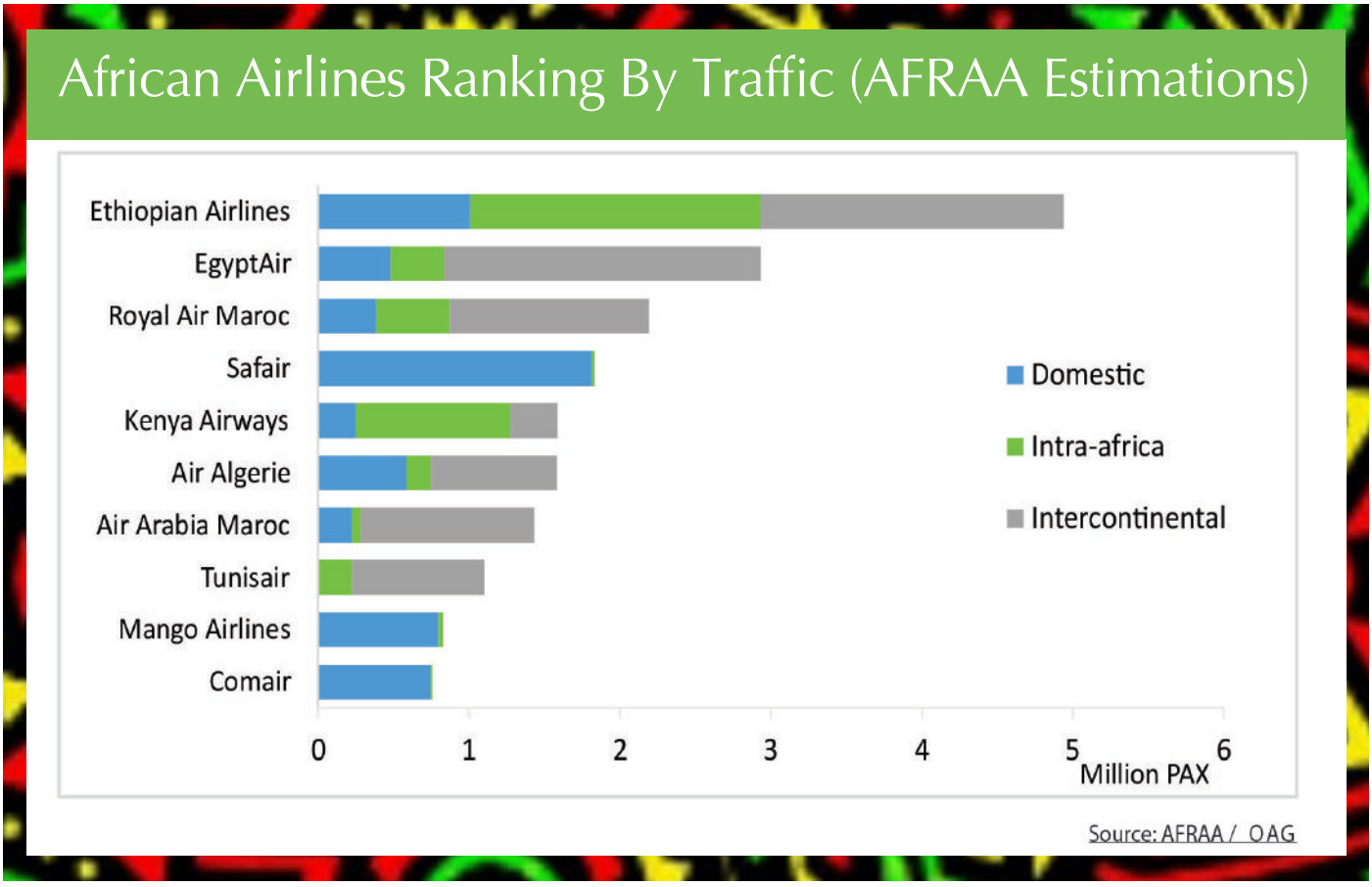
trade association representing the interests of African airlines - has been at the forefront of actions and initiatives to support the efficient restart and recovery of African airlines. Among these initiatives include: the 9-pillar AFRAA industry recovery plan, the AFRAA capacity sharing portal, AFRAA and UNECA survey and report on the financial impact of COVID-19 on African airlines, various appeals to governments and on-going Consultancy Projects under AFRAA Consulting Unit.

Various governments are extending support to African airlines from the devastating effects of Covid-19. In 2020, a total of ---billion was extended for African airlines. This year, we commend the government of Tanzania, South Africa and Malawi for the various forms of support extended to their national carriers. We call upon the extension of the support equally to non-State and private-owned carriers.

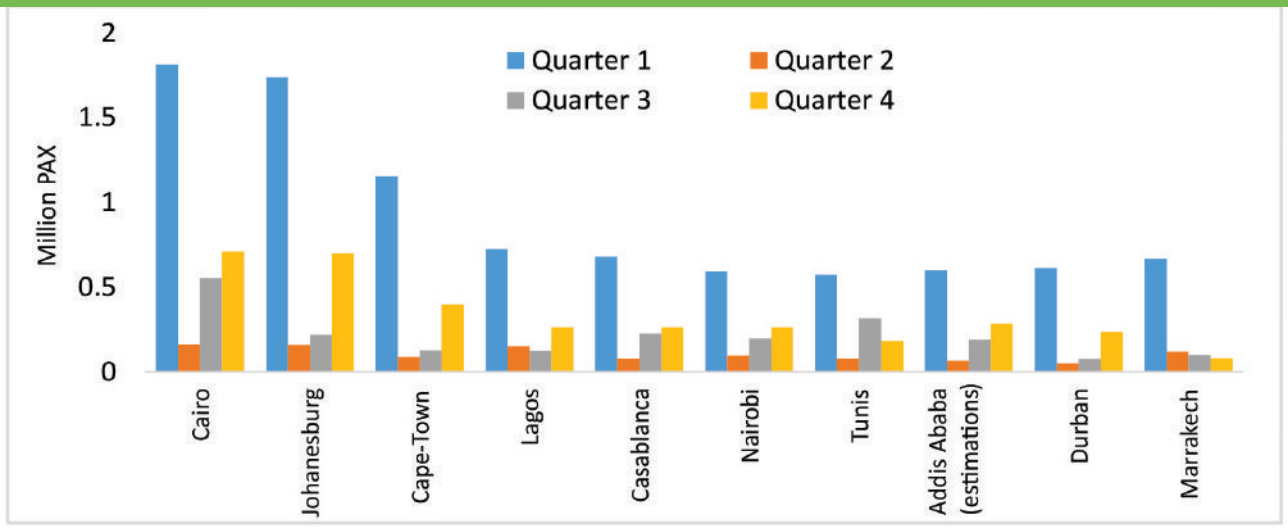
We released in June this year, the 2020 Africa Air Transport Report which gives an in-depth analysis of Africa's air transport industry performance for 2020 covering: financial performance, passenger and cargo traffic evolution, airport ranking, intra Africa connectivity and openness. The report, which is available on our website, is an important reference document for air transport decision-makers and players.

Among the ongoing initiatives for the restart of operations, AFRAA is calling for the harmonization of border protocols and reduction of the cost of PCR tests. Lack of harmonized protocols across the continent are not conducive to the travel experience and keeps traffic depressed. Under the auspices of the "Saving Lives, Economies, and Livelihoods" campaign, we call upon the use of digital technology as a means of facilitation and verification of passenger health credentials. We further call upon governments to accelerate the vaccine roll-out and for border control acceptance of digital certificates wherever possible as verifiable health credentials and as a trusted platform for traveler information.

AFRAA will continue our concerted actions and coordinated efforts with all concerned industry stakeholders to ensure the survival and business sustainability of the travel industry in Africa.



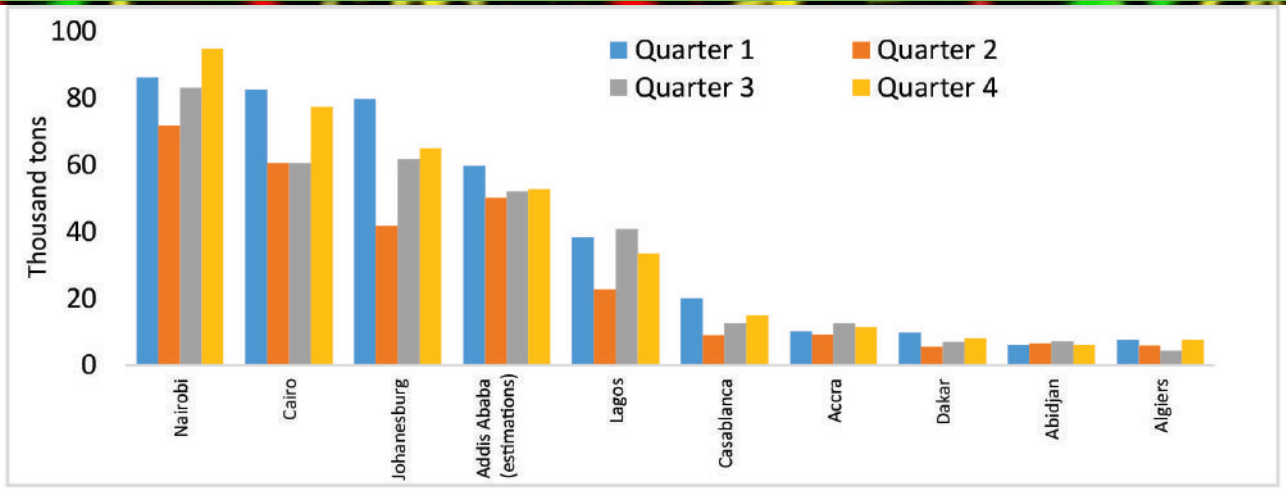
African Airports Ranking By Passengers



Source: AFRAA / A_CI AFRICA

Johannesburg and Cairo are the busiest airports in Africa. Addis Ababa and Nairobi are also part of the top ranking. The only WCAF airport in this top 10 is Lagos. (Addis Ababa data are estimations). After the severe drop in traffic on Quarter 2, Cairo, Casablanca, Addis, and Nairobi airports saw a rise in traffic. South African airports had to wait for the last quarter of the year to have a noticeable improvement. Lagos and Marrakech on the other hand saw a decrease in traffic during the third quarter.

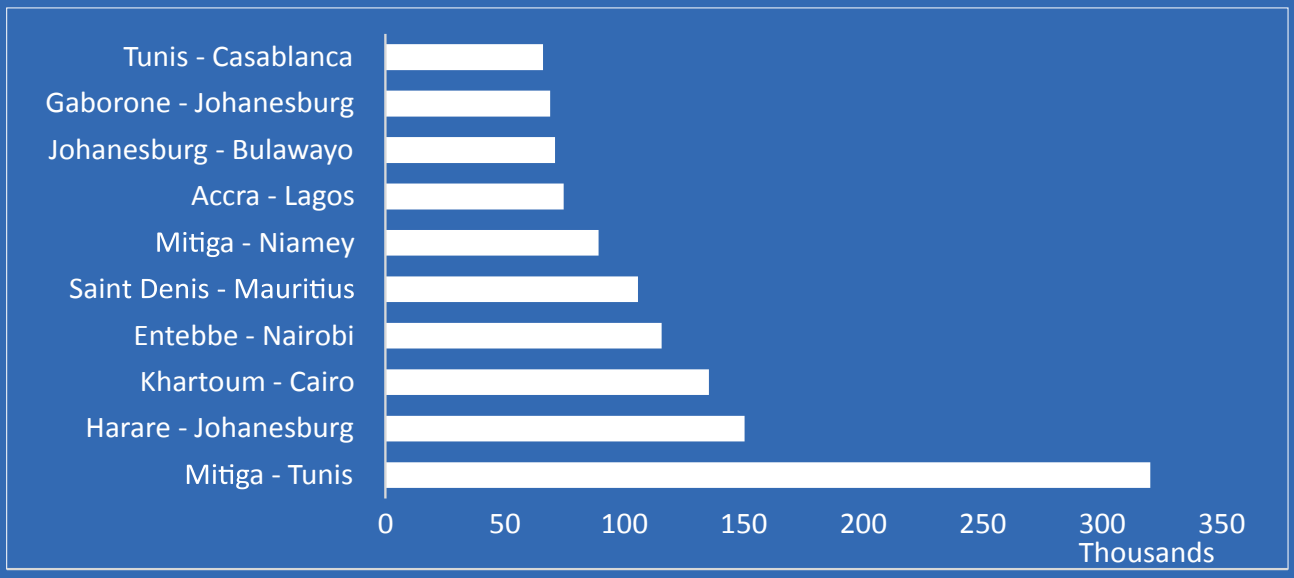
African Airports Ranking By Freight



Source: AFRAA / A_CI AFRICA

Nairobi Jomo Kenyatta airport handled more than 330 thousand tons of freight during the year 2020. Cairo followed with 280 thousand tons. Four West Africa are part of the top 10, namely Lagos, Accra, Dakar, and Abidjan. For the majority of these airports, freight traffic strongly rebounded after the drop of Quarter 2. Nairobi even performed in Quarter 4 compared to Quarter 1. (Addis Ababa data are estimations)

