

**Mack Air.- Maloba's copy**  
**She's airbourne**  
Meet the brilliant flying student, Diana Kerubo. It's her composure and elegance in speech that will have you enchanted." **P.10**

**Dog crahed the plane:**  
As he took off with his dog by his side, he didn't know the flight wouldn't go according to plan. **P.11**



**Captain Aerobatics**  
Famous for the hardest of flights. He has landed and taken off on roads among other flights to marvel on. Some advice from Mark C. Ross. **P.20**

**AIRSPACE**  
**NEWS KENYA**  
**YOUR AERONAUTICAL NEWS**

**AVIATION NEWS**  
**4th ISSUE**

# The Moyale aircraft heist in 2019

**By Staff Reporter**

**A**n aircraft transporting bank cargo gets ambushed at Odda airstrip by armed robbers. one on foot and two on a motorbike.

We give you a detailed account of what happened on the frightful day of September 2019. Mrs. Were would not agree to even receive the bank letter on email. Little did people know that, the cranky lady's decision would save many from the cold cells and truth to her word, her retirement benefits.

**Continue on Page 4**

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## COMIC

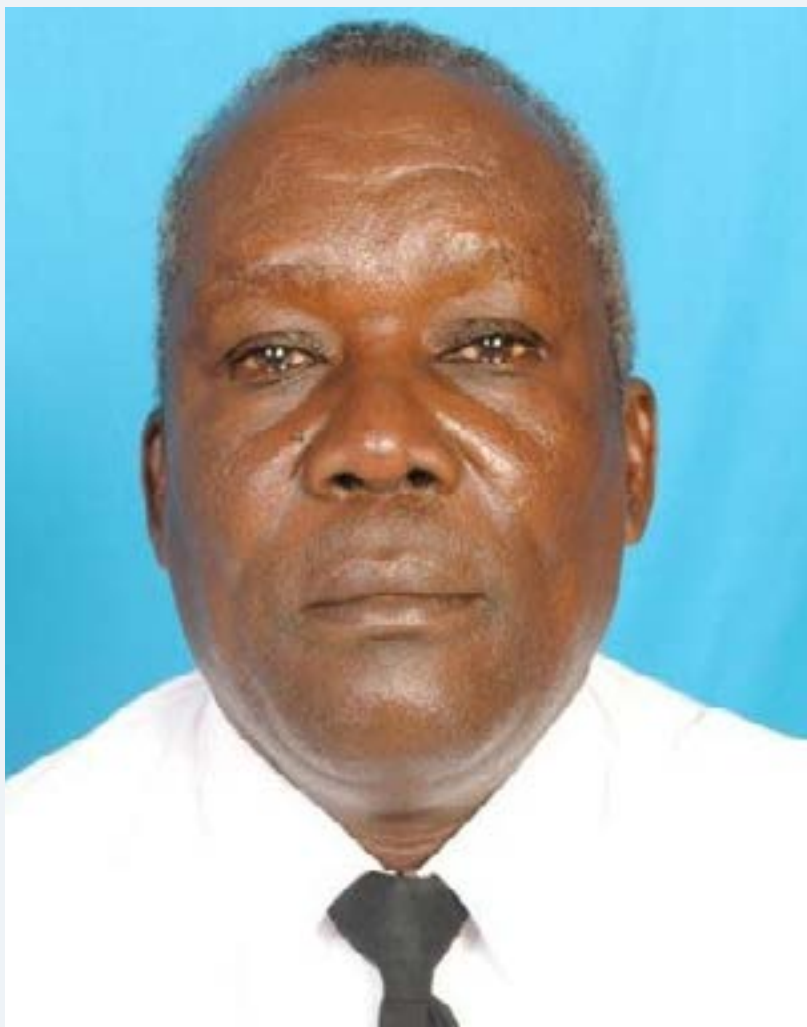


## Message from the Chairman

The purpose of the Airspace News Kenya is to support the hard-working men and women in aviation, to encourage the upcoming, to be a voice for all who love the skies and those who ensure safe travel, and in all manner will be fair and objective.

Aviators too have stories to tell. Be part of the Kenyan Aviation Story today. [www.airspacenews.co.ke](http://www.airspacenews.co.ke)

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## message from the Editor

## Why pilots should normalise not flying broken aircrafts

Having done business in aviation, sometimes money is sweet and you end up cutting corners for convenience (trying to fly aircraft to base) and to cut cost. But how far down can you go for convenience or cost cutting?

So how do you put your pilots through this every day?

A small bird told Airspace News that an Airline has been subjecting its crew to flying an aircraft with unrectified snags. These include:

Flying a Dash 8 with the left reverse thrust not working? (Senior Captain fighting the reverse thrust with left braking on landing)

Flying a CRJ with no functional FMC and Autopilot.

(Senior Captain Flying every day with a portable GPS, sometimes to Burkina Faso)

Snags happen, but fixing should be done on the next landing.



Juliet Whiskey Whiskey





Captain Maloba.

# Kenyan pilot in the skies of Okavango Delta

**F**lying is the best thing to ever happen in my life. You see the earth with the magnificence that God created it. The sceneries from above is impeccable. And I'll never stop enjoying the view.

My name is Sidney Maloba Maloba, I am a Kenyan who flies in Botswana.

I started flying in 2010 after graduating from Maseno School. I enrolled at CMC flight school where I received my flying license.

I later did my Instructors course and was fortunate to have been hired as a flight instructor at a flying school at Wilson Airport. I taught ground school and flight instruction till December of 2016. It was then that I applied and got a job in Botswana as a Flight Instructor.

I came to Botswana in 2017; joining at the International Aviation Solutions (IAS) Aviation Academy. At IAS I instructed for a year and was later promoted to Chief Flight Instructor in 2018. I served this role till August of 2019. At this time, I wanted a change of careers. However, I didn't think my time in Botswana was done. I looked around at the safari air charter operations in the world famous Okavango Delta and applied for a job at Mack Air.

Fortunately for me they called me in for an interview and after a week of being around their operations they offered me a position as a Line Pilot on the Cessna Grand Caravan EX. This was exciting for me because at the time Mack Air had just received a total of 20 Brand New EXs.

The company flew me to South Africa where I did my Type rating course at SimuFlight. In November of 2019 I had received my C 208 type rating. At Mack Air all new Caravan pilots have to fly 50 hours of line training before going on line. Remember Mack Air operates the Cessna 208 as single crew. This is a lot of work. Not only are you the pilot but you also serve as the load master, cabin crew flight planner and any other role that might be required of you for the safe conduction of the flight.

I got online on the 31st of January 2020. I have been commanding the C208 EX since then and I'm enjoying the experience. Flying to remote places and spending time in some of the most luxurious and exclusive luxury camps in Africa.

For now, this is my life. Living the dream as a bush pilot in The Okavango Delta!

— By Airspace Journalist



Captain Maloba in flight above the Botswana's Okavango Delta.

**"I started flying in 2010 after graduating from Maseno School. I enrolled at CMC flight school where I received my flying license".**



From Left: Gerrhard, Thabo, Keith, Tafadzwa, Johaness, Sidney, Maloba, Jacques, and David.



Captain Maloba Maloba with colleagues at the International Aviation Solution after graduating from being a SE instructor to ME instructor and IR Simulator.



Captain Maloba Maloba and his CFI Daren Lloyd when he finished his line training for the Cessna Caravan in Khwai Airstrip.



HEADLINE **STORY**

# The Moyale runway money heist that shocked the aviation industry

Continued from Page 1

It all started with a planned departure at 8am from Wilson Airport. Onboard the Cessna 182 RG are two pilots and a courier company Agent. The one in command was one who had more than 1000hrs, total time, and the second pilot was freshly from flying school with 250hrs, total time.

Because the case is still in court, we will not mention the real names of the people who were involved in servicing that particular flight. No one ever imagined that this particular day would end with the two pilots in a cold cell in Moyale Town.

Fuel was late on this particular day, but by 9am the aircraft had been fueled. There's never a rush to take off especially when your first stop is Marsabit Airstrip. Marsabit is one of the most dangerous airstrips in Kenya, with towering hills around the runway.

The hills are more than 6000 feet above sea level with high telecommunication masts on it while Marsabit Airstrip is 4400 feet. The area is frequented by low clouds in the morning hours you never attempt a landing with poor visibility.

Most pilots divert to a paved runway titled Logo logo in the valley, to wait for the weather to clear. Logo logo is mostly frequented by MAF.

There was another delay, the Wellsfargo personnel had been changed last minute because of a family emergency. Despite him being absent, the bank documents read his name instead of the one who came to accompany the consignment.

The KRA lady, let's call her Mrs. Were wasn't having any of the stories. She stood her ground and said, forget it, he is not

boarding unless a letter comes from Equity Bank with his name on it.

The flight ops personnel, let's call this one, Jeremiah tried to explain the situation that caused the change of people but she wasn't taking any of it. In her words she said, "Don't you dare spoil my retirement, you are carrying money. I only have 1 year to retire and I've worked hard for more than 40 years, sitaki ujinga".

She threw the letter at Jeremiah's face. This letter had to be re-written by Equity Bank and delivered at Wilson airport before time runs out. Moyale is 2.5 hrs. away, with a detour in Marsabit, minimum hrs. are 5.5 return.

It's already 10am. Finally, the letter arrived, the original signed document. Mrs. Were would not agree to even receive it on email. Little did people know that the cranky lady's decision would save many from the cold cells and truth to her word, her retirement benefits.

Finally, the plane departs at around 11 am with 3 on board and the consignment.

The flight ops personnel, together with the AP policemen supervised the aircraft until it was airborne. To the pilots in the aircraft, this was just another day at work with a beautiful departure. And so they flew into the midday sun. The first officer, let's call him Mike was doing his first ever

**"Don't you dare spoil my retirement, you are carrying money. I only have 1 year to retire and I've worked hard for more than 40 years, sitaki ujinga".**



Odda Airstrip Moyale

## The Cessna 182 RG

The Cessna 182 Skylane is an American four-seat, single-engined light airplane, built by Cessna of Wichita, Kansas. It has the option of adding two child seats, installed in the baggage area.

The retractable gear R182 and TR182 were offered from 1978 to 1986, without and with engine turbocharging respectively. The RG flies faster and has long range tanks of up to 8hrs endurance.



paid flight. It was his first day on the job.

Jeremiah's work was done. Since he had worked since 5am, he left for his house.

As much as there was a delay that morning, it was still a successful departure and everyone expected everything to run smoothly. The flight went well. First stop was Moyale, and the plan was to return back through Marsabit.

For those who have flown VFR (Visual Flight Rules) on this route will understand the magnificent views all the way. From Murang'a you can see the Aberdare on the left, if you are going through Nanyuki, and the gradient rise of Mt. Kenya on the right, all the way to the beautiful swamp vegetation, others call them Cyperus latifolia. The view is spectacular.

On arrival at Moyale, 2.5 hrs later, it was raining the pilot had the view of the runway. He had no time to inspect the runway as any time he will lose view of the runway because of weather. So the captain, let's call him Mathesh, took his opportunity before the window closed and landed on runway 32.

Odda airstrip has its own complications too. The location of the airstrip was changed from right from the Ethiopian and Kenya border to the town, for safety reasons.

One side of the runway is towering hills arranged in a crescent way at the end of runway 32. Most pilots prefer, 1 way in and one way out to avoid the hills at the end. One has to be very precise while landing

here. Because runway 32 always has a tailwind.

Some people prefer to go in with a steep turn for runway 14, this needs a veteran pilot because your speeds are low because you are preparing for landing and you are low on height. A risk of stalling while turning is a consideration.

On landing, Mathesh taxied the aircraft to the waiting area, switched off the engine and got out to check the fuel quantity. The bank guys at this time hadn't arrived at the airstrip. They already had received the landing time once the plane took off from Nairobi.

The Wellsfargo Personnel, was in the middle of a call with the head office to notify them on arrival and also raised that they hadn't arrived. That was when Capt Mathesh noticed a skinny looking man approaching.

This is common in remote airstrips as many people like to come close to the aircraft. In Moyale you will mostly see headers who would come to say hi to the crew as they are wowed with the flying machine. The captain didn't anticipate danger. The first officer at this time was busy making his notes on landing time etc. Capt Mathesh was shocked when he felt something cold on his bottoms as he was checking his fuel with a dipstick. "Lala chini wewe!"

**The story continues in the next edition, 5th Edition of the Airspace News Release.**





## Now That's History....!

# The Queen Became in Kenya's Treetop Lodge



BOAC Hermes IV.

Princess Elizabeth in her motorcade in 1952. Photo by John Nicholson



The BOAC Hermes IV that brought the Princess to Nairobi in 1952.



By Staff writer

In November 1983 The Queen and The Duke of Edinburgh made a State Visit to Kenya as a guest of the late President Daniel Arap Moi. During their stay, they visited Sagana Lodge where they had stayed in February 1952 in their first visit. It was in 1952 that The Queen received news of her father's death and of her own accession to the throne.

The British Overseas Airways Corporation (BOAC) flew the princess. They set off from London on January 31st, bidding farewell to King George. There was a holiday atmosphere on board the plane. They were all happy to escape the British winter for the sun and exotic travel. First stop was Kenya, where the colonial government had built the Prince and Princess a house in the Aberdare Mountains called Sagana Lodge, as a present to mark their wedding.

After taking off from London, the entourage landed at the RAF base of El-Adem in Libya to refuel. The crew changed and the new pilot was Captain Ronald Ballantine, a tall man with the stylish mous-

tache. They flew across north-east Africa, and the royal couple asked Ballantine to circle Kilimanjaro so that they could take photographs.

The captain obliged, though he was nervous that it would prevent him from touching down on schedule. As they descended towards Nairobi, the Princess asked if they could come into the cockpit and stand behind the pilot to watch the approach and landing. It was against all the rules, even in that era of few rules, but he agreed and all went well. They landed precisely on time and Ballantine was happy.

The Princess and her husband went straight to Nairobi for official engagements. Then they drove to take possession of their gift, the

Sagana Lodge, where they had time to fish and walk. Later that evening they were taken to Treetop hotel.

As the name suggests, Treetops was set up high in the forest, overlooking a quiet waterhole and natural saltlick. The entrance to the lodge is through a central staircase ascending from the forest floor.

As night settled, game from the surrounding ranges gathered beneath the lodge. The Royal couple spent the night watching the endless procession of elephants, buffalo, rhino and other game that visited the waterhole, before retiring.

Now that's History.



1952

It was in 1952 that The Queen received news of her father's death and of her own accession to the throne.

Queen Elizabeth in Kenya in 1983.



## JANUARY INCIDENTS

## Sriwijaya Air Boeing

**S**riwijaya Air Boeing 737-500 crashed into the sea shortly after taking off on Jan. 9. Indonesia has attracted a lot of attention bearing in mind this happened two years after a Lion Air crash which killed 189 passengers.

The Classic 737-500 owned by Sriwijaya Air was carrying 62 souls amongst them 10 children. The flight was from Jakarta to Borneo Island. The black boxes were retrieved and probably soon enough the investigators may find out the cause of the crash.

There were no survivors



Sriwijaya\_Air\_Boeing\_737.

## Palmas Football Club loses 5 members and one crew in crash

**P**almas football club president Lucas Meira, and players Lucas Praxedes, Guilherme Noê, Ranule and Marcus Molinari lost their lives after their plane crashed at the end of the Runway. After take-off in the northern State of Tocantins.

The Aircraft in question was a Beechcraft Baron 95-55. The unnamed pilot of the ill fated plane also died. May their souls Rest in Peace. The team was on its way to the central region of Goiânia to play a Copa Verde match against Vila Nova.

This comes as a big loss to the football community remembering the crash of

LaMia Flight 2933 an Avro RJ85, on 28 November 2016 which crashed near Medellín, Colombia, killing 71 of the 77 people on board. The aircraft was transporting the Brazilian Chapecoense football squad and their entourage from Santa Cruz de la Sierra.







## YOUNG AVIATOR



### JUNIOR CLUB

BY CAPT GRACE MUTIA



## Master Ryan Ndambulki - Why I can't wait to be a pilot

My name is Ryan Ndambuki Muswii. I am 7yrs years old. I go to Good Shepherd School Kitui I want to be a Pilot when i grow up. I look up to my dad, Mr. Wyclef Muswii because he always assures me that I can be whatever I want to be in life.

I have never been to an airport or an aeroplane before but i see planes up in the sky. It's the coolest thing ever, although i always wonder.

**Question 1: How do they Float up there for so long?**

Hello Master Ryan, my name is Capt Allan Mwangi and I fly the Embraer 190. Aircrafts are able to stay afloat because they generate a force called lift, which normally moves the plane upwards. The engines of the aircraft move the aircraft forward through the air, by a force called thrust, and this results in the generation of lift. Thank you master Ryan.

**Question 2: How comes some of them draw a long white line as they pass?**

Hello Master Ryan, my name is Capt Mike Otieno and I fly a Cessna Caravan from Wilson Airport. You have learnt about, the higher you go the cooler it becomes. Up there the air is colder than down here. As a result, when the jet airplane is moving fast up there, the engines are hot and they suck in cold air. This air is then released as hot compressed air at the

back of the engines. Hot engine air meeting surrounding cold air is what causes the trail you see behind the aircraft.

**Question 3: Are there roads that pilots actually Follow?**

Hello Master Ryan, my name is Capt Olunga, not necessarily roads, but there are specific routes that are meant to be followed by planes. These routes are determined by the navigation system one is using. It could either be compass navigation, GPS or Radio Navigation. All this gives you a route to follow in relation to where you are going.

**Question 4: Is it true that girls also fly planes?**

Hello Master Ryan, My name is Capt Mueni Timona. Yes there are alot of lady pilots in Kenya and the world. I am one of them and I also work as a flight instructor at Westrift Aviation Academy. We also have lady pilots like the famous Captain Koki Mutungi, first female Dreamliner captain in Africa who works for Kenya Airways.

Are you like Master Ryan Ndambuki a curious young man who wonders how aviation works?  
Do you wish to be part of the airspace junior club?

## MENTAL HEALTH

### Keep away from mentally straining social life



BY DR. LYN  
NYAMUTE

**M**ental health refers to our cognitive, behavioral, and emotional wellbeing. It is all about how we think, feel and behave.

Pilots have to ensure that they don't engage in social activities that compromises their mental health.

The scale of mental health issues in aviation is unknown. Mental health is influenced by various personal and occupational factors. Most mental disorders are probably related to depression, anxiety, and alcohol and drug dependence.