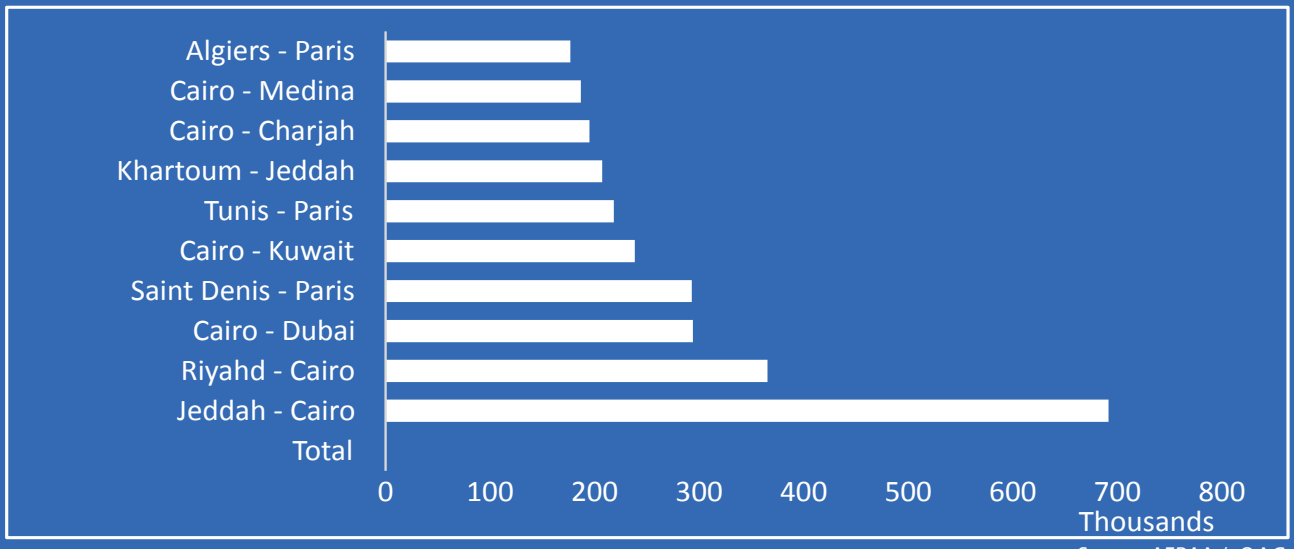
Top 10 Intr a - African routes by passengers carried (AFRAA estimations)



Source: AFRAA / OAG

Almost all the regions are represented in this top 10: Southern Africa with 5 routes, 1 route in Eastern Africa, 2 in Northern Africa, and 2 in Western Africa.

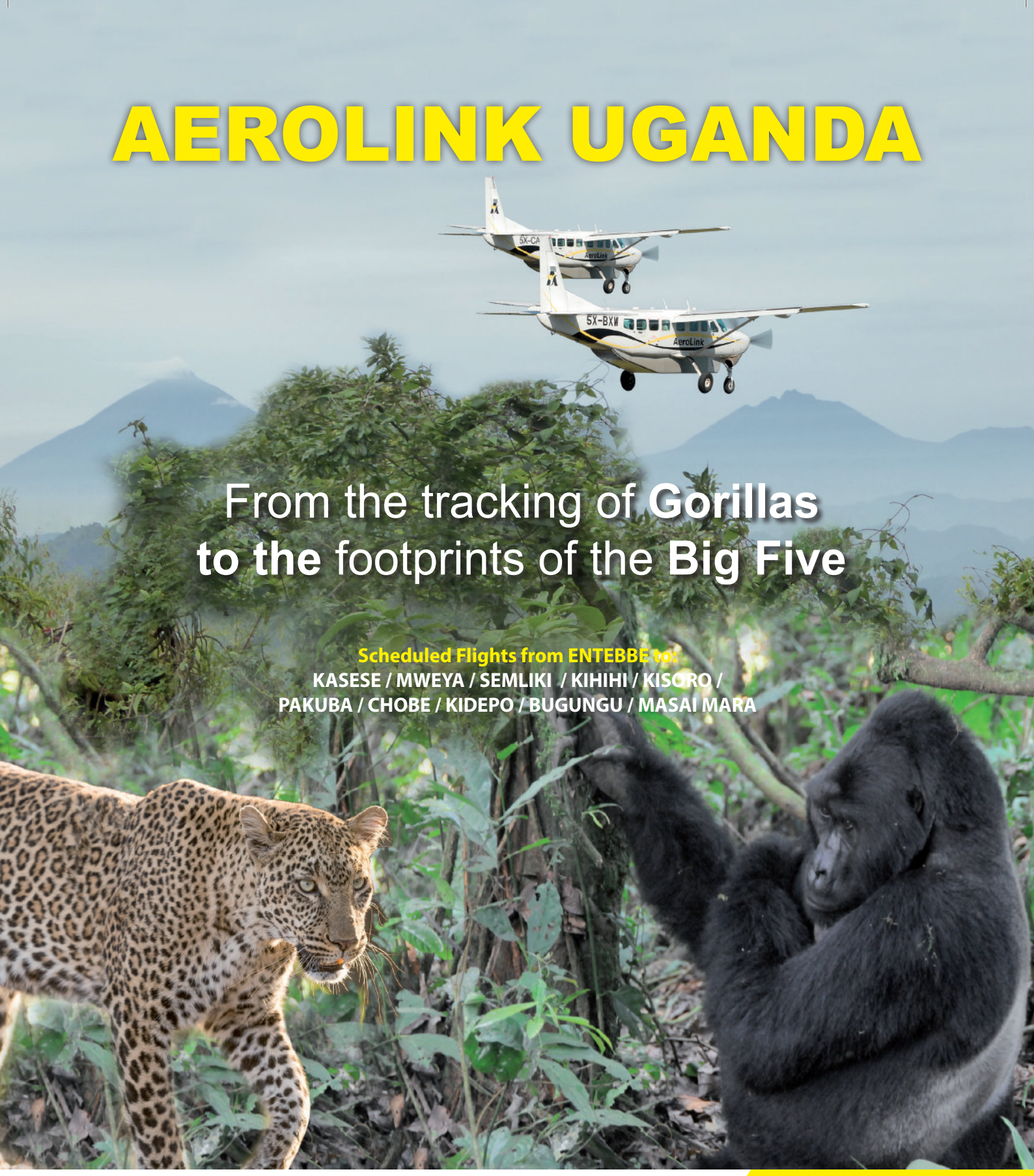
Top 10 Intercontinental routes b y passengers carried (AFRAA estimations)



Source: AFRAA / OAG

This top 10 shows the strength of traffic between North Africa and Middle East, particularly from Cairo. Egyptair is the leading carrier on these routes.

AEROLINK UGANDA



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to the footprints of the **Big Five**

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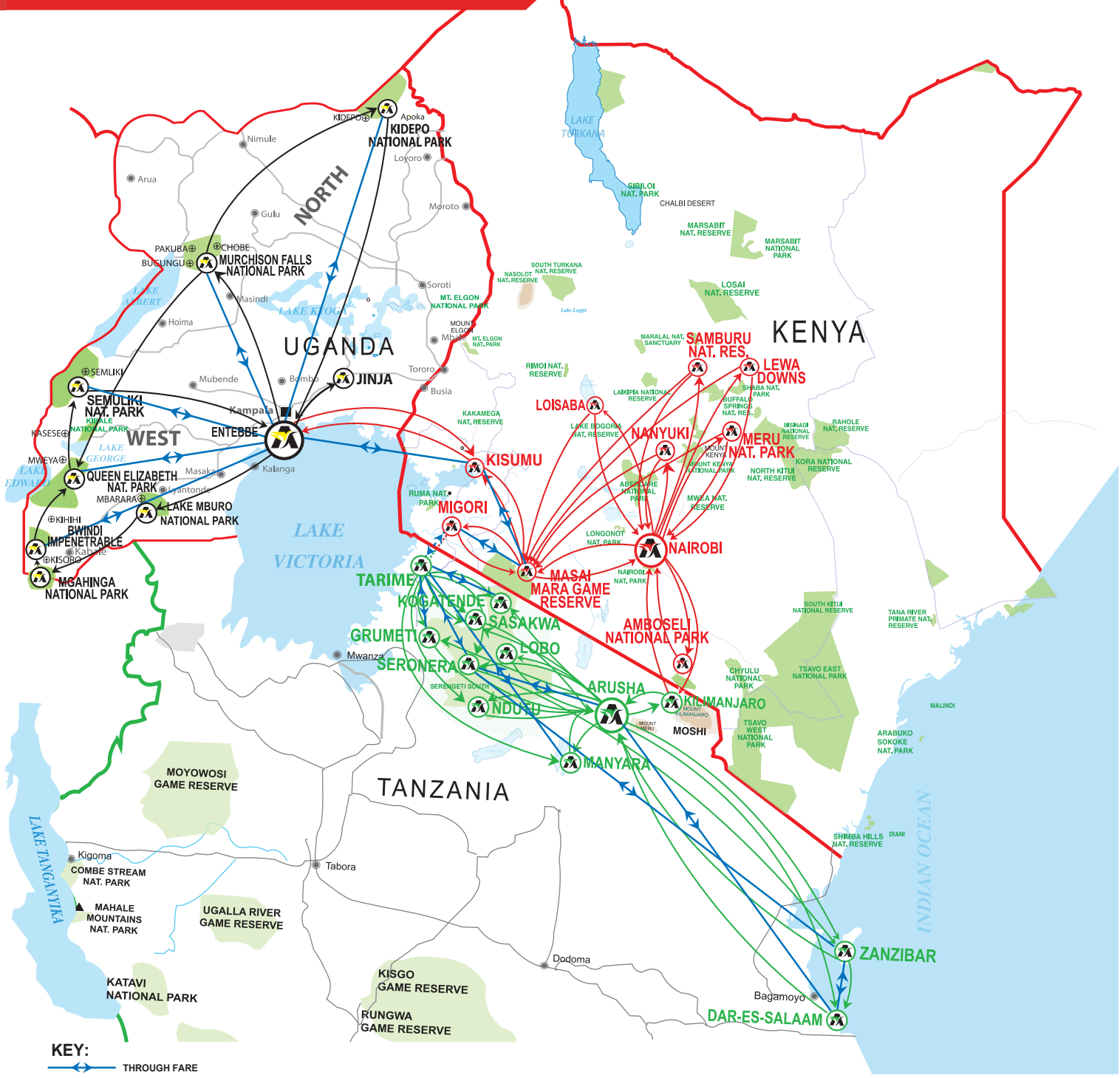
ROUTE NETWORK



KEY:

- THROUGH FARE
- AIRKENYA NETWORK
- REGIONAL AIR NETWORK
- AEROLINK NETWORK

AIRKENYA

1. Amboseli
2. Kilimanjaro
3. Lewa Downs
4. Masai Mara
5. Meru
6. Nairobi
7. Nanyuki
8. Samburu
9. Migori
10. Loisaba
11. Kisumu
12. Entebbe

REGIONAL AIR

1. Arusha
2. Dar es Salaam
3. Fort Ikoma
4. Grumeti
5. Kilimanjaro
6. Kogatende
7. Lake Manyara
8. Lamai
9. Lobo
10. Ndutu
11. Sasakwa
12. Serengeti South
13. Seronera
14. Wasso
15. Zanzibar
16 Tarime

AEROLINK

1. Bwindi Impenetrable Forest
   - Kihihi and Kisoro airstrips
2. Queen Elizabeth National Park
   - Kasese, Mweya and Semliki airstrips
3. Murchinson Falls National Park
   - Pakuba, Bugungu and Chobe airstrips
4. Kidepo National Park - Kidepo Airstrip
6. Entebbe - Mara Via Kisumu

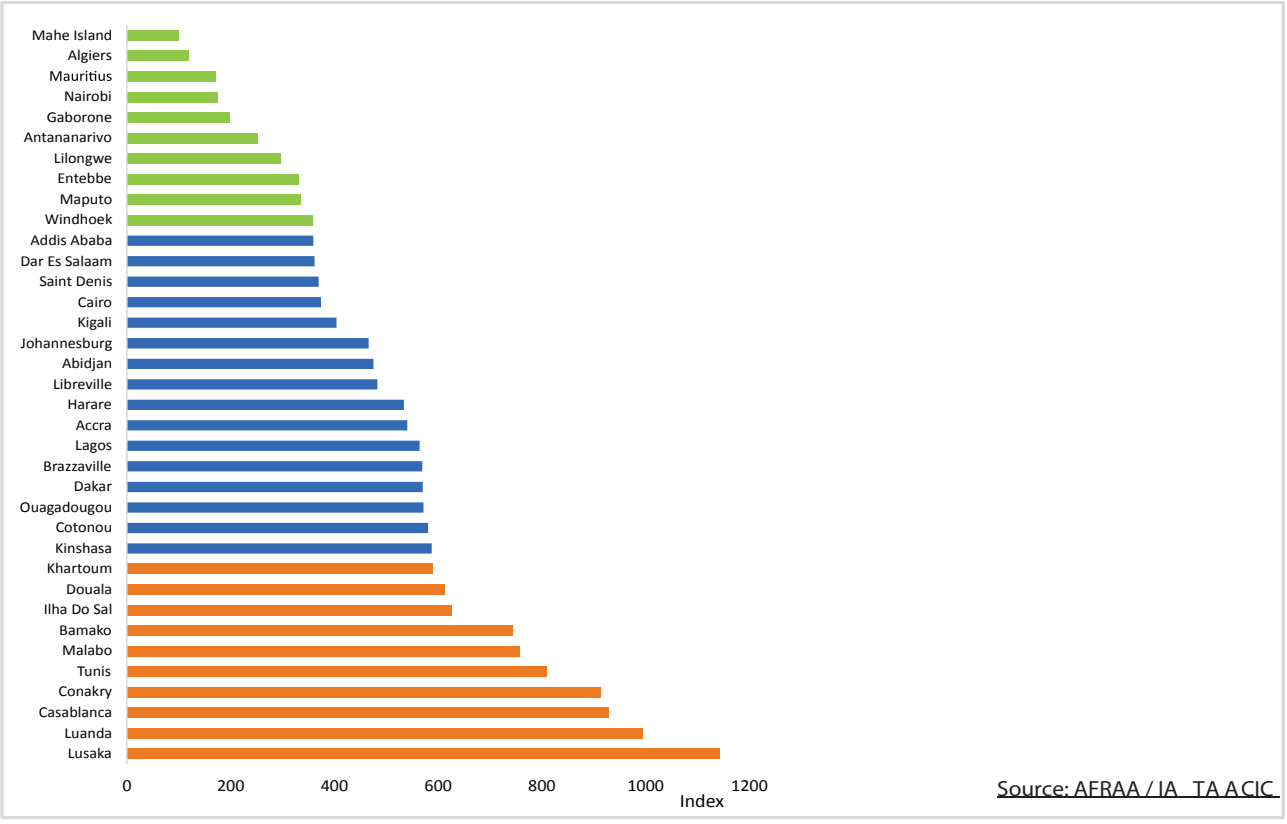
AIRPORT CHARGES

Methodology:
A comparative study based on a single aircraft type applies to all airports of more than 500 thousand passengers yearly.

The type of aircraft chosen is the B737, the most popular aircraft type in the region.
Following the applied criteria:

Aircraft Type	B737
MTOW	70.08 Metric
Flight Type	International
Origin & Destination	100
Total Departing Pax	100
Parking Time	2 Hour
Boarding bridge time	1 Hour
Arrival Time	12:00
Cargo	0 Kilograms

African airports ranking by charge index



Lusaka has the highest level of charges while Mahe Island has the lowest among the selected airports. Some of the busiest airports in Africa like Johannesburg, Addis, Algiers are among the least expensive. This indicates that lowering the airport charges can have a positive effect on traffic.

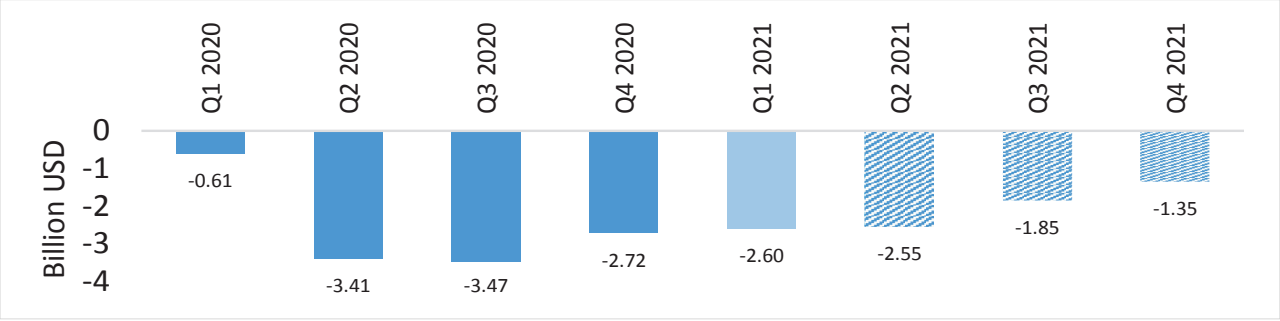
AFRICAN AIRLINES PERFORMANCE

Africa airlines operations were severely impacted by the Covid19 crisis. If the first cases on the continent appeared at the end of February in the northern region, the restrictive measures started to be applied in March. The impact was drastic for the traffic.

Financial performance

The Covid19 crisis had a devastating impact on airlines finance around the world. For African airlines, whose financial situation was already precarious, the impact was even greater. For the year 2020, the Passenger revenue loss is estimated at USD 10.21 billion.

African Airlines' Passenger Revenue Loss

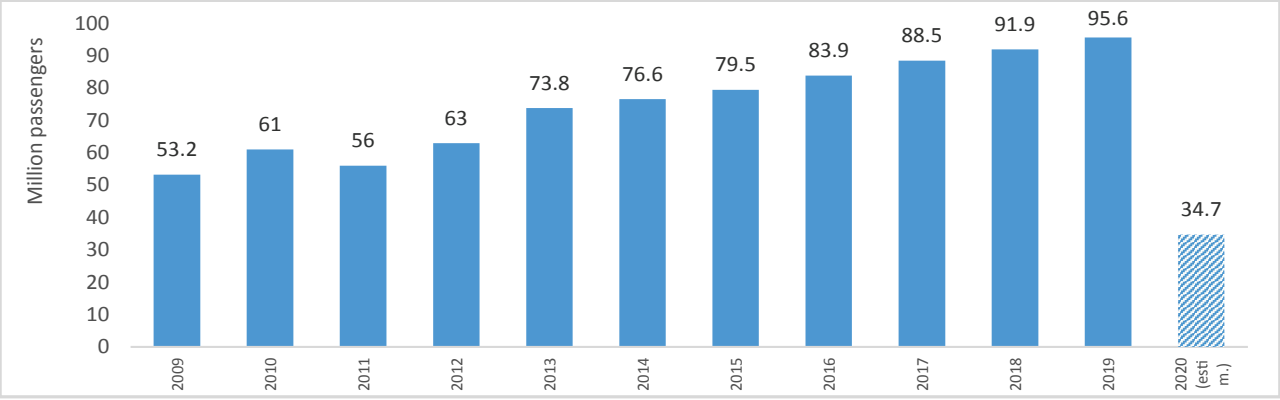


Source: AFRAA / OAG

Quarter 2 and 3 was the most affected, before a smooth recovery on the 4th quarter. According to our forecasts, African airlines will continue to lose money in 2021, even if the amount will reduce. We estimate the overall Passenger revenue losses for 2021 at USD 8.35 billion.

Passenger Traffic Evolution

Scheduled passengers carried by African airlines



Source: AFRAA / IATA Watts

The number of scheduled Passengers carried by African Airlines is estimated to drop from 95 million in 2019 to 34.7 million in 2020, representing a year-on-year decline of 63.7%.

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BOEING to end their production line for 747 Jumbo Jet

Boeing 747 production line Credits: Boeing

By Iddi Mshana, Cadet Pilot - EACAA

Boeing is reported to stop making Boeing 747 for good after it completes the last of the 12 aircraft currently on order. When the last jumbo rolls off the assembly line, it will mark the end of an era for an aircraft that's spanned for more than five decades. Production of the plane is expected to wrap up at the end of next year.

Demand for the iconic four-engine jet has dropped in recent years and other factors have further pushed Boeing to stop making them entirely. The impacts of COVID-19 pandemic has also cost the air travel and aviation industries to only further decline the market for the iconic plane with a nicknamed the "Queen of the Skies."

According to Boeing, four Boeing 747-8Fs are going to Atlas Air, seven Boeing 747-8Fs are going to United Parcel Services (UPS), and a single 747-8 is going to an. Speculation of an unidentified customer is that the jumbo jet will head to the Middle East. But so far, the plane remains on the

ground in the United States.

(Atlas-Air Boeing-747 Credits: Atlas Air)

Boeing has, so far, declined to confirm or deny that it has made any final decision about the future of the Jumbo Jet. The company has reportedly not yet informed workers at its plant in Everett, Washington, near Seattle, where the latest version of these aircraft, the 747-8 variant, is assembled, about any upcoming changes.

In November 2019, medias reported that Triumph Group, the largest of Boeing's Jumbo Jet subcontractors, was auctioning off manufacturing equipment from a plant in Hawthorne, California that makes 747-8 fuselages, signaling a slowing of work at that site. This facility has made the fuselage for every single 747 since PanAm ordered the very first examples in 1966.

Beyond possible commercial or even private buyers, the only real potential military order would be for a variant to meet the U.S. Air Force's requirement for an aircraft to replace its existing 747. This would probably be a long shot, though, and it seems more likely the U.S. Air Force will opt for a smaller aircraft.

If the company fulfills its current orders of 747 jumbo jets, it will have produced just over 153 examples, in total, including those configured as freighters. Sheila Kahyaoglu, an analyst with the Jeffries Financial Group, told Bloomberg that Boeing has lost an estimated $40 million on each 747-8 sold since 2016.

It's with no doubt that shutting down the already increasingly unprofitable 747 line would certainly offer a way to try to cover at least some of the company's other losses. Boeing could then potentially use that the newly freed-up production space and other associated resources for other purposes.

Atlas-Air Boeing-747 Credits: Atlas Air

Why More African Airlines Should Embrace the Low Cost Business Model

By Chidozie Uzoezie

The aviation market in Africa is not only the least developed, but also one of the toughest in the world. Despite being home to 16.1% of the world's population, Africa is still grappling with many developmental challenges, including unprofitable aviation market and poor air connectivity. One of the reasons for this poor air connectivity in Africa is the obvious lack of sustainable airline operations. And more importantly, the near absence of low cost carriers which drive route development and air connectivity in other parts of the world.

In terms of route development and Available Seat Kilometers (ASK), low cost and ultra low cost airlines are gradually taking over commercial passenger operations across the world. However, there's no significant corresponding rise in the activities of low cost carriers in Africa. With only 7.5% of the global low cost airlines domiciled in Africa, it's obvious that the continent has been left behind in the no frills airline business model (see figure 1). It's imperative for more African airlines to consider adopting the low cost business model. Let's see why.

Opportunity to Save Cost

The major factor that determines an airline's scope of operations and its growth trajectory is its business model. By default, many airlines go full service with all the pecks and frills and glamour that are traditionally associated with flying. One of the fundamental problems of African airlines is that most of them have wrongly chosen the full service business model, with many of them not turning in profit year-on-year. Going low cost will enable African airlines to save costs by several margins by maximizing fleet and crew, operating into secondary airports, effecting quick turnaround times, incurring less airport charges, and most

importantly, by ditching the traditional in-flight meal service. Not that passengers care much about in-flight meals, anyway.