Being labelled with a "mental health problem" in aviation might have consequences, including stigma and discrimination; grounding; additional costs, including costs associated with examinations and treatment to be medically certified; loss of income; and fear of loss of employment. Possible

outcomes of being diagnosed with a mental health problem include self-esteem and self-confidence issues; reluctance to seek help due to medical confidentiality matters; seeking help, but declining treatment; obtaining treatment but failing to disclose the condition or treatment; having peers be hesitant to report concerns to an employer/regulatory authorities; increasing stress and isolation; experiencing adverse effects on the progress of a mental disorder and/or the exacerbation of symptoms. All of these situations can lead to an increased risk to aviation safety, and, in extreme cases, to, Pilot Suicide.

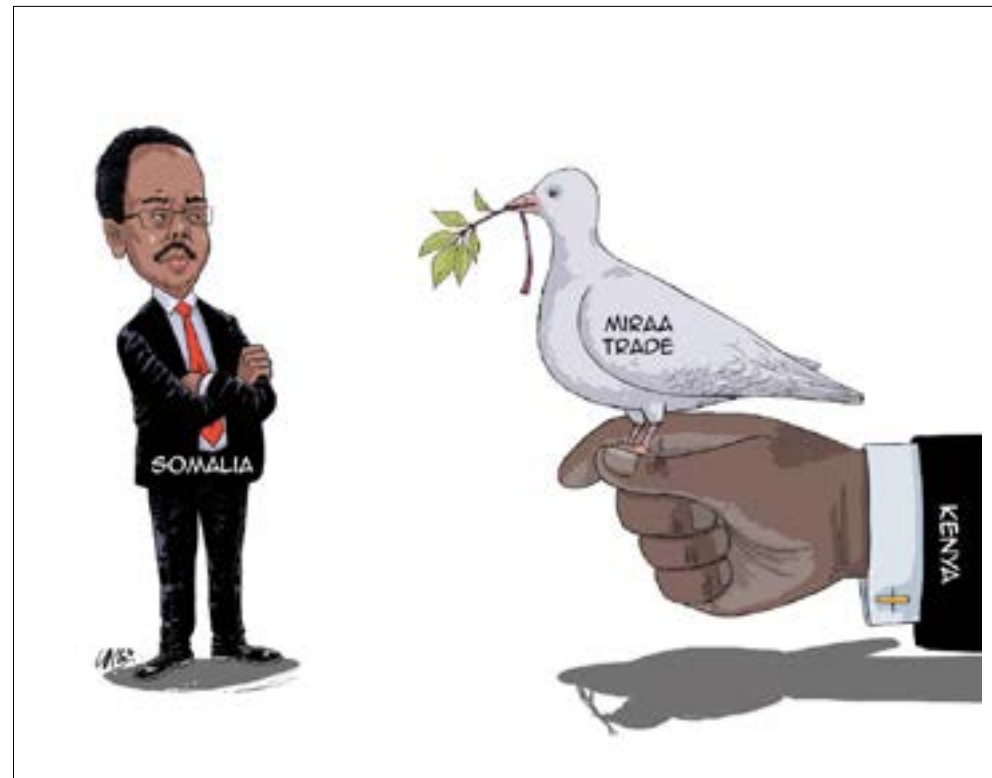
— Dr. Linda Nyamute - Founder  
Mental Sphere consultant psychiatrist and mental health advocate







## COMICS



## SPACE SCIENCE

## 35 Years Ago: Remembering Challenger and Her Crew

Left: crew members Michael J. Smith, front row left, Francis R. "Dick" Scobee, Ronald E. McNair; Ellison S. Onizuka, back row left, S. Christa McAuliffe, Gregory B. Jarvis, and Judith A. Resnik.



**35** years ago in 1986 the space Shuttle Challenger exploded after liftoff killing all seven astronauts on board. The challenger broke apart at 11:39, 73 seconds after liftoff. The disaster was caused by the failure of an O ring seal in one of the two solid-fuel rockets.





## AVIATION HUSTLER

# Pilot with love for Bikes and Racing



### Who is Kipruto Yattich?

I am a 26yr old CPL SE holder. I went to Sunshine Highschool and later Shah Lalji Nangpar Academy. After my highschool I joined Standards Aviation School in Kenya where is got my Commercial Pilot's License.

### Why Racing and not just biking?

Well, I also ride every day and am a member of a Bikers Group called Beth Mobility. Beth Mobility is also into racing and selling bikes. Because of my riding, I was invited to try and compete for space as a racer and I took it. In the selection phase I was among the 7 selected racers.

### Do you race other biker groups or you race internally?

Our biking group is also a member of East Africa Super Bike Championship. We race other groups too, though the last race we had in September there's a group we were

scared of but they never showed up for the race, they said because of Covid.

### So which bike do you ride?

I have a bike I have assembled myself, which I ride around most of the times. But I race with the Zontes 200j. Last Race was in September 21st last year and I won the championship in my category at whistling Moran.

### When do the races happen?

The races occur when the timetable is out. The timetable for the year 2021 will be out at the end of February.

### You have also been involved in Sky Diving Ukunda?

Yes, I was helping them with operations on voluntary basis before they were closed down. My work was to ensure, the aircraft has fuel and all the jumpers are properly loaded before take-off. Giving take off time at the base and anticipated time of jump.

It's a time thing to save on Aircraft utilization.

### Why was it closed down?

(laughs) I don't know! And if I knew I'll have to kill you after telling you.

### So do you intend to be a professional biker or professional pilot?

Piloting is my life, biking is my hobby. I have had a lot of time during this corona period to focus on biking because you remember the Kenyan Airspace was closed and a lot of people's jobs were affected. I decided to keep busy.

### What can you advise other young people about life?

Life is what you make it to be. Do what you love because you will do it passionately. Don't let anyone, friend or family stop you from achieving or doing what you love. Finally put God first.









## NOW THAT'S WILD



# Eating your own children

**T**he small Crocodile was basking on the bank and taken/ grabbed by the large Crocodile. It then drowned the smaller Crocodile by holding it underwater for about 30 minutes and took another 30 minutes to swallow it whole.

— Photos by Gavin Ellis from the bird hide in Marloth Park.

YOURS TRULY, **WHITE PILOTS**

# The day a dog crashed a plane



**I**n Alaska on June 5, 1996, the pilot of an Aronca AR-7 reported that he placed his dog in the back seat of the plane in preparation for takeoff. The takeoff was performed on rough and even terrain. During the takeoff roll the cabin door jarred open and the dog tried to leave the airplane. The pilot aborted the takeoff while reaching over and grabbing his dog as it leapt out. As the airplane slowed down, it encountered a small ditch and boggy terrain and nosed over. Neither were seriously hurt.





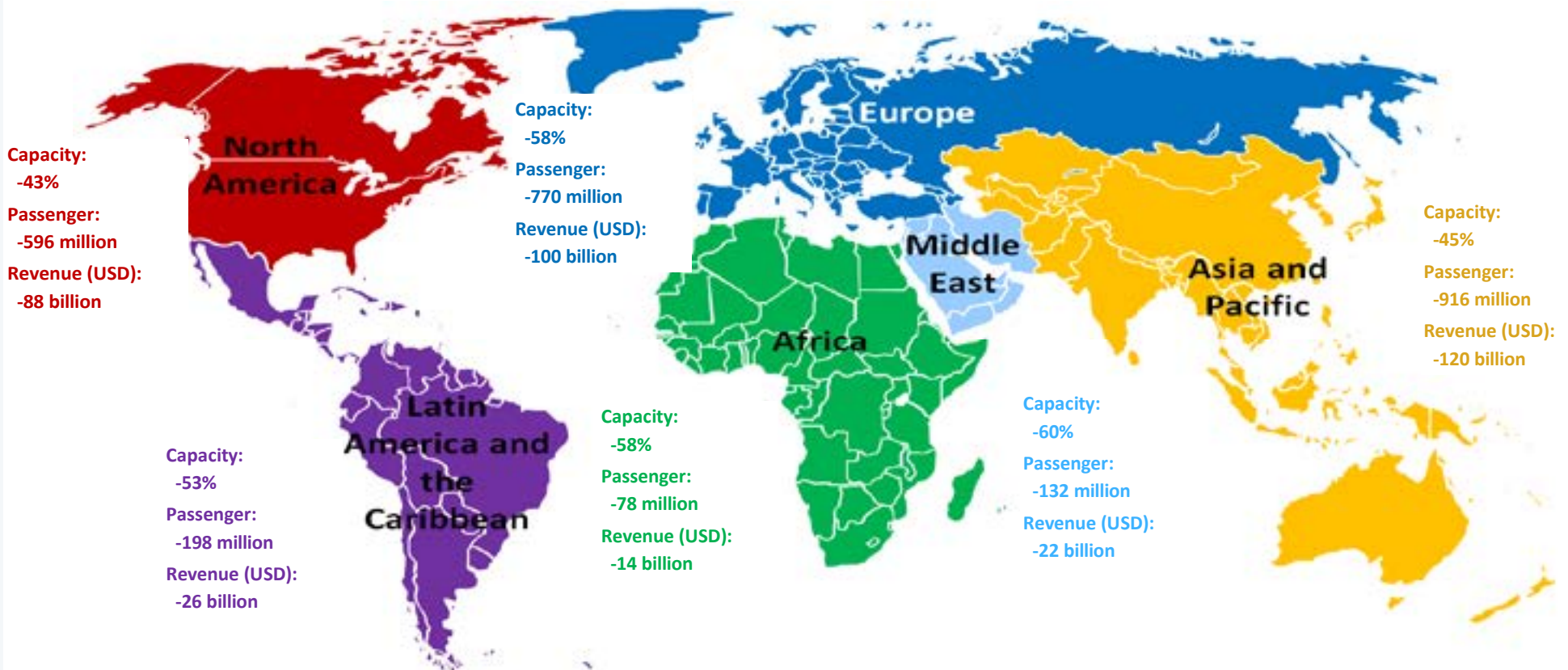
ICAO

Global:

Capacity: -50%

Passenger: -2.7 billion

Revenue (USD): -370 billion



## Covid cuts passenger numbers by 60 percent as assault on international mobility continues

### About ICAO

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

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With its latest economic impact analysis of COVID-19 now completed, ICAO has confirmed that international passenger traffic suffered a dramatic 60 per cent drop over 2020, bringing air travel totals back to 2003 levels.