According to a survey carried out by Africa World Airlines, less than 10% of passengers choose an airline based on food offering. That number drops even further to below 5% on flights less than 2 hours. With this in mind, more African airlines (both existing and start ups) should consider choosing the low cost business model. The best way to save money is to not spend it, isn't it?

Latitude to Diversify

The airline industry is increasingly becoming contingent on ancillary services as airlines around the world think outside the box to improve their revenues beyond ticket sales. In addition to saving costs, going low cost will give African airlines the latitude to diversify and make extra revenues. Revenues generated from ticket sales alone is often not enough to sustain an airline's long term operations. This is why it's imperative for African airlines to diversify their operations and have multiple revenue streams including ancillary services.

In 2019 alone, global airlines generated total revenue of $75.6 billion from ancillary services. Ancillary revenues come from non-ticket services including in-flight refreshment, advanced seat selection, extra legroom, Wi-Fi, baggage fees, express bag drop, priority boarding, fast track security. According to a report, consumer spending in the hospitality and leisure industry in Africa is projected to rise to about $300 billion by 2030.

In addition to a la carte ancillary services, African airlines can also make extra revenues from commission-based ancillary services including selling holidays, tours, hotel accommodation, car rentals, and travel insurance. They can also generate extra revenues from advertising for third parties on their websites, seatback screens, in-flight tray tables, aircraft overhead bins, and in-flight magazines. The bottom line is that, ancillary services are very crucial sources of extra revenues for low cost airlines. And the low cost business model is the perfect latitude for African airlines to provide ancillary services and increase their revenue streams.

$75.6b

In 2019 alone, global airlines generated total revenue of $75.6 billion from ancillary services

Low Cost Isn't 'Petty' and 'Inferior'

One of the wrong impressions about low cost airlines is that they are petty and inferior airlines that can't stand the test of time. However, across the world, low cost airlines are some of the largest airlines both in terms of fleet size and revenue potentials. Southwest Airlines, an American low cost airline, is the third largest airline in the world by passenger traffic. In 2019, it carried 163 million passengers and generated a total of $22.4 billion. With over 750 aircraft in its fleet, Southwest Airlines is also the world's fourth largest airline by fleet size.

Ryanair, another low cost airline, is the world's largest airline by number of routes served. The Irish airline flies to 1,830 routes and has the world's highest load factor of 96%. Ryanair is also Europe's largest airline by passenger numbers, and has the highest operating margin of all the European airlines. I decided to put these figures into perspective to empirically show that low cost airlines are a force to reckon with in the global aviation industry.

Perhaps, the most interesting thing about going low cost is that, contrary to popular belief, it doesn't weaken the airline's brand value. In 2019, Brand Finance ranked Southwest Airlines the fourth most valuable airline in the world, higher than most full-service legacy carriers including Emirates, British Airways, China Southern, and Lufthansa.

Driving the Competition

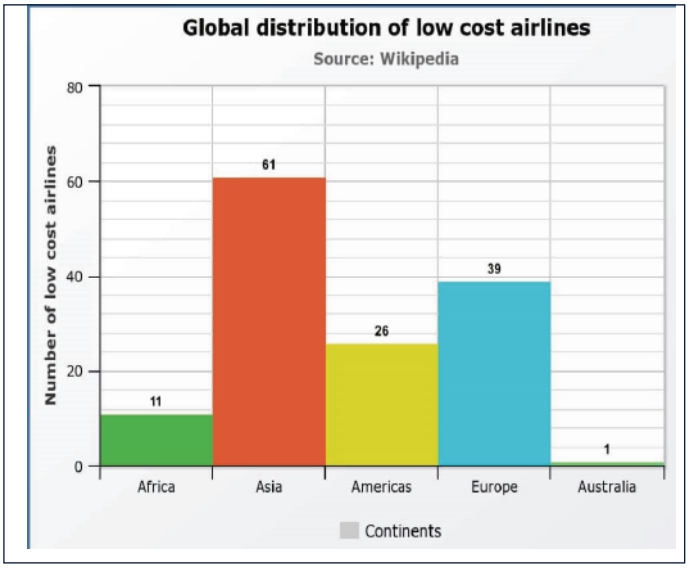
Besides airline's safety record, ticket cost is the single most important factor that determines the choice of airline by intending passengers. In a recent joint online survey by The Afritraveller Blog and the African Aviation Group, 44% of the respondents said they would choose their airlines based on the cost of the ticket. Ticket cost was ahead of other factors like aircraft type (5%), in-flight catering (4%), and schedule (4%). Ryanair is a low cost airline, but it has the world's highest load factor of 96%.

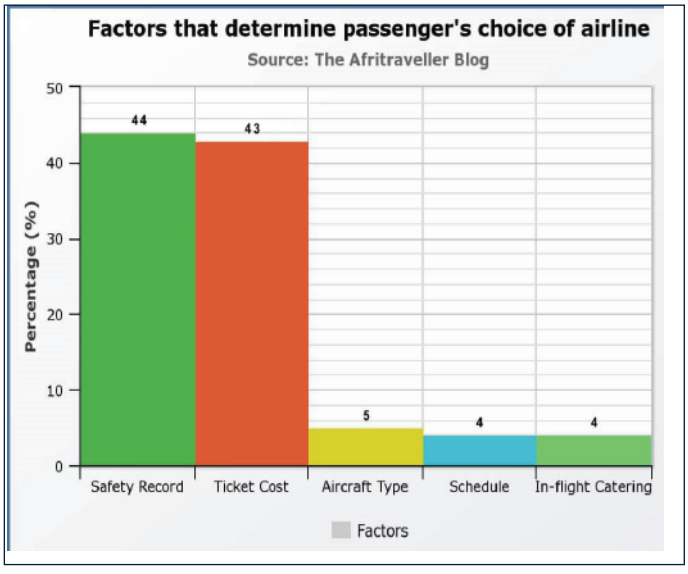
When Green Africa Airways, a new low cost airline based in Nigeria, unveiled its fares a few weeks ago, the travelling public was agog with excitement. Not just because the fares were over 50% lower than the prevailing average fares in the market, but also because their low fares forced the existing full service airlines to reduce their tickets prices which were hitherto very exorbitant. More low cost airlines will bring competition to the doorsteps of the full serviceairlines with the ultimate goal of making air travel affordable in Africa.

Conclusion

Currently, only a handful of low cost carriers dot the African skies. This is in a sharp contrast to what is obtainable in Europe, Asia, and the Americas. Operational variables like higher-density seat configurations, less operating costs, quick turnaround time, and lower capital costs, can help new and existing low-cost carriers in Africa to break even on domestic and regional routes with more profitability prospects than their full-service counterparts. With aircraft acquisition costs at their lowest due to surplus aircraft in the second hand market, this is the time for new low cost airlines to emerge in Africa. It is also a good time for the existing ones to expand their operations.

While national carriers cannot embrace the low cost model, their subsidiaries and privately owned airlines should take the bull by the horn and venture into the no-frills space. The entrance of more low cost airlines into the African aviation market will significantly reduce the cost of air travel, increase regional air connectivity, and ultimately give airlines the latitude to operate profitably.





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The Late President Magufuli trying to fly a plane

Magufuli *"The bulldozer"* and his contribution to the Aviation Industry

John Pombe Joseph Magufuli (29 October 1959 – 17 March 2021) was a son of a peasant farmer who rose and became fifth Tanzania's President from October 2015 until his recent death in March 2021. He served as Minister of Works, Transport and Communications from 2000 to 2005 and 2010 to 2015 and was Chairman of the Southern Africa Development Community from 2019 to 2020.

By Iddi Mshana, Cadet Pilot - EACAA

Magufuli's contribution to the Aviation industry in Tanzania

1 AirTanzania Re-born

When he came to power with his new government in place, late President John Magufuli vowed to restore the airline. In May 2016, Magufuli government initiated a new drive to revive the national carrier. The government purchased two new Bombardier Q400 for the national carrier, which were delivered in September 2016. In December of the same year the president's office announced that a four additional aircraft would be purchased for the national carrier, with deliveries set for June 2018. Air Tanzania's market share during 2017 increased to 24 percent from 2.5 percent the previous year. On 15 September 2016, the president appointed Ladislaus Matindi as director general of the Air Tanza-

nia Company Limited who is active in the office up-to-date.

In September 2016, the Tanzanian government, through its Tanzania Government Flight Agency (TGFA), took delivery of two Bombardier Dash 8-Q400 turboprop aircraft at Julius Nyerere International Airport in Dar es Salaam. Those aircraft were all operated by Air Tanzania. On 2 December 2016, Bombardier Commercial Aircraft announced that the Tanzanian government, acting through its TGFA, had signed firm purchase agreements for two Airbus A220-300 aircrafts and one Q400 turboprop aircraft for lease to Air Tanzania. The TGFA also ordered two Boeing 787 Dreamliner aircraft valued at US$224.6 million at list prices.

On 2 April 2018, Air Tanzania received its third Dash 8-Q400 aircraft with and later own the fourth and last Dash 8-Q400 landed in Tanzania. All the Dash 8-Q400 were registered as 5H-TCB, 5H-TCD, 5H-TCE and 5H-TCF. With the new airplanes, Air Tanzania resumed service to various domestic destinations. On 8 July 2018, Air Tanzania took delivery of a Boeing 787 Dreamliner, to be deployed on intercontinental flights.

All new aircraft operated by the airline are owned by the Government Flight Agency which then leases them to the airline. Air Tanzania received its first Airbus A220-300, registered as 5H-TCH, in December 2018. The airline became the first African operator of this aircraft type and the fifth airline globally with an A220 family airplane.

On 11 January 2019 the airline's second Airbus A220-300 aircraft, christened Ngorongoro and registered as 5H-TCI touched down at the Julius Nyerere International Airport in Dar es Salaam. During June and July 2019, the airline started new routes to Johannesburg, South Africa and Mumbai, India. These routes are operated by two Boeing 787-8 Dreamliner and the Airbus A220-300.

2. Radar Installation

On March 2018 Tanzania Civil Aviation Authority (TCAA) started carrying out a 67.3 Billion Shillings radar installation project to

The Late President Magufuli recieving a baby in a plane from one of his supporters

enhance its surveillance capacity. The project came with number of advantages including increasing airspace utilization and safety enhancement. This was different before Magufuli took the office, planes were operating without radar ranges from; underutilization of airspace, aircraft were forced to fly uneconomical levels, fuel burn and engine emissions were both high and workload for controllers and pilots was also high.

The Radar systems were installed at four major airports namely Julius Nyerere International Airport (JNIA), Mwanza Airport, Kilimanjaro International Airport (KIA) and Songwe Airport offering a whole coverage of Tanzania airspace. The Tsh.67.3 Billion project was completed on September 2019.

Late President Magufuli did inaugurated Terminal 3 of Julius Nyerere International Airport (JNIA) in Dar Es Salaam. The new terminal which cost Tshs 722 billion (~USD 314 million) to build, aimed at increasing the airport capacity to 8 million passengers annually

3. Airport Upgrades

Under Magufuli's government a number airport upgrade projects were initiated including enhancements to the Mwanza Airport, rehabilitation and upgrade to Bukoba Airport and its runways, in addition to the third phase construction of a new airport of Songwe. Similarly, his government was working on rehabilitation and upgrade at the Tabora, Kigoma, Arusha, Tanga, Manyara, Sumbawanga, Mara, Lindi, Singida, Simiyu, Songea, Shinyanga and Mtwara airports, as well as construction of the greenfield Msalato International Airport in Dodoma which until its completion would cost approximately USD 272.12 million.

On 1st August 2019, Late President Magufuli did inaugurated Terminal 3 of Julius Nyerere International Airport (JNIA) in Dar Es Salaam. The new terminal which cost Tshs 722 billion (~USD 314 million) to build, aimed at increasing the airport capacity to 8 million passengers annually. JNIA is the primary airport in Tanzania and was receiving around 2.5 million passengers annually which were beyond its handling capacity.

Conclusion

Magufuli's government bought eight brand new aircraft for commercial use under the fully Government owned Air Tanza-

nia Company Limited (ATCL). Alongside purchase of the aircraft, the government had continuously been improving the airport to support air transport of both passengers and cargo both domestically and across borders.