According to our data, as seat capacity fell by 50 per cent last year, passenger totals dropped by 60 per cent with just 1.8 billion passengers taking to the air during the first year of the pandemic, compared to 4.5 billion in 2019.

Our numbers also point to airline financial losses of 370 billion dollars resulting from the COVID-19 impacts, with airports and air navigation services providers (ANSPs) losing a further 115 billion and 13 billion, respectively.

The pandemic plunge in air travel demand began in January of 2020, but was limited to only a few countries. As the virus continued its global spread, however, air transport activities came to a virtual standstill by the end of March.

With the wide-scale lockdown measures, border closures, and travel restrictions being set out around the world, by April the overall number of passengers had fallen 92 per cent from 2019 levels, an average of the 98 per cent drop-off seen in international traffic and 87 per

cent fall in domestic air travel.

Subsequent to the April low point being reached, passenger traffic saw a moderate rebound during the summer travel period. That upward trend was short-lived, however, stalling and then taking a turn for the worse in September when the second wave of infection in many regions prompted the reintroduction of restrictive measures. Sectoral recovery became more vulnerable and volatile again during the last four months of 2020, indicating an overall double-dip recession for the year.

### Disparity between domestic and international recoveries

There has been a persistent disparity between domestic and international air travel impacts resulting from the more stringent international measures in force. Domestic travel demonstrated stronger resilience and dominated traffic recovery scenarios, particularly in China and the Russian Federation where domestic passenger numbers have already returned to the pre-pandemic levels.

Overall there was a 50 per cent drop in domestic passenger traffic globally, while international traffic fell by 74 per cent or 1.4 billion fewer passengers.

As of late May 2020, the ICAO Asia/Pacific and North American regions led the global recovery in passenger totals, largely due to their significant domestic markets. Europe saw a temporary rebound but trended downward dramatically from September. Latin American and Caribbean traffic saw improvements in the fourth quarter, while recoveries in Africa and the Middle East proceeded less robustly.

World passenger traffic evolution, 1945 – 2020

### Financial distress and grim outlook ahead

Paralyzed revenue streams resulting from the plunge in air traffic has led to severe liquidity strains across the aviation value chain, placing the industry's financial viability in question and threatening millions of jobs around the world.

Cascading impacts have also been severe across tourism markets globally, given that over 50 per cent of international tourists formerly used air travel to reach their destinations.

The global 370 billion dollar drop in gross airline passenger operating revenues represented losses of 120 billion in the Asia/Pacific, 100 billion in Europe, and 88 billion in North America, followed

by 26 billion, 22 billion and 14 billion in Latin America and the Caribbean, the Middle East and Africa, respectively.

The near-term outlook is for prolonged depressed demand, with downside risks to global air travel recovery predominating in the first quarter of 2021, and likely to be subject to further deterioration.

We expect any improvement in the global picture only by the second quarter of 2021, though this will still be subject to the effectiveness of pandemic management and vaccination roll out.

In the most optimistic scenario, by June of 2021 passenger numbers will be expected to recover to 71 per cent of their 2019 levels (53 per cent for international and 84 per cent for domestic). A more pessimistic scenario foresees only a 49 per cent recovery (26 per cent for international and 66 per cent for domestic).

We continue to provide recommendations and support for the aviation sector to weather through the crisis. Our new [Guidance on Economic and Financial Measures](#) summarizes a range of measures that can be explored by States and the industry to alleviate the imminent liquidity and financial strain, and to strengthen the industry's resilience to future crisis.





**Get back to work  
with a personalized  
professional email**



## **READY FOR WORK?**

emails available:  
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yourname@aviator.co.ke  
yourname@flightengineer.co.ke

To get your personalized email, send your name and  
number to [aviators@pilot.co.ke](mailto:aviators@pilot.co.ke)





## LAW AND AVIATION

# This is how to buy an aircraft in Kenya



BY YVONNE OUMA

**M**ajority of the aircrafts in Kenya are owned by affluent members of the society such as politicians and connected businessmen. You may ask yourself, "How can I purchase an aircraft in Kenya?" In order to understand the procedure on how to procure or own an aircraft in Kenya, it is imperative to understand the term 'owner' within the meaning of aviation law.

The Civil Aviation Act defines an owner as the person in whose name an aircraft is registered or licensed, and includes any person who is or has been acting as an agent in Kenya for a foreign owner.

In light of the Kenyan Civil Aviation (Aircraft Nationality and Registration Marks) Regulations, 2018, the following are entitled to ownership of legal or beneficial interest in an aircraft registered in Kenya:

(a) the Kenyan government; (b) Kenyan citizens or persons who are legally bona fide resident in Kenya; (c) any other person approved by the Kenya Civil Aviation Authority (KCAA), provided that such aircraft is not used for commercial air transport, flying training or aerial work; and (d) corporate bodies established under Kenyan laws or the laws of such country as KCAA approves.

Ideally, the KCAA is mandated to register civil aircrafts within the Kenyan jurisdiction and maintains a register concerning particulars on the same. KCAA Advisory Circular (July 2018) as read with the Aircraft Nationality and Registration Marks Regulations (regulations 5-7) outline the procedure for registration and acceptance of aircraft, which can be summarised as follows:

- Submission of application and evaluation of documents
- Aircraft inspection
- Registration acceptance & issuance of certificate
- Submission of application and evaluation

of documents.

A prospective owner shall apply for aircraft registration by submitting to KCAA a duly completed and prescribed application form; Form AC-AWS001C. The application must be accompanied by the prescribed fee. Additional documents to be submitted to KCAA include: full specification of aircraft (type, model and serial number); type certificate or equivalent document; type certificate data sheet; statement of compliance on the Civil Aviation (Instruments and Equipment) Regulations (2018); export certificate of airworthiness; compliance with the current KCAA Aircraft 'B2', 'B3' and 'A9' notices; serial numbers of major components, make and part numbers of avionics and equipment installation; and availability of KCAA approved maintenance organisation with capability aircraft type.

#### Aircraft inspection

Upon acceptance of the application and aircraft documents, a physical aircraft

inspection is conducted at a time and place pre-determined by mutual agreement between the aircraft owner and the KCAA.

#### Registration acceptance & issuance of certificate

Upon successful evaluation of the requisite documents and aircraft inspection, KCAA shall register the aircraft and include in the register the particulars of the aircraft including: the nationality and registration marks; manufacturer's name and design of the craft; serial number; owner's name; owner's address; KCAA's name or logo; certificate number; name and address of every person entitled to a legal interest /share in the aircraft, or in the case of a lease agreement, names and addresses of lessee and lessor.

KCAA subsequently furnishes to the person(s) in whose name(s) the aircraft is registered, a certificate of registration containing the aforementioned particulars above. At the close of the registration procedure, the owner is then required to submit

the following documents to the KCAA:

- A document to prove aircraft ownership (e.g. Bill of Sale)
- Copy of a Government-issued identity card or passport as appropriate
- A certified copy of the Certificate of Incorporation if owned by a company
- Names of directors of the company owning or leasing the aircraft and their specimen signatures giving authority to register the aircraft and indicating who among them has the mandate to transact on their behalf on matters of registration.
- A certified copy of the lease agreement if the aircraft is on lease
- Letter of authority (if the application is made on behalf of the owner (s))
- A certified copy of a current aircraft insurance certificate
- Proof of payment of prescribed fees. It can be concluded that the procurement of aircraft in Kenya is a daunting task, then again the tedious procedure befits the complex nature of an aircraft itself and thus should come as no surprise for prospective aircraft owners.





# Poaching on the Rise Around Lukenya



**S**ad day in Lukenya as five giraffes lost their lives through poaching. A small tower of five moved North of Lukenya as they got chased by an unknown number of Boda bodas. This split the group and three adults were killed. The two younger ones later succumbed because of exhaustion, trauma, or dehydration. Twenty-seven people have been arrested so far. KWS is working hard across the country to ensure poaching and human contact with wild animals is minimal.