Indeed, his government wholeheartedly invested in aviation targeting at stimulating economic prosperity through various sectors of production including attracting tourist inflow into the country which contributes to more than 17.6% GDP of the country and generating more than 25% of foreign currency.

After he was re-elected for the second term last year, late President Magufuli announced his government was set to buy five new aircrafts including a cargo aircraft in the next five years s to support its ambition of becoming an industrialized country and business hub in the regional.

Magufuli said the cargo aircraft will support agriculture and livestock sectors, horticulture production and fish fillet export in particular for optimal support of government development plans. Tanzania performance in horticulture production has improved where it currently holds a 22 position in the world. Currently Tanzania has no a robust cargo airlift services, thus the move would have not only boost the agriculture sector but also the civil aviation industry.

Rest in Power Pan Africanist ....
The struggle Continues!

The Instructors' Instinct

Flight Instructing is one of the best yet dangerous careers in aviation. It's really interesting to teach a grown up how to fly. From scratch to a competent commercial pilot. However, the Student can kill both of you in a split second!! Read on.

A flight Instructor on duty

By Munyao Kennedy, Flight Instructor

A day of a flight instructor starts at daybreak. sometimes as early as 4 am. We believe that for one to have a good and consistent day, you ought to start the day right. Waking up early gives the instructor time to plan the day at their own pace. You don't want to do things in a rush because you cannot afford to miss a thing. Its that serious. My study/planner desk is an interesting one. Sticky notes everywhere because I cannot trust my brain to fully remember all(It's human nature) that I need to do the following day.

Well, I believe that to be a good Flight Instructor, I must be conversant with my theory/grounds work. That's why I prefer to start my day with a morning grounds class. Teaching has a magical way of reinforcing what you already know plus it gives you new insight every once in a while. By teaching, you learn more than you are giving to your students. My teaching method involves an interactive lecture/discussion with my students with in between breaks to break boredom. By the end of the lesson, I ensure my students have learned and grasped the concepts of the day through active Q&A. A normal lesson would take approximately 2-3 hours. A time I find quite short!

The next phase involves the actual flight Instructing. The air

exercise. This is the part that the Student is eager to get to. Especially the new students. They can't wait to sit in the cockpit and take pics for their Instagram and Snap chat. My job involves emphasizing on safety first when approaching and handling the Aircraft. It's quite a tough job dealing with adrenaline and anxiety. Being in the wrong place at the right time could lead to an Accident. A fatal one to be precise especially if it happens within the proximity of the propeller!

Prior to the actual flying, the student is briefed about the air exercise to perform and the science behind the maneuvers explained to them so that they would understand why the aircraft behaves the way it does during the actual flying. This inter-phase is really important because if the student misses a point during the brief, they would be confused in the actual practical training. After that, vital checks of the Aircraft are done as per the checklist (a special publication guiding the pilots on what to check at different phases of flight) and before long, both the Student and the Instructor are seated in the cockpit of an airborne Cessna 172 or Cherokee.

"A wrong move especially in the take-off or landing phase could be fatal and that's where the Instructor is expectant of anything."

When flying, Clarity of instructions is very important and so is time when making a decision. Something which the new student finds a little bit difficult in grasping especially in the Initial phases of flight training. It's a patience game I tell you and that's our job. The exciting part is when I completely hand over controls to my students. I expect anything at any time. It could be a rapid movement such as a dive towards a mast on ground to accidentally shutting down the engine! The good part is, students are humans and rarely make such mistakes. However, as a flight Instructor, you can never be sure or reluctant. One must stay alert to take over controls whenever the Student messes up. It must happen once in a while, better be ready for it.

A wrong move especially in the take-off or landing phase could be fatal and that's where the Instructor is expectant of anything. We are patient enough to let the student learn and yet vigilant enough to act in split seconds to save lives. It's very risky and yet I continue to do it every day. I would say Danger thrills Aviators, however the feel of seeing a student thrive from such fear into a fully competent pilot gives the Flight Instructor a good night sleep.

THE FUTURE OF THE AEROSPACE INDUSTRY

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South African Civil Aviation Authority (SACAA) Launches a New Card License

Poppy Mhlungu-Khoza, SACAA Director during the new card Licence launch

By Joan Kifuko

South African Civil Aviation Authority (SACAA) launched a new Card License System replacing the old booklets that used to identify personnel license holders. The new Card license was launched on Wednesday 21st April 2021.

The new card license became available from 3rd May 2021. The move by the aviation regulator made South Africa one of the pioneering countries that replaced the passport-like licenses with the wallet size, credit type according to the media release by SACAA.

The new card license launch also moved SACAA one step closer to achieving its goal of a fully integrated and organization-wide Information and Communications Technology (ICT) system that will enhance the regulator's service offering to the CAA.

While delivering the Keynote address during the launch event, Honorable Deputy Minister of Transport, Ms. Dikeledi Magadzi (MP) said, "Our nation's commitment to ultimately eradicate the use of paper has found appropriate and necessary expression in the development of the card license we are unveiling today. It is also clear as shown by research that environmental considerations and policies can ultimately influence technological innovation".

While at the launch, SACAA Director Ms. Poppy Khoza said that, the new and nifty card is convenient, simpler, safer, and more environmentally friendly. "The new card license comes with security features that will make it difficult to replicate and prevent the ability to counterfeit, alter or modify the information on it. What is more, there is no need to worry about delays associated with a license book that must be updated physically", she said.

She further elaborated that, simple scanning of the digitally secure 2D bar code allows access to real-time information anywhere and anytime. All personnel information that will not be reflected visibly on the card such as type ratings, medical status, expiry dates among others, can be accessed by scanning the back of the card.

"What must be noted is that although the information can be

accessed through a barcode, for security reasons, this information cannot be downloaded. "What this means is that if license holders have a smartphone with a camera, they will be able to download an app, called PDF 417, from the Play Store and apple Store, and scan through the barcode. Moreover, the SACAA has invested in a highly sophisticated redundancy site, which allows for the license holder's information to be verified, even when the production environment is offline. I think that with all these capabilities, we can call the card license a smart card!" Khoza further explained.

However, should the barcode malfunction, information can still be accessed via a webservice portal.

A single Card License, without expiry dates, will be issued for each of the following license groupings. A person holding multiple licenses for each group will be issued with three (3) card licenses. AME and RMT, ATS, RPL, NPL, GPL, CC, FE, FB, SPLIC, PPL, CPL and ATPL. The SPL will, however, not be issued in a card format.

The rollout of the cards license will take through a five phased approach and started with the Private Pilot's License and Student Pilot's Integrated License on 3rd May 2021. The rollout of the other license categories will be communicated via the SACAA website and its other online media platforms.

A card license is to be issued upon submission of the application for either a new license or renewal of the competency of a license once their category of license is rolled out. However, it should be noted that the current booklet licenses will remain valid until the expiry date, or when it is due for renewal, when

the license holder will be issued with the new card type license. The fees remained the same, although the fees for some licenses are to be charged once for a two-year validity period, instead of one year.

The requirements when applying for a card license are to remain the same as the booklet, except that applicants need to bring a passport-sized photograph, preferably in colour and when sending it electronically, the photograph should be in high definition.

The South African civil aviation industry is highly regarded globally in terms of compliance with global standards that regulate air transport.

The Card Licence project will be rolled out in the following five (5) phases:

PHASES	TYPE OF LICENCE	ROLL-OUT DATE
1	Private Pilot Licence Student Pilot Integrated Licence	3rd/may/2021
2	National Pilot Licence Glider Pilot Licence Cabin Crew Licence	To be communicated
3	Hot Air Balloon Licence Remote Pilot Licence Flight Engineer Licence	To be communicated
4	Aircraft Maintenance Engineer Licence Air Traffic Control Licence	To be communicated
5	Commercial Pilot Licence Airline Transport Licence Validations of all Licences	To be communicated

Mayday Series:

A cross country to the Masai Mara from Wilson Airport in Kenya

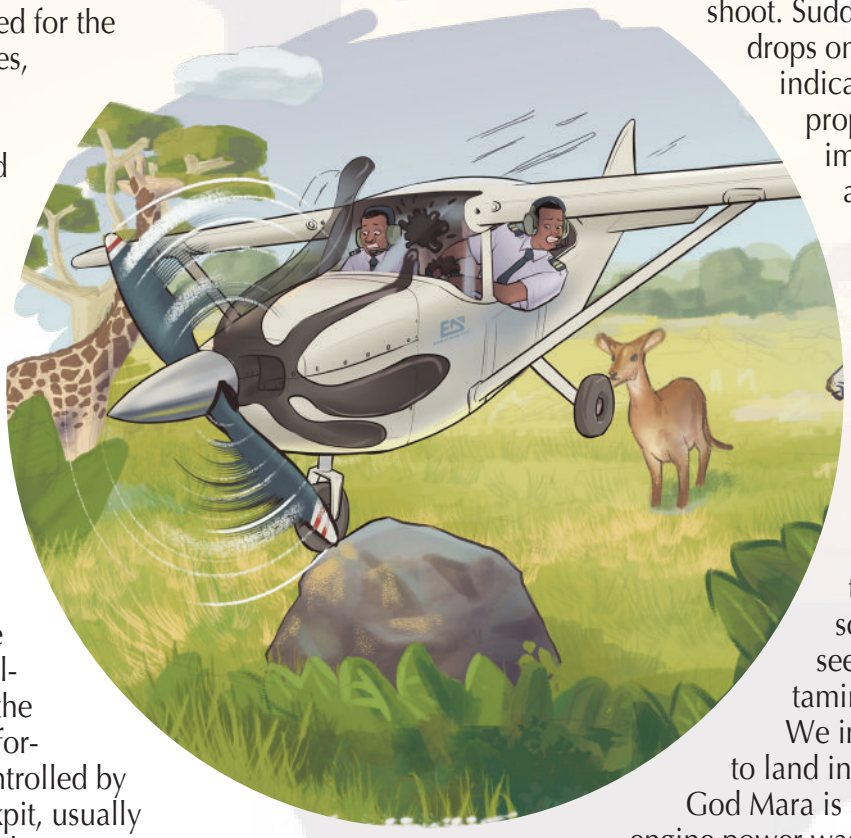
By Keneddy Munyao

A variable pitch or constant speed unit aircraft (CSU) is a superior type of its fixed pitch model and this is simply in terms of efficiency of the blade and variable power settings. For the case of a Cessna 172, the variable pitch types (mostly Reims rocket) are preferred for the long cross countries, especially for the advanced student.

This day, we had a cross country to the Masai Mara from Wilson airport in Kenya and we were privileged to fly a variable pitch.

The variable pitch types use a special governor on the propeller to adjust the blade angle of the propeller depending on the pilot's desired performance. This is controlled by a lever in the cockpit, usually next to the throttle lever. By adjusting the propeller blade angle, a given engine rpm is selected and the governor continuously adjusts this blade to maintain the desired engine rpm despite increasing or decreasing speeds. The movement of the blade is controlled by oil under pressure and as long as the blade has not reached its max or min angle, it will continuously adjust to the desired power settings.

The flight went well all the way to the Mara. On the return leg, after doing our engine run-up, we were set for take-off at Olkiombo airstrip in the Mara direct for Wilson. It was a simple flight because Wilson was aligned to the direction of the runway such that after take-off, we would fly the runway heading home.



After the take-off, we started registering rising engine temperatures on the climb, which is normal on the taking off phase due to the power settings. The issue became alarming since the increase was really going up fast. Around 12 minutes after takeoff, we could feel the heat in the cockpit as the windscreen was starting to turn foggy due to heat. As protocol says, we leveled off so we could troubleshoot. Suddenly there were oil drops on the cockpit which indicates damage to the propeller governor. The immediate cause of action was to look for a field to force-land while we still had engine power as we scanned for possible airstrip we could divert to. Before we could pick a filled, the governor spilled oil covering the entire windscreen. We could not see through the contaminated windscreen. We immediately decided to land in the grass (thank God Mara is a grassland) as the engine power was slowly falling due to loss of oil pressure. Our biggest challenge was forward visibility. However, we managed to land the aircraft safely with minimal damage to the elevator which was struck by ground due to the hard landing. No damages to the two pilots, both student pilots at that time.