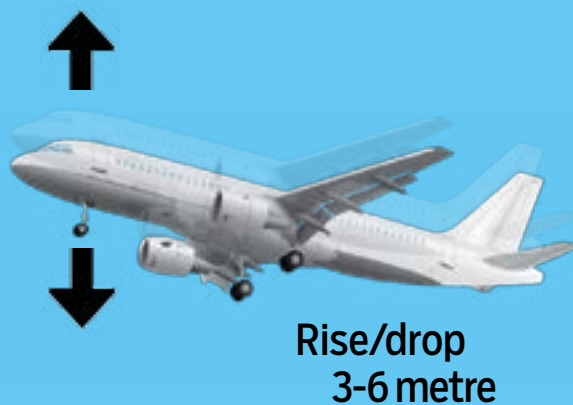


Game porching on the rise





# Turbulence Intensity



## Cut him some slack, it's the turbulence, not the pilot!

BY FIRST OFFICER  
MUNI- JAMBOJET

A friend recently ranted on and on how her flight to Eldoret was very shaky. She even went ahead to blame operating pilots of that flight for her nasty and bumpy flight.

She is not the only one to complain to me that whenever she flies with a certain airline or a certain type of airplane she experiences a very bumpy ride. I bet you too have wondered what goes on especially on the descent, the last few minutes just before touchdown.

Neither the pilot or the airline is to blame. Blame it on turbulence...

An aircraft generates lift through the interaction of the wing and the air. Depending on the location, time of day and height, each parcel of air exhibits different characteristics. Unless you are trained to make an observation and decipher, it is very difficult to point out what conditions one might experience as you fly from one parcel of air to another.

Although the main culprit of a bumpy flight is always the turbulence. What causes the turbulence varies and as a pilot this is covered in a unit we study called Meteorology. Depending on the cause of the turbulence, a pilot may be able to detect and avoid before flying into it.

And in some instances it catches you completely off guard and the only option left is to continue flying and hope the condition will get better or change course and height or both to get away from the turbulence.

This decision is mainly influenced by the intensity of the turbulence. Starting from the least dangerous to most detrimental to the safety of the aircraft, we have light turbulence; this one is the baby. Most passengers

hardly notice this one as there is very little change in attitude. Some people even find this kind of turbulence enjoyable (by some people I mean myself; it stimulates my mind to optimum levels keeping me vigilant in flight).

When light turbulence changes to moderate turbulence, that is when most people will start realising what is happening. You will notice at this point that the seat belt signs have been turned on by the pilots and those passengers who had their belts off are buckling them up. The aircraft shakes considerably and some people might find it uncomfortable. Accidents like hot drink spillage could occur and that is why it is advisable at this point to close and stow away your laptop and put a lid to your beverage.

Service from the cabin crew might continue but you will notice they will not offer hot beverages (for safety purposes).

But things start getting interesting when the turbulence moves a scale up and graduates to more severe one. Anything loose at this point is flying and if you are caught standing abruptly you could be thrown off balance and injure yourself.

At this point the pilot or the cabin crew might make a public announcement and request the passenger to take their seat and fasten their seatbelts. If this happens and you are away from your seat do not find to get back. Just take the nearest seat and buckle up until the pilots navigate from the aircraft away from the turbulence; I can bet you that is what they will be doing because even the best pilot might fight it hard to maintain control of the aircraft in severe turbulence.

The last class is one that we as pilot try to avoid at all cost. We might even divert and land at a completely different destination if that is what it takes to stay away. Why? Because if you get caught in this kind of tur-



bulence, you could easily lose control of the aircraft and crash or you could exceed the acceptable levels of stresses and cause structural damage to the aircraft. Pieces could break off the aircraft rendering it unable to fly or as a write-off once you land. Either way, none is good. This is what we refer to as extreme turbulence.

The last two are commonly encountered in storms.

In Kenya and especially when flying to Kisumu and Eldoret, we encounter thunderstorm which we can tell by observing a towering type of cloud.

With intense rain from the cumulonimbus cloud especially close to the ground level, windshear could occur. This is a phenomenon that cause a gush of wind to flow downwards and thereafter outwards as it hits the ground, same way water spreads when you

attempt to wash a spoon. The sudden change in wind direction could cause eddies that make an aircraft shake violently. On a hot and clear day, especially at midday you will notice light to moderate turbulence.

These ones are caused by the convective currents. As the sun rays hit and warm the earth, the earth in return warms up the air adjacent to it. As we all know, warm air is less dense than cold air above it, the warm air will rise and the cooler air descend.

This mechanical exchange of place will cause circular motion of air and in turn, if an aircraft flies in this parcel of air, the disturbance will be passed to the airframe as turbulence.

This is why no matter what, landing in Nairobi and especially around this time of January, it will always be bumpy and there is nothing pilots can do. Sometimes the circular

motion could occur on a beautiful chill morning. The sun is still rising and the temperatures are low. In this case you may want to look out for mountains. As we said before, cold air is less dense and this makes it resist change. We refer to this parcel of air as stable. When this parcel of air moves horizontally as wind and it encounters an obstacle like a mountain, it will be forced to momentarily climb and as soon as it crosses the obstacle, it descends and in so doing continues flowing in circular motion. This could cause turbulence at any flight levels as long as you are flying on the downwind side of a mountain or hill.

As you have seen the causes of turbulence and therefore bumpy rides are many and they vary depending on location. On this article, I have explained... just but a few, common ones expected in Kenya.

But as you fly to other places, causes change but we can all agree that the details as for pilots (As a passenger what matters is a safe and smooth flight) but it helps to know and appreciate that the pilots do the best they can and sometimes they don't have control over it.

And sometimes we are surprised as you are when we encounter unexpected turbulence.

This one is a notorious one. You never see the sign and therefore cannot predict it. And it happens in the clearest weather conditions and that is why we call it Clear Air Turbulence or CAT for short and that is why you should always have your seat belt fastened and seated at all times whether the seat belt signs are on or not.

Better safe than sorry!





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NATIONAL **NEWS**

# KAA embarks on country wide airport renovations

**T**he Kenya Airports Authority (KAA) has embarked on a country wide renovation of Airports and Airstrips.

Already renovations for the Jomo Kenyatta International Airport (JKIA) have been ongoing, with the press release from the 16th of January confirming that terminal 1B and 1C is being upgraded to give the travelers an improved experience.

Once completed, the newly renovated light-filled departure terminals will deliver modern concessions and amenities that will give travelers a friendly and memorable experience.

It will also ease passenger flow and increase efficiency due to the centralization of security screening procedures and the reallocation of available floor spaces to international departure gates.

Other Airstrips being upgraded are:

Lanet Airstrip to an International Airport, Kakamega, Kitale, Nyaribo, Nanyuki and Isiolo Airstrips to accommodate bigger aircrafts.

— By Staff Writer







# KNOW YOUR REGULATOR



**M**any aviators do not know the functions and departments at Kenya Civil Aviation Authority. Most people only know licensing and Doctor Muinde, Well, there are more departments at KCAA apart from Licensing that can help you be a better aviator.

## Personnel Licensing

Personnel Licensing (PEL) is a department within the Directorate of Aviation Safety, Security and Regulations. (DASSR). The Manager Personnel Licensing (MPEL) reports to the Director Aviation Safety, Security and Regulations and is responsible for the oversight of ICAO Annex 1 requirements in Kenya. To discharge its responsibilities, the PEL Department has to carry out many functions/tasks which are normally organized around five major functional areas:

1. Examinations (flight crew, aircraft maintenance personnel, air traffic controller, etc.),
2. Licensing,
3. Training,
4. Regulatory And
5. Administration.

## Consumer Protection

The Consumer Protection function entails: assessment of the needs and wants of customers in the Aviation Industry and providing a forum for redress against unfair competition; in addition, ensuring compliance with the laid down code of practice; ensuring that the quality of services provided meet consumer expectations; enforcement of policies, rules, regulations and procedures relating to the rights of consumers.

The Aviation Consumer Protection

Section of the Kenya Civil Aviation Authority was launched in 2004 to ensure that all Aviation Consumers obtain the best services and value from the service providers within the aviation industry.

The section is also responsible for informing, educating and protecting consumers and thus ensuring services provided in the aviation industry are of the highest standards, comparable to that in other parts of the world and hence consumers are also informed of their rights and responsibilities.

Any stakeholder who has a complaint or issue of concern may communicate through the following contact: [consumer@kcaa.or.ke](mailto:consumer@kcaa.or.ke)

## Airworthiness

The Airworthiness Department is responsible to the Director Aviation Safety, Security and Regulation (DASSR) for all matters concerning the continuing airworthiness of aircraft as required by the Chicago Convention, Annex 6 and 8. The functions and responsibilities of the Airworthiness department are:

1. Review, process and record applications for registration of aircraft, registering and de-registering aircraft as appropriate, and issuing certificates of registration;
2. Grant or validate aircraft noise certification;
3. Survey aircraft for issuance, renewal and validation or acceptance of certificates of airworthiness and processing of documents, as appropriate;
4. Issue and review of maintenance organization approvals, air operators, and where no separate licensing Department exists, aircraft maintenance training organizations' approvals;

5. Record, review and process application forms of aircraft maintenance personnel for issuance, renewal, validation and extension of licenses and ratings.

## Aviation Security

The Aviation Security department is responsible for the oversight of aviation security in the Republic of Kenya.

## Flight Operations

Flight Operations is an important department in the Aviation Safety and Security Regulations department of KCAA. The department is segmented into the appropriate aircraft categories and operational components as determined in the regulations. Each section has a group of specialists who perform a number of duties and functions on behalf of Flight Operations.

## Air Transport

The Air Transport Department undertakes to develop a dynamic and sustainable air transport system in Kenya through the provision of the following services.

- Processing and issuance of Air Service Licenses
- Processing and issuance of Temporary Air Service Licenses
- Processing and issuance of Adhoc Permits.
- Processing and issuance of Aircraft lease approvals.
- Processing and issuance of Domestic scheduled air service approvals.

## Aerodromes, Air Navigation Services and Meteorological Regulation.

### AAMLE

The Air Navigation Services Regulations (ANS)/Meteorology (MET) and Aerodromes Regulation Department is responsible for safety oversight of air navigation services, Meteorological Services provided for air navigation and Aerodromes in Kenya.

## Aeronautical Information Management

The Role of AIM is to ensure the timely flow of Aeronautical Information necessary for the Safety, Regularity and Efficiency of National/International Air Navigation. AIS collects, collates, assembles, edits, formats, originates, publishes and distributes Aeronautical Information/ Data necessary for Safety, Regularity and Efficiency of Air Navigation concerning the entire Nairobi Flight Information Region (FIR).

## Air Traffic Services

Air traffic service is generic term meaning variously, Flight Information Service, Alerting Service, and Air Traffic Advisory Service, Air Traffic Control Service (Area Control Service, Approach Control Service or Aerodrome Control Service.)

The objectives of air traffic services are to:

- a. Prevent collisions between aircraft;
- b. Prevent collisions between aircraft on the maneuvering area and obstructions on that area;
- c. Expedite and maintain an orderly flow of air traffic;
- d. Provide advice and information useful for the safe and efficient conduct of flights;
- e. Notify appropriate authorities/ organizations regarding aircraft

in need of search and rescue under the control of an air traffic control unit.

## Engineering Services

Engineering Services Department is responsible for management of air navigation infrastructure that enables provision of air traffic services in Kenya's airspace. In undertaking this responsibility, the department ensures that the infrastructure so deployed is available, safe, secure, reliable and efficient round the clock.

## East African School of Aviation

The East African School of Aviation (EASA) is the training Directorate of the Kenya Civil Aviation Authority (KCAA) and an Approved Training Organization (ATO). The school is an International Civil Aviation Organization (ICAO) Regional Training Centre of Excellence (RTCE), and the 9th institution worldwide to attain this status.

EASA is recognized as one of the best-equipped Civil Aviation Training Centers in Africa, and a designated Centre of Excellence by the EAC for the Northern Corridor partner states. The school offers a wide range of Aviation, Technical and Management programs using state of the art training equipment.

## Corporate Communications Department

The reputation of KCAA is vital to the Authority in realizing its mandate. \ In an age where information flows instantaneously and globally, it is critical that our communication with both internal and external audiences is managed in a coordinated and systematic way. It is important that KCAA ensures that its messages are not only accurate, consistent and timely but also aligned with the objectives of the Authority.



AFRICA **AVIATION**

# Ethiopian Airlines Positioning to Control the Region



ET-AVA\_DH8D3.

**E**thiopian Airlines has had their 31st Dash 8 Q400 delivered by De Havilland. In July they had their 25th Brand New Dash 8 delivered. In just 6 months they have had 6 more delivered.

The national courier Kenya Airways needs to up their game too because competitors like Ethiopian Airlines are under-cutting other Kenyan Operators.

Rumor has it that the national courier from the Land of 13 Months of Sunshine has undercut Kenyan Operators with more than a million dollars per year for

the UN contracts. The fact that they are acquiring the dash 8 q 400s in large numbers should scare the local operators. This particular model of aircraft has speeds of up to mach 0.62 on cruise. The Dash 8 Q400 is a Short range commuter airliner.

In service since 1999. Further stretched and higher performance member of the Dash 8 series, with new quieter engines and computer controlled noise and vibration suppression system.

It can get in and out of short runways with full load.

## WISDOM TOOTH



**O**ne of the most fantastic things about Kenya is its people. Folks always, always have time for one another. Pilots are like that pretty much the world over, and even far more so like that in Kenya. Pilots have helped me a million times; and I may not be the easiest person in the world, I know.

I always ask for advice or help. I've got some 5000 hours now, have been flying Commercially here in Kenya, mostly in the bush, for 35 years, and I still get help all the time. **YOU JUST HAVE TO BE HUMBLE AND ASK.**

For example: I'll ask about starting an engine, piston or turbine, cold or hot. I'll ask about what this airstrip is like and how I should fly in and out, and what loads should I carry.

I ask about avionics, good mechanics, good instructors (still), etc. Kenyan pilots couldn't be more helpful; just ask. Make a friend, learn something new, and being humble is always good for us.

**ALWAYS BE A STUDENT; ALWAYS!**  
**Capt. Mark Ross- Capt. Aerobatics.**



Markross taking off from a road in Samburu.

Markross skydiving in Ukunda.





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BUSINESSNEWS



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**The Price**  
The Cessna citation longitude goes for \$26 Million. This aircraft was developed further to become the Cessna Citation Hemisphere which goes for \$35 Million, only.

- The Comfort**  
Feel it as soon as you step inside: a spacious, flat-floor, six-foot stand up cabin with best-in-class legroom for ultimate comfort.
- The Quietness**  
The aircraft soundproofing design is the world's quietest super-midsize cabin. Whether you're resting or conducting business, enjoy the peace and quiet needed to make the most of your time in the air.
- Technology**  
From a wireless cabin management system that puts you in control of the cabin, to fully integrated auto throttles in the cockpit, the Citation Longitude jet brings the latest technology to the super-midsize segment.

Specifications			
■ <b>DIMENSIONS</b>	■ <b>Length</b>	73 ft 2 in (22.3 m)	■ <b>Tread</b>
	■ <b>Height</b>	19 ft 5 in (5.9 m)	9 ft 8 in (2.95 m)
	■ <b>Wingspan</b>	68 ft 11 in (21.00 m)	■ <b>CABIN INTERIOR</b>
■ <b>Wing Area</b>	537 sq ft (49.91 sq m)	■ <b>Height</b>	72 in (1.8 m)
■ <b>Wing Sweep</b>	28.6 degrees	■ <b>Width</b>	77 in (1.96 m)
■ <b>Wheelbase</b>	31 ft 7 in (9.63 m)	■ <b>Length</b>	25 ft 2 in (7.7 m)
		■ <b>BAGGAGE CAPACITY</b>	
		■ <b>Weight</b>	1,115 lb (506 kg)
		■ <b>Volume</b>	112 cu ft (3.17 cu m)





## TRAVELLERS GUIDE



### By Staff Writer

From proposals to nature tours, you will be spoilt for choice at the Mt Kenya National Park. The majestic Mountain rises above 16,000 feet above sea level with a flight path between the Aberdare Ranges and Mt Kenya.

The Wildlife is so vibrant. You can find Elephants, tree hyrax, white tailed mongoose, suni, black fronted duiker, mole rat, bushbucks, waterbuck and Elands. There are also animals that are rarely seen such as leopards, bongo, giant forest hog and over 130 species of birds.

For hikers and climbers, you can enjoy pristine wilderness, lakes, tarns, glaciers and peaks of great beauty, geological variety, forest, mineral springs, rare and endangered species of animals, High altitude adapted plains game, Unique montane and alpine vegetation with 11 species of endemic plants.

The park gate is 175 Kms from Nairobi,

the park can be reached on Nanyuki-Isiolo road via Sirimon Track or Nyeri-Nanyuki road near Naro Moru. The park is also reachable via Chogoria on the Embu - Meru road, about 150km north of Nairobi.

Mountain climbing routes without an official gate include:

- Kamweti
- Marania
- Burguret
- Themwe

The closest commercial airstrip to the park is at Nanyuki.

You are encouraged to visit the park, not alone but with a qualified and certified guide. Guides and porters have identification cards issued by the park management.

### Activities Include:

- Camping
- Cave Exploration
- Game Viewing
- Mountain Climbing,
- Hiking etc

There are several places for accommodation. This include

Several campsites and a few hotels. Entry is from **kes250** for residents and can be cheaper if you book for many days.

Enjoy the beautiful scenes in your country. You can fly from Nanyuki to enjoy a better high view of Mt Kenya on Chartered Flights from as low as **Kes20,000** for three people. For enquiries of the scenery flight around the country.

— Email [sceneryflights@airspacenews.co.ke](mailto:sceneryflights@airspacenews.co.ke)



Samburu National Reserve.



# 16,000

The majestic Mountain rises above 16,000 feet above sea level with a flight path between the Aberdare Ranges and Mt Kenya.

# What to expect at Mt Kenya National Park







## AIRFREIGHT

# Ways of Packaging Cargo



BY WINNIE WENDO

**D**id you know? As a general rule, the maximum height of a cargo piece shipped on a passenger aircraft e.g. Boeing 747 is limited to 160cm.

Air cargo to be transported is required to be packaged in a safe, resistant and accepted packages. A safe cargo is one which will not cause any harm when handled. A resistant cargo is one that retains its shape and nature when subjected to stress and lastly an accepted cargo is one which surpasses the law requirements.

The importance of proper packaging is to prevent the content from:

- Punctures and abrasions when the product shifts, or has insufficient internal packaging.
- Drops and impacts that are common with handling operations.
- Compression forces from stacking, shock, vibration, or tie-down straps.

Heavy machinery of more than ten tonnes is usually not packed.