Denel Rooivalk:

The South African Manufactured Attack helicopter by Atlas Aircraft Corporation, later Denel Aviation

By Oscar Ssemawere

The Denel Rooivalk (previously designated AH-2 and CSH-2) is an attack helicopter manufactured by Denel Aviation of South Africa. Rooivalk is Afrikaans for "Red Falcon". Development of the type began in 1984 by the Atlas Aircraft Corporation, its development is closely connected to the Atlas Oryx transport helicopter, both aircraft being based on the Aérospatiale SA 330 Puma and having started development at the same time.

The Rooivalk project began in early 1984 under the auspices of the Atlas Aircraft Corporation, a predecessor of Denel Aviation. Faced with the increasingly conventional nature of the South African Border War, the South African Defence Force recognised the need for a dedicated attack helicopter and began developing a suitable aircraft.

Due to the SAAF's decades of helicopter experience in the harsh African environment, the Rooivalk has been designed to operate for prolonged periods without sophisticated support. All that is needed to keep the Rooivalk flying is a medium transport helicopter equipped

with a basic spares supply plus four groundcrew.

The following types of missions are foreseen for the Rooivalk: reconnaissance, heliborne escort, close air support, deep penetration, and anti-armour.

Three Rooivalk attack helicopters have been deployed with the United Nations Force Intervention Brigade to support the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo in 2013.

Two Rooivalk attack helicopters flown by South African pilots are escorting a UN delegation on its way from Beni to Kiwanja in the North Kivu province, eastern D. R. Congo. The head of MONUSCO Office in Goma, Ray Torres, who was part of the delegation, is seen taking a photo of the South African aircraft with his mobile phone.

Specifications

General characteristics

- Crew: 2 (pilot & weapon systems officer)
- Length: 18.73 m overall, 16.39 m fuselage only
- Height: 5.19 m
- Empty weight: 5,730 kgs
- Gross weight: 7,500 kgs
- Max takeoff weight: 8,750 kgs
- Fuel capacity: 1,854 ltrs
- Powerplant: 2 × Turbomeca Makila 1K2 turboshaft engines, 1,420 kW (1,900 hp) each
- Main rotor diameter: × 15.58 m
- Main rotor area: 190.6 m2
- Blade section:NACA 0015

Performance

- Cruise speed: 278 km/h or 150 kn at sea level (max cruise)
- Never exceed speed: 309 km/h or 167 kn
- Range: 740 km or 400 nmi at sea level (max cruise)
- Ferry range: 720 km (390 nmi)
- Service ceiling: 6,100 m (20,000 ft)
- Rate of climb: 13.3 m/s (2,620 ft/min)

Armament

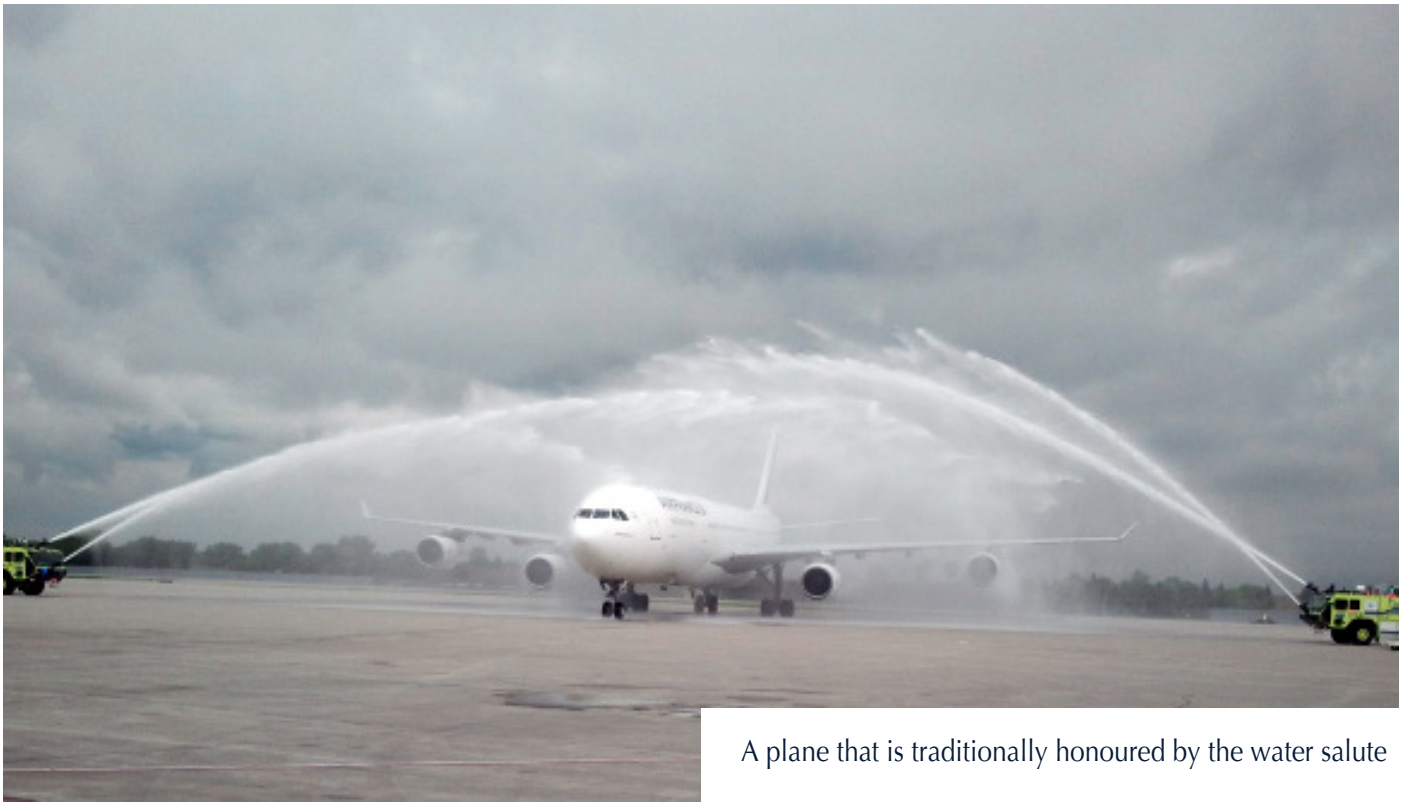
- 1 × F2 20 mm cannon, 700 rounds
- 8 or 16 × Mokopa ZT-6 long-range anti-tank guided missiles (ATGM),
- 4 × MBDA Mistral air-to-air missiles,
- 38 or 76 × 70 mm rockets folding fin aerial rockets (FFAR) or Wrap-Around (WA) (FZ90 70mm WA)

A Rooivalk at AFB Ysterplaat in Cape Town, South Africa

Aircraft of comparable role, configuration, and era

- Agusta A129 Mangusta
- AgustaWestland Apache
- Boeing AH-64 Apache
- Eurocopter Tiger
- HAL Light Combat Helicopter
- Kamov Ka-50
- Mil Mi-28
- TAI/AgustaWestland T129

Why do some planes get a water salute?



A plane that is traditionally honoured by the water salute

Iddi Mshana, EACAA Cadet Pilot

It's a time-honoured tradition in aviation world "the water salute". In this welcoming ritual, also known as a shower of affection, two fire engines parked on either side of the runway use their water cannons to create a giant arc above a plane as it taxies to its gate. With a little luck and a ray of sunshine, you might even see a rainbow. It's a fun tradition and an impressive sight to behold but why do we do it?

Water salutes are used to mark special occasions. This can be anything from the inaugural flight of a new airline or the arrival of a new type of plane. There always comes a time when a new airline or aircraft starts operating commercially. Airports celebrate such milestones with a water salute. It has already become a touching tradition in the world of aviation although its tradition's origins are unclear; many believe it comes from the shipping industry.

Before the days of commercial air

It's a fun tradition and an impressive sight to behold but why do we do it?

travel, people travelled the world on immense ocean liners. Before their first sea voyage, these gigantic ships would be inaugurated with a festive arc of water created by fireboats before heading out to open water and disappearing beyond the horizon. The same ritual would be repeated at the ship's first port of call. Because the worlds of air and sea travel have long been closely linked, there's a good chance that plane water salute is derived from this nautical tradition.

Also, aircraft and airlines are saluted when they are departing from the airport for the last time. It is a sign of respect, honour and gratitude for all the years an aircraft or airline has been in service within particular airport.

Additionally, water cannon ceremony is held to mark the retirement of a pilot or an air traffic controller. After number of years in services, a pilot or an air traffic controller is granted a farewell ceremony of water salute on his last day on duty. This is usually emotionally overwhelming and accompanied with tears of joy.

From safety point of view, it's not just a matter of sending out two fire engines and turning on the water cannons. The engines need to be positioned carefully, in safe locations, allowing enough space for the plane to pass through. The wind direction needs to be taken into account as well, and the process must be coordinated together with Air Traffic Control.

It's also important for the pilot to announce the water salute to the passengers on board the plane otherwise, the sight of fire engines and flashing lights just after landing might cause a panic. Likewise, firefighters make sure there's enough water left in the tanks should they actually need their water cannons to put out a fire. As much as the tradition is upheld in aviation world, safety always comes first.

Federal Aviation Administration

Zero Tolerance for Unruly Passengers

By Joan Kifuko

Steve Dickson, FAA Chief

The U.S. Department of Transportation's Federal Aviation Administration (FAA) proposed civil penalties against unruly airline passengers' incidents.

These include;

- The alleged assault of flight attendants who instruct them to obey cabin crew instructions.
- The drinking of alcohol brought aboard a plane.
- The refusal to wear face masks aboard a plane.
- Among various federal regulations.

In the wake of these troubling incidents, FAA Administrator Steve Dickson signed an order directing more strict legal enforcement policy against unruly airline passengers on 13th January 2021. He stated that flying is the safest mode of transportation and he had signed the order to keep it that way.

Following the signed order, the FAA took immediate effect in addressing these unruly passengers' issues by pursuing legal enforcement action against who assaults, threatens, intimidates or interferes with airline crew members as opposed to the warnings & counseling as well as civil penalties used in the past.

The policy took effect on 30th March 2021 where any unruly passenger who interfered with physical assault, or threatens to physically assault aircraft crew or any one on an aircraft facing stiff penalties including fines of up to $35,000 and imprisonment.

"any unruly passenger who interfered with physical assault, or threatens to physically assault aircraft crew or any one on an aircraft facing stiff penalties including fines of up to $35,000 and imprisonment."

This policy has seen the FAA proposing a number of penalties against unruly airline passengers.

The cases are as follows:

- On 26th February 2021, the FAA proposed a $27,500 civil penalty against an airline passenger aboard Delta Airlines flight from Miami, Fla., to Atlanta, Ga., for allegedly interfering with & assaulting a flight attendant by refusing to wear his mask, secure his seat tray table & fasten his seatbelt. This led to the flight's return to the gate.

The flight attendant asked the two passengers to voluntarily get off the plane but rather, the passenger accompanying the unruly passenger ignored the instructions of the flight attendant and began yelling expletives at the attendant and other passengers leading to striking the flight attendant under the left e

- On 12th March 2021, the

FAA proposed another civil penalty of $14,500 to an unruly airline passenger who allegedly interfered with flight attendants who instructed him to wear a face mask and stop consuming alcohol he had brought aboard the aircraft. This incident happened on 23rd December 2021where an airline passenger aboard jetBlue Airlines from John F. Kennedy International Airport (JFK) in New York to the Dominican Republic.

The passenger was issued a "Notice to Cease Illegal and Objectionable Behavior," by the flight attendant and the cabin crew notified the captain about his actions two separate times which led to the captain declaring n emergency to JFK.

Air Hostace instructing passangers to put on their masks properly

- On 17th March 2021, the FAA proposed civil penalties of $20,000 & $12,250 against two passengers for allegedly interfering with, and in one case assaulting flight attendants due to refusal to wear face masks and obeying various federal regulations.