There are several ways of packaging which are broadly classified into wood and plastic packaging. These include:

- **Corrugated Fiberboard boxes:**  
Corrugated is made up of three layers of paper that includes an inside liner, an outside liner, and fluting with a ruffled shape, which runs in between the two. They are mostly mislabelled as cardboard cartons or boxes.

CFBs are cost effective and sustainable hence the most commonly used shipping packaging. Other ben-

efits of CFBs include: providing a superior cushion for any content and can be custom made to meet any special needs.

### ■ Airfreight Pallets

A pallet is a flat wooden or plastic platform on which goods are placed on so that they can be lifted and moved in and out of a cargo compartment. Each individual pallet has been designed to fit into the various types of aircraft to move cargo with minimal delays. A pallet or container that is to be loaded on to an aircraft is referred to as a unit load device (ULD). Consolidating goods onto pallets reduces the risk of them becoming damaged whilst in transit. ULDs can be used on both passenger

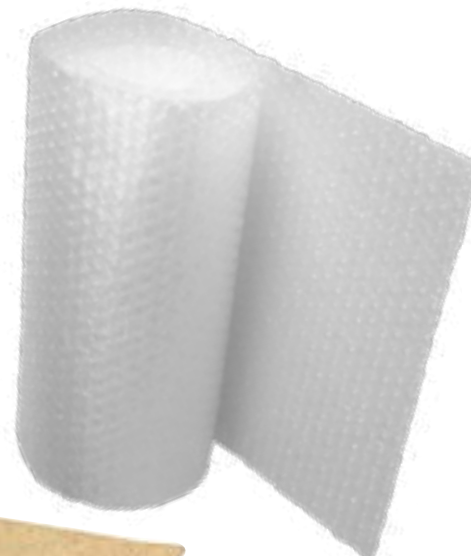
planes and freighter.

A standard pallet has a loadable base of 304cm x 210cm. A 10ft pallet measures 304cm x 230cm and a 20ft pallet has useable size of the base is 592cm x 230cm. For heavier loads, there is a heavy-duty pallet that measures 304cm x 231cm. These pallet dimensions can fit on to a wide range of aircraft, including the A300, A310, A330, A340, 747 and MD-11.

The basic requirement for pallets is that they should be large enough to accommodate shipments without overhang. Broken pallets should not be used, protruding fasteners should be removed before packages are placed on pallet and the rated capacity of your pallet should never

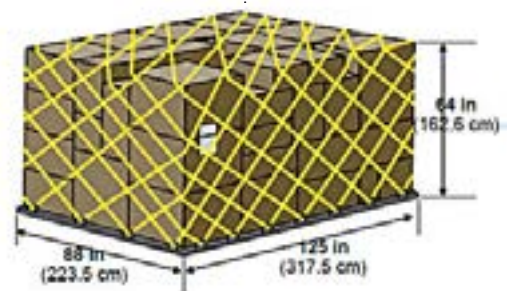


Polystyrene-packaging-chips

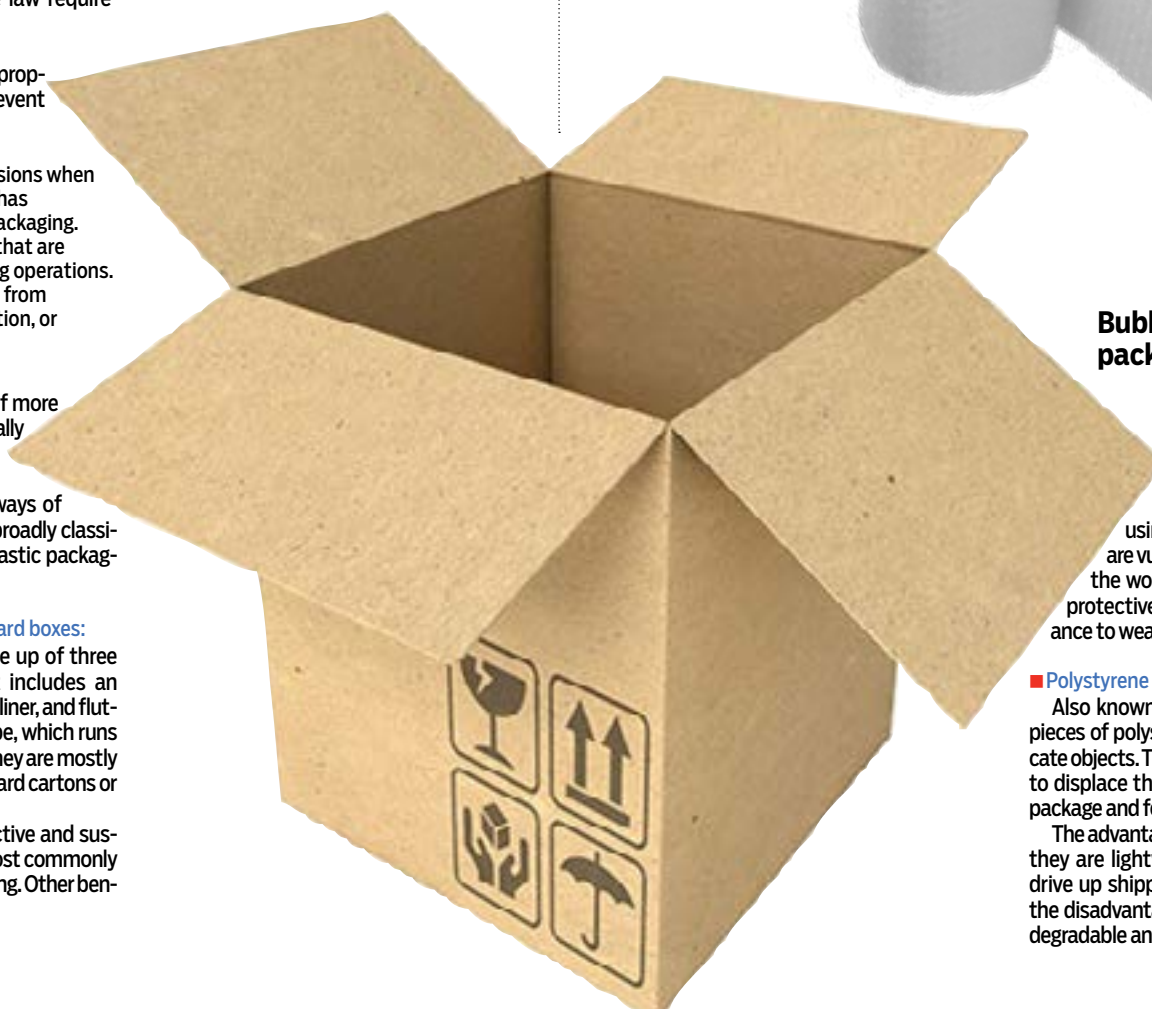


Bubble-wrap-packaging-roll-

Corrugated-fiberboard-boxes



Airpillows



Corrugated-fiber-board-boxes

be exceeded.

One of the biggest risks of using wood for transit is that they are vulnerable to fire, which as a result the wood must be treated to give it a protective layer that increases its resistance to wear and tear.

### ■ Polystyrene Chips.

Also known as packing peanuts are small pieces of polystyrene for putting around delicate objects. They are used together with CFBs to displace the air between the content and package and for insulation.

The advantages of packing peanuts are that they are lightweight, affordable and do not drive up shipping costs. On-the-other-hand, the disadvantages are that they are non-biodegradable and difficult to recycle.

### ■ Bubble-wrap

Also known as blister-wrap is a lightweight, expensive and flexible packaging that is shock absorbing and abrasion resistant.

Bubble-wrap is used together with other packaging methods.

### ■ 5. Air pillows.

Used in filling voids for shipping protection due to their cushioning property, an air pillow is an airtight and inflatable cushion. They hold products in position and don't allow movement or shifting. They are very light in weight, do not add to shipping costs and come in various sizes and thicknesses, all of which are affordable.

The next time you want to ship a parcel you will be knowledgeable on the different ways to package. Hence, it will save you costs on having it packed by the cargo airline or agents.





# Pilot Shop

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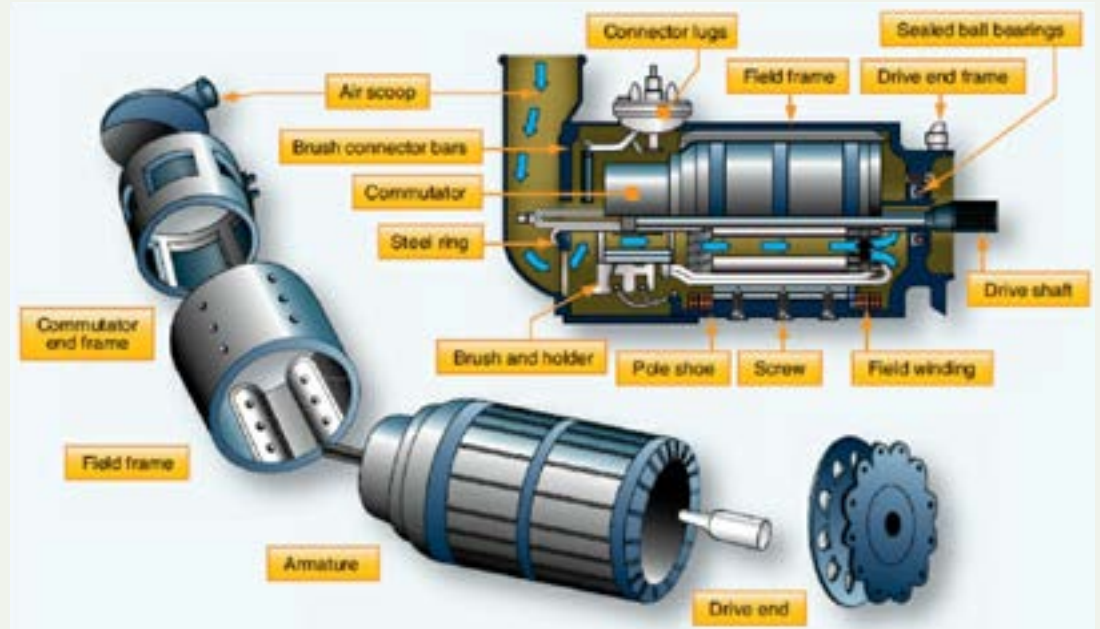






## TECHNOLOGY

# Here is a Short story about your aircraft electrical system



**A**eroplanes use electrical power to run various systems such as pilot instruments, lights and the infotainment systems for passengers. The electrical power is supplied both in the form of direct power (DC) and alternating power (AC).