1. In the case of $20,000 penalty, on 27th Dec. 2020, the passenger on multiple times allegedly failed to comply with the flight attendant's instructions to wear her facemask and remain seated with her seatbelt fastened aboard jetBlue Airlines flight from Boston to Puerto Rico. She shoved the flight attendant multiple times in her chest/shoulder area, shouted obscenities at the flight attendant, and threatened to have her fired. Due to this, the captain diverted the flight back to Boston.
2. In the case of $12,250 penalty, on 31st Dec. 2020, a passenger aboard jetBlue Airlines from New York to the Dominican Republic failed to comply with flight attendants' instructions to wear his face mask, stop drinking from his personal alcohol bottle which led to the passenger being issued a "Notice to Cease Objectionable Behavior" card and he then cursed at them, slammed overhead bins and became more agitated than before. While landing, including when the plane was taxiing to the gate, the passenger stood up while the "fasten seatbelt" sign was illuminated, threw his bottle of alcohol behind a seat, and went to the lavatory. As a result of the passenger's behavior, the flight crew requested that law enforcement meet the aircraft at the gate.

- On 27th April 2021, the FAA proposed civil penalties to three passengers of $31,750, $ 16,750 & $14,500 alleging they interfered with and, in two cases assaulted flight attendants.

1. In the case of $31,750, the FAA alleges that the passenger aboard jetBlue Airlines from Haiti to Boston, Mass. on Jan. 4, 2021 drank his personal alcohol, which jetBlue did not provide, yelled and waved his hands in an angry manner after flight attendants responded to a report from another passenger's complaint about his behavior. According to the FAA, the passenger grabbed the arms of two separate flight atten-

dants during the flight, and the cabin crew needed to reseat surrounding passengers. The flight crew asked law enforcement to meet the aircraft at the arrival gate, and police escorted the passenger off the plane.

2. Another passenger was proposed for a penalty of $16,750. On the same 4th Jan. 2021 jetBlue Airlines flight from Haiti to Boston, Mass, FAA alleges that the passenger drank his personal alcohol and acted disruptive. The passenger yelled, shouted obscenities, and made motions to strike a flight attendant when they arrived at his seat in response to a complaint from another passenger. The flight crew asked law enforcement to meet the aircraft at the arrival gate where the passenger was escorted off the plane by police.

3. The passenger proposed for a $14,500 penalty, the passenger aboard SkyWest Airlines flight from Yuma, Ariz., to Dallas-Fort Worth, Texas on 14th Jan. 2021, drank multiple 50 ml bottles of his own alcohol and repeatedly turned around and tried to touch a passenger behind him; as a result, flight attendants moved him to another seat. However, he continued to bother passengers around him after he was moved. At one point, two off-duty law enforcement officers had to physically wrestle him back into his seat, but the passenger again got up and started to walk to the front of the aircraft. A flight attendant yelled at him to sit back down, and the law enforcement officers sat in the row behind him. As a result of the passenger's behavior, the captain requested priority handling from air traffic control and asked that law enforcement meet the aircraft at the arrival gate.

In May, 16 passengers were proposed for penalties due to alleged assaulting of flight attendants and failure to abide by the various federal regulations.

Some of these cases are:

1. A passenger proposed for a penalty of $32,750 aboard jetBlue Airlines flight from the Dominican Republic to New York on 7th Feb. 2021, failed to comply with multiple flight attendant instructions to wear a facemask; threw an empty alcohol bottle into the air, almost hitting another passenger; threw food into the air; shouted obscenities at crew members; grabbed a flight attendant's arm, causing her pain; struck the arm of another flight attendant twice and scratched his hand; and drank alcohol that had not been served to her by the cabin crew hence, the flight returning to the Dominican Republic

2. In this case, the passenger was proposed for a penalty of $16,500 following the26th Jan,2021 Southwest Airlines flight from Chicago, Ill., to Sacramento, Calif where, the passenger refused to comply with a flight attendant's instruction to wear his mask over his nose and mouth when he

boarded the aircraft and again when he took his seat. When a second flight attendant instructed the passenger to wear his mask over his nose and mouth, he became combative and used offensive language. Hence a supervisor coming on board and asking the passenger to leave the plane. As the passenger walked with his luggage toward the exit door, he called each of the two flight attendants "pathetic," and hit one of the flight attendants with his bags.

3. Here, $9,000 was proposed against a passenger on a Dec. 22, 2020 Delta Air Lines flight from Minneapolis, Minn., to Philadelphia, Penn. The FAA alleges the passenger got out of her seat during takeoff, began walking up and down the aisle, and repeatedly said she wanted to get off the aircraft. Multiple flight attendants repeatedly told the passenger to return to her seat and fasten her seatbelt, but she refused to comply. As a result, the flight returned to Minneapolis.

4. The $9,000 proposed penalty against a passenger on a Jan. 30, 2021 Alaska Airlines flight from Bozeman Mont., to Seattle, Wash, was due to failure to comply with the airline's facemask policy while boarding the plane, and flight attendants provided him with a facemask. The passenger was not wearing a mask when the plane left the gate, and flight attendants reminded him of the airline policy. Flight attendants repeatedly asked him to put on a mask as the plane taxied to the runway, but he failed to do so. Due to that, the captain returned the flight to the gate and the passenger was removed from the plane.

$563,800 from fines

According to FAA, since 1st Jan. 2021, they have received approximately 3,100 reports of unruly behavior by passengers, including about 2,350 reports of non-compliant passengers with the federal facemask mandate. The FAA has proposed $563,800 in fines against unruly passengers during the same time frame.

5. A passenger was proposed for $9,000 on 17th May 2021 following the incident aboard Allegiant Air flight from Ft. Lauderdale, Fla., to Knoxville, Tenn. on Feb. 15th Feb. 2021, The FAA alleges that the passenger failed to follow the facemask wearing rules and other federal rules.

In June, 12 passengers have been proposed for penalties due to failure to comply to the various federal rules.

Some of these incidents are explained below:

• The $10,500 penalty proposed on 14th June 2021 against a passenger aboard jetBlue Airlines flight from New York to Cancun, Mexico on 27th Feb. 2021, where the FAA alleges that the passenger refused to wear her facemask properly and in one instance inserted her finger into her nose in response to a flight attendant's direction to wear her mask. She further yelled, used profanity and refused to read a warning note that a flight attendant issued to her. As a result of her disruptive behavior, the captain diverted the flight to Fort Lauderdale, Fla.

• The $22,000 penalty proposed on 22nd June 2021 against a passenger aboard a SkyWest Airlines flight from Denver, Colo., to Gypsum, Colo. on Feb. 15, 2021. The FAA alleges the passenger repeatedly ignored flight attendants' instructions to wear his facemask; walked through the cabin to the lavatory while the fastened seatbelt sign was on; and drank alcohol that SkyWest did not serve, which is against FAA regulations.

According to FAA, since 1st Jan. 2021, they have received approximately 3,100 reports of unruly behavior by passengers, including about 2,350 reports of non-compliant passengers with the federal facemask mandate. The FAA has proposed $563,800 in fines against unruly passengers during the same time frame.

During the past ten years, FAA has initiated more than 1,300 enforcement actions against unruly passengers.

FAA continuously finds itself enforcing the Zero Tolerance Policy by working closely with federal law enforcement and national security partners on any reported security threats that may impact aviation safety as it doesn't have regulatory authority over aviation security.

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Ehang 216 Autonomous Aerial Vehicle

Ever thought of having a flying Uber in your city? Ehang 216 might be the answer to your questions

An Ehang 216 Aerial Vehicle parked

By Iddi Mshana, EACAA Cadet Pilot

Ehang 216 is an electric autonomous aerial vehicle (AAV) with vertical take-off and landing (VTOL) designed by the EHang Company, China. This electric helicopter was developed to meet the needs of urban transportation by providing air taxi services on demand and entering into partnerships with Austrian-based FACC flight system manufacturers in November 2018 for serial aircraft production.

The applications of the Ehang 216 aircraft include public transportation, tourism and sight-seeing, medical evacuation / aid, and short distance logistics.

The Ehang 216 aircraft was developed based on its predecessor Ehang 184. Demonstration flight of 216 was conducted in Qatar and the Netherlands in 2018, while the certification process is currently complete. The price of the latest EHang 216

autonomous aerial vehicle (AAV) is US $ 336 thousand. FACC and Ehang aim to manufacture up to 3,000 air taxis by 2025. The company also aims to start local production of the units in North America and Asia.

Ehang 216 design and features

Ehang 216 AAV is a low-altitude, high-power, self-driving aircraft made using carbon composite material and metals to achieve the required strength-to-weight ratio. The length of the aircraft is 5.61m, height is 1.76m, and weight is 360kg. The aircraft is capable of carrying payloads of up to 260kg.

Ehang 216 features a small aero-cab structure, which can accommodate up to two passengers with sufficient leg room and baggage space. Its fuselage is supported by rigid skid-type landing gear, which ensures sufficient clearance between the ground and the rotors.

The fuselage is equipped with four extended V-shaped struts, which spread at equidistance leaving space for entry and exit of the passengers. It is also fitted with a taxi / landing light in the front. The AAV also features two gull-wing doors hinged at the top, which occupy less space and ensure aerodynamic shape. The flying taxi cabin is air-conditioned, internet-enabled and features well-furnished interiors.

Ehang 216 Cockpit and Flight Control Systems

The aircraft can perform fully autonomous flight using the on-board advanced flight control system, intelligent navigation system, and a global positioning system (GPS). Ehang aims to work with local aviation authorities to establish an intelligent command and dispatch centre to provide a reliable flight plan for the aircraft. The system's parameters can be monitored from the flight command and control centre.

The aircraft's flight path, critical flight parameters, and in-flight options are displayed on the tablet for passengers. The Ehang is fitted with a full back-up and fail-safe system in the event of any system failure.

Engine and Performance

The EHang 216 AAV is powered by 16 electric motors connected to 16 propellers in a double baled coaxial design. This electric helicopter is equipped with a 17 kW battery, and in terms of energy consumption, this is comparable to an electric car. With the support of the electric engine, EHang 216 AAV is able to fly with a cruising speed of 130 km / hour. This electric helicopter is able to air for an hour and a half with a maximum flight range of 70 km, depending on the load.

Howard Hughes after breaking the transcontinental record

Howard Hughes

Prolific Aviator of the 20th century

Throughout the course of aviation history, certain names have reflected significant changes to the world of flying as we know it. American business magnate Howard Hughes holds such a legacy, which left a permanent mark on aviation. Pioneering, mysterious, determined, creative, and controversial are just some of the words that can be used to describe Howard Hughes. His colorful career spanned decades over the course of the most critical periods in airline history. Altogether, whether it was as a pilot, engineer, or businessman, the former Trans World Airlines (TWA) leader was one of the most important aviation figures of the 20th century.

Let's take a look back at Hughes' action-packed life as an aircraft designer, pilot, and airline executive.

Early Achievement

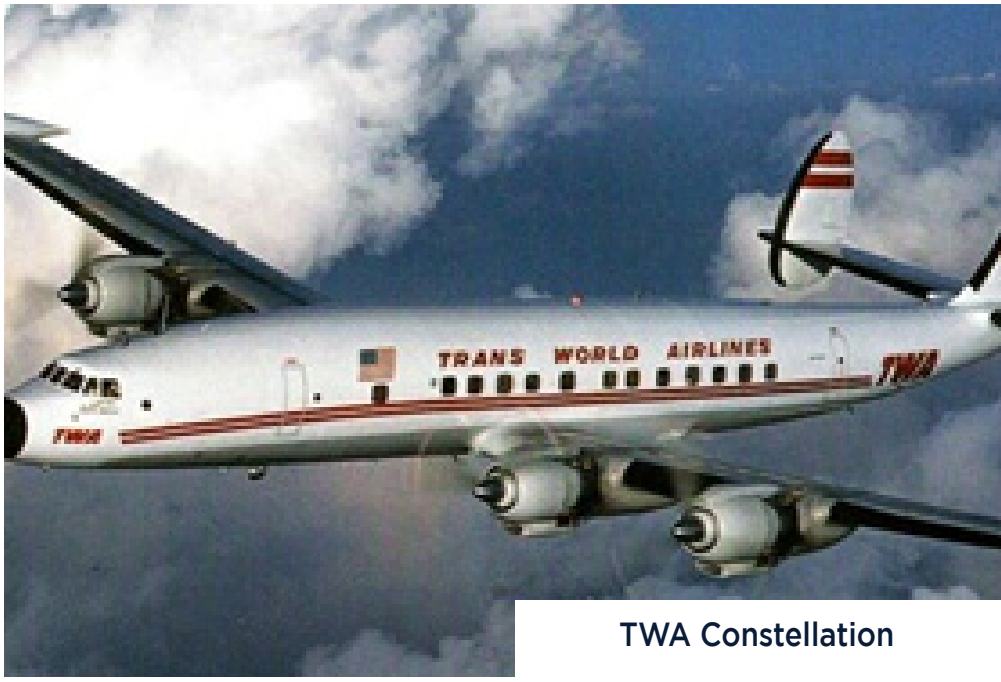
Hughes was born in Houston, Texas, on Christmas Eve in 1905. As a child, it was evident that he had a keen interest in engineering. Notably, at the age of just 11, he built the city's first "wireless" radio transmitter. Subsequently, he became one of the first licensed ham-radio operators in the area. These youthful achievements did not stop there as Hughes was featured in the local newspaper as the first boy in Houston to have a "motorized" bicycle. He had built the cycle from parts from his father's steam engine. His love for aviation also soon prevailed, as he took his first flying lesson at the age of 14.

Yet, before trying his hand in the airline industry, Hughes had success in two different worlds from a young age. When his father passed away in 1924, he took over his business, the Hughes Tool Company. This firm was a manufacturer of drill bits and went on to become a powerhouse in its own right before merging to form Baker Hughes in the 1980s.

Nonetheless, Hughes' experience with this company gave him one of his first tastes of business, and he began using the profits to fund his other ventures. One of the key projects was when he formed the Hughes Aircraft Company in 1932, which furthered the businessman's development into the aviation realm.

Hitting the skies

According to Britannica, In September 1935, in an aircraft of his own design, called the H-1 Racer, Hughes established the world's landplane speed record of 352.46 miles (567.23 km) per hour near Santa Ana, California. Two years later, in the same plane, he averaged 332 miles per hour in lowering the transcontinental (Los Angeles-Newark) flight-time record to seven hours and 28 minutes.



TWA Constellation

In July 1938, Hughes further displayed his piloting skills by a round-the-world record of just 91 hours 14 minutes in Lockheed L-14. This beat Wiley Post's existing record by nearly four days. This aircraft business benefitted from wartime contracts during the Second World War. In fact, it would go one to become one of the United States' and largest defense contractors and aerospace companies.

The world's largest flying boat

At the end of the 1930s, the entrepreneur used Hughes Tool to buy a controlling interest in TWA. When the United States started to prioritize its workforce for the World War II effort, TWA's aircraft were used to support the US military.

As an aircraft designer, Hughes had previously specialized in small, lightweight aircraft that were well-suited to his pursuits of speed records. However, after the Second World War, he made history by flying a rather larger aircraft. This was a wooden flying boat designed for strategic airlifts by the Hughes Aircraft Company, and known as the H-4 Hercules.

The need to construct the aircraft out of wood arose due to wartime restrictions on the use of aluminum. Indeed, the aircraft had initially been planned to be used during the war, although, ultimately, it was not completed in time. Nonetheless, Hughes opted to run taxi tests on the aircraft in 1947, culminating in a 26-second period of flight covering approximately one mile. This vindicated the project's government funding by proving that it was air-worthy.

The aircraft is the largest flying boat ever to have been built, with 98-meter wingspan and its tail

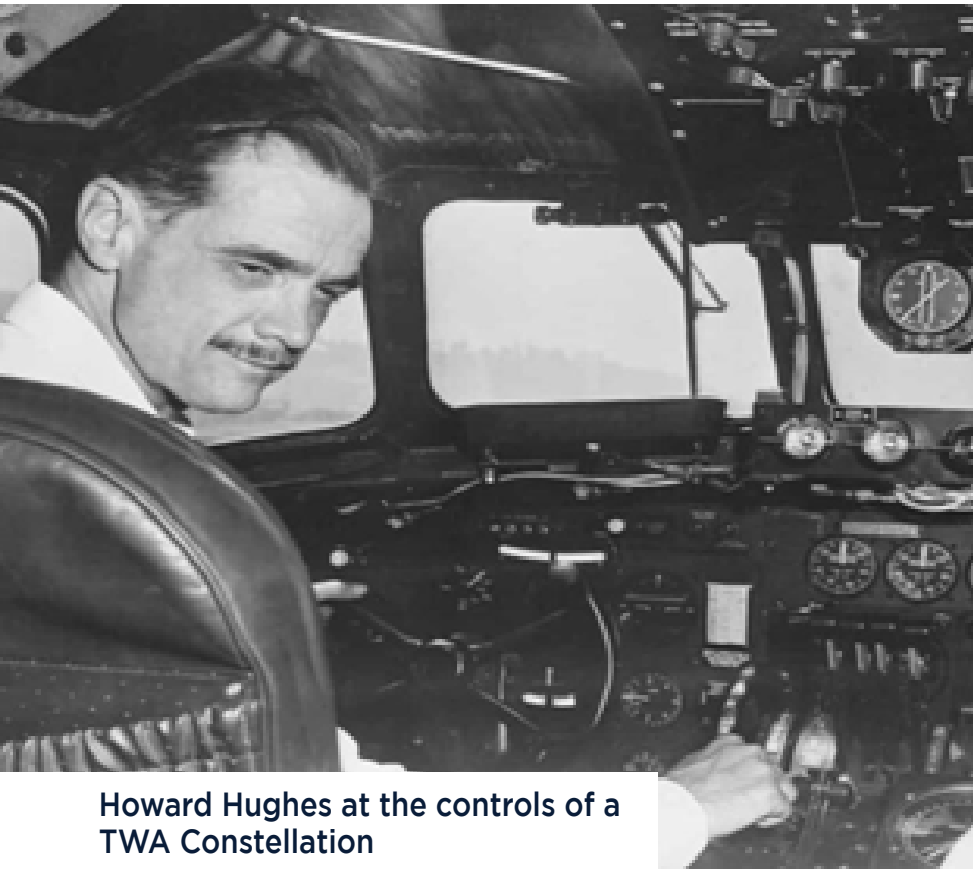
flew 60 feet above the water was the largest in aviation history until as recently as 2019. Its wooden nature led it to be given nicknames such as the Flying Lumberyard and Spruce Goose.

A growing presence

In the years following the War, Hughes and TWA swiftly expanded and upped competition against the likes of Pan American, American Airlines, and United Airlines. It was in 1946 that TWA introduced the Lockheed Constellation on its transcontinental New York-Los Angeles route. That same year, the operator started transatlantic service between New York City and Paris.

Hughes initially requested a transcontinental plane with a range of 3,500 mi (5,600 km) that could hold 40 passengers back in 1939. Subsequently, these requirements eventually led to Lockheed's development of the L-049 Constellation. On April 17th, 1944, Hughes and TWA president Jack Frye flew from Burbank, California, to Washington, D.C., in six hours and 57 minutes. They averaged a speed of 331 miles per hour (533 km/h).

There was a special moment on the return as the pair stopped at Wright Field in Ohio to give pioneer Orville Wright his final flight, over 40 years after his momentous first flight near Kitty Hawk, North Carolina. The icon noted that the aircraft's wingspan was longer than the distance of his first flight.



Howard Hughes at the controls of a TWA Constellation

The journey continues

Under Hughes' post-war leadership, TWA went from strength to strength. It began transatlantic services to the likes of France, Italy, and Egypt in 1946. Its fleet also blossomed under Hughes, who personally financed the airline's 40-aircraft Lockheed Constellation order. This was worth $18 million and was the largest order in aviation history at the time. This left a permanent impact on US aviation, as the aircraft unlocked non-stop transcontinental services.

Although Hughes left TWA in 1960, his leadership had put the airline strongly on the map, and laid the foundations for its jet-age growth. He went on to acquire Northeast Airlines in 1962, although he sold control of the carrier two years later. His next acquisition was Air West in 1970, which he renamed Hughes Airwest and led through another extensive growth period. Under Hughes' leadership, the carrier had transitioned to an all-jet fleet by the end of the decade.

Its route network also expanded significantly out of its San Francisco hub, serving Canada and Mexico, as well as domestic destinations as far east as Houston and Milwaukee. Republic Airlines eventually acquired Hughes Airwest in 1980. The carrier was subsequently merged into Northwest Airlines, which itself was merged into Delta in 2008.

Hughes died on April 5, 1976, but its legacy as a record-breaker is still celebrated today, with it being preserved in good condition at Oregon's Evergreen Aviation & Space Museum. Meanwhile, the legacy of Hughes himself is present today in the form of the Howard Hughes Corporation and the Howard Hughes Medical Institute.

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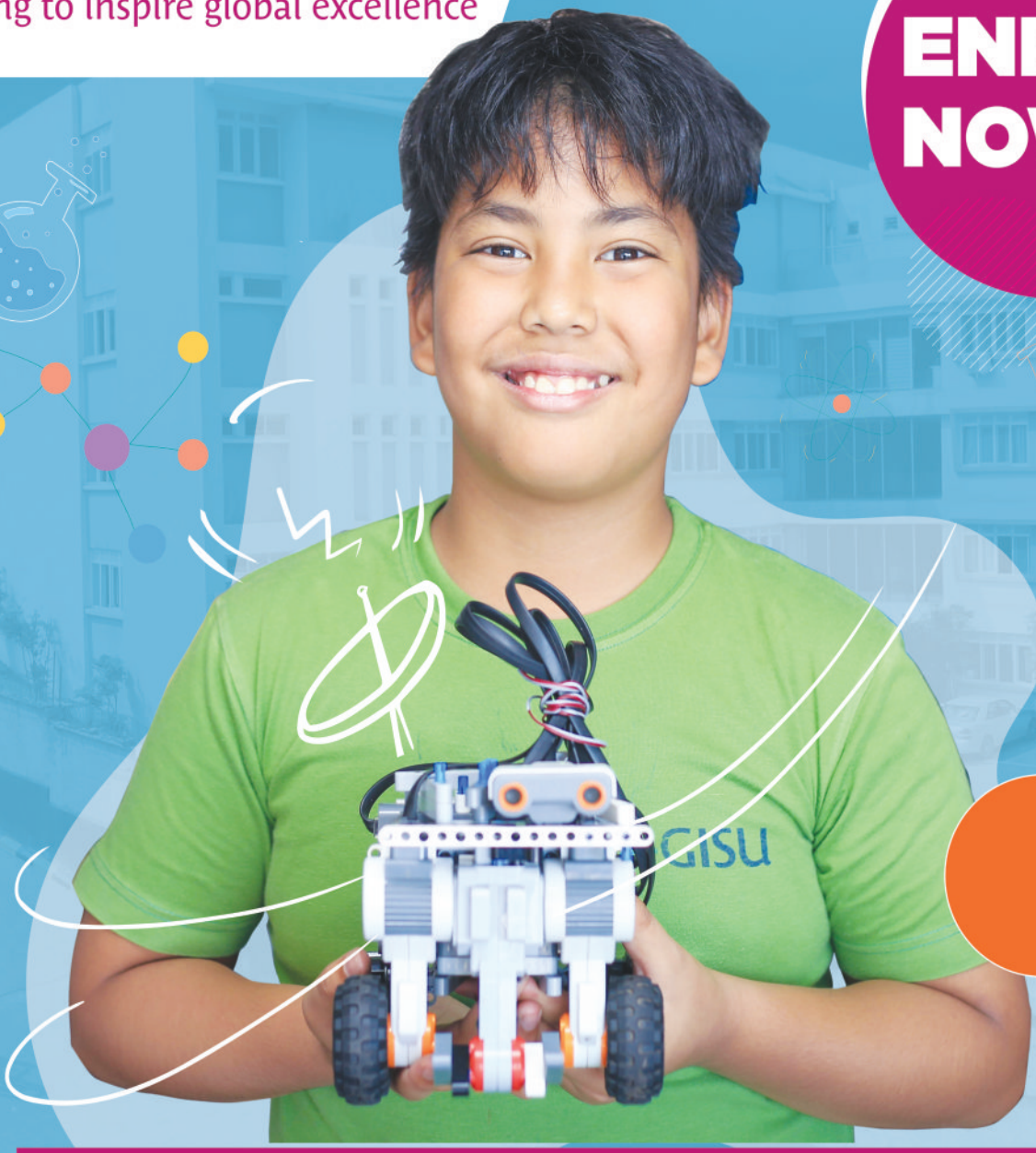

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