The simplicity and complexity of electrical systems varies depending on the size of the plane. Radios and Navigation equipment utilise AC power. Most of the other equipment and systems run on DC power. Planes have various systems which include the electrical system itself, ignition system, fuel system, hydraulic system, air conditioning and pressurisation system as well as ice and rain protection system.

Small planes in the light category are powered reciprocatingly by engines and generate electrical power from the alternator.

This alternator is a small generator with an output of 12 or 24 volts AC. The AC power passes through rectifiers that convert it to DC power. These planes run on the Magneto Ignition System which requires no external source of electrical power to supply the

strong spark required by the plugs to burn fuel in the combustion chamber.

Jets like the Airbus A380 and propeller driven gas turbine airplanes like the Dash-8 Q400 derive electrical power from Engine Driven Generators (EDG). Additionally, they have an APU and Ram Air Turbine (RAT) for emergencies. The generator output is normally 115 Volts AC power. The battery has an output of 28V DC power.

The alternating AC Power from the generator may be used directly or it may be routed through transformers, rectifiers or inverters to change the AC current to DC. There is also a provision to change DC power from batteries to AC by means of AC Inverters should the generators fail. The AC and DC outputs from each source are fed to the respective AC and DC distribution buses.

Individual components are powered from the buses with circuit protection in the form of a circuit breaker or fuse incorporated into the wiring.

Standby electrical power is required during engine start or inflight emergencies. It is supplied by DC Batteries, an Auxiliary Power Unit (APU) or a Ram Air Turbine which deploys automatically in the event of in-flight engine shut down.

The electrical power for start and emergency is provided by 28 Volts DC batteries. During flight, the power is generated by Engine Driven Generators that produce AC power.



BY ENGINEER  
MIKE KHISA





BY GLADYS MIDECHA

# Looking at the future of sports

## ON THE PITCH

**T**he COVID-19 pandemic brought a change-shift in everything. However, sports organizations can position themselves to thrive in 2021. The impacts of the events of 2020 will be felt by the sports industry for years to come, and 2021 will be a pivotal year in challenging fans, athletes, broadcasters, teams, and leagues alike in new and unexpected ways.

**Redefining Relationships with Fans.**  
While it's been increasingly important for sports organizations to tighten fan engagement for some time, COVID-19 has amplified the critical need to reimagine the way they engage with their fan bases. Their focus should be on unlocking the power of digital technologies to build year-round, two-way relationships with fans.

Sports organizations have an unprecedented opportunity to enhance their relationships with all fan types (from casual followers to fanatics) throughout the year.

A survey done by Deloitte for fan engagement revealed that the more fans engage with their teams year-round, the more likely they are to purchase tickets and merchandise during the season. The study also found that:

- **95%** of fans currently have some form of interaction with their favorite team or league in the off-season.
- **65%** of fans say they want to receive some form of content from their team at least monthly during the off-season.
- Across all fan types, those who engage just once a month in the off-season spend 40 percent more than fans who have no engagement during the off-season.

To truly maximize opportunities in the area of fan engagement, it's essential that sports organizations truly understand their fan bases with the ability to segment fan groups (for example, casual fans, those "who love the game," and fanatics).

This segmentation allows organizations to strategically target and incentivize different fan groups based on their level of commitment and behaviors. Organizations should strive to find the optimal frequency for communications based on each fan's profile. According to studies and research two major things that can help boost fan engagement;

- **Fantasy sports:** Studies have shown that fantasy sports make fans more likely to watch games on television and attend them in-person.
- **Sports betting:** Fans who participate in sports betting are increasingly watching not only their favorite teams, but also any other games on which they've placed bets.

### UCL Draw

The draw for the Round of 16 for this season's UEFA Champions League served up some enticing fixtures as Europe's elite club competition enters the knockout phase.

Defending champions Bayern Munich face a tricky tie against Italian high-flyers Lazio, while the standout tie of the round will see French champions and last season's beaten finalists Paris Saint-Germain play five-time champions Barcelona.

Record 13-time champions Real Madrid, who just managed to scrape through into the

### Joshua-Pulev-fight.



last 16, will have to get through last season's quarter-finalists Atalanta for a place in the last eight.

### FIXTURE:

- Bayern Munich vs Lazio
- ManCity vs Borussia Monchengladbach
- PSG vs Barcelona
- Chelsea vs Atletico Madrid
- Real Madrid vs Atalanta
- FC Porto vs Juventus
- Liverpool vs RB Leipzig
- Sevilla vs Borussia Dortmund

The round of 16 first legs will take place on February 16-17 and 23-24 with the second legs being played on March 9-10 and 16-17.

The draw for the quarterfinals, semifinals and final will then take place on March 19.

Russia's Four Year Ban on Global Sports Cut to Two Years by CAS.

Russia will still miss out on participating in next year's Olympic Games in Tokyo, the 2022 Winter Olympics in Beijing and the 2022 FIFA World Cup in Qatar despite having its ban for a doping scandal reduced. The Court of Arbitration for Sport (CAS) reduced the ban imposed by the World Anti-Doping Agency (WADA) from an initial four years to two years. The ban will last until December 16, 2022.

Russia had been sanctioned in December last year by WADA which found the former had planted fake evidence and deleted files linked to positive doping tests in laboratory data which could have helped identify drug cheats.

CAS, however, was categorical that the reduction in the ban was in no way "any validation" of Russia's behavior.

Russian teams and athletes, with proof of no connection to the doping scandal, are able to compete at major sporting events under a neutral flag, according to the ban.

Additionally, Russia is banned from hosting or bidding to host global events during the same period.

### RUGBY WORLD CUP

The draw for the pool stage of the Rugby World Cup was held in a virtual ceremony in the French capital Paris. Reigning World champions South Africa were handed a tricky pool for the Rugby World Cup which will be held in



Russia ban reduced by CAS.

France in 2023. The Springboks were drawn against Ireland and Scotland in Pool B alongside a qualifier from the Asia/Pacific region (potentially Tonga or Samoa) and the runners up from the Rugby Europe Championship. One of the European qualifiers could be Russia, Georgia, Romania, Spain or Portugal.

- **POOL A:** New Zealand, France, Italy, America 1, Africa 1.
- **POOL B:** South Africa, Ireland, Scotland, Asia/Pacific 1, Europe 2.
- **POOL C:** Wales, Australia, Fiji, Europe 1, Final Qualifier Winner
- **POOL D:** England, Japan, Argentina, Oceania 1, Americas 2.

The women's edition of the Rugby World Cup will see the team increase from 12 to 16 from 2025. A statement from the sport's world governing body said the decision reflected its "commitment to accelerating development of the women's game globally" through its strategic eight-year plan.

"With women's rugby interest and participation going from strength to strength, the decision supports a core pillar of the plan in increasing the global competitiveness of women's international rugby, providing the opportunity for more teams to be more competitive on the biggest stages," the statement read in part.



RWC draw 2023.

According to World Rugby, women and girls account for 28 percent of the global playing population with the women's sport growing in recent years.

The next Rugby World Cup will be hosted by New Zealand from September 18 to October 16, 2021, while the formal process for bidding for the 2025 edition will begin in February 2021 and end in May 2022.

### BOXING

1,000 fans were in attendance at Wembley Arena and were treated to a great night of action as Anthony Joshua knocked out Kubrat Pulev in the ninth round to defend his WBA, IBF and WBO Heavyweight world titles.

The champion floored his challenger four times in a dramatic and entertaining contest, which will hopefully lead to an undisputed fight between AJ and Tyson Fury in 2021. The contest began with a cagey opener as both men appeared hesitant and exchanged jabs.

In round two, AJ began to open up and fired off a combination of hooks and uppercuts. Pulev just smiled back and absorbed a number of body jabs as he tried to close the distance.

The fight exploded into action in the third as Joshua hammered Pulev with a hard right hand and followed up with a series of power punches.

At the start of the fourth, Joshua ensured that he would not suffer from the same mistakes as he did in his defeat to Andy Ruiz Jr.

The Brit attacked cautiously, knowing his opponent was still strong. This theme followed into round five and opened up opportunities for Pulev who landed two significant right hands.

As they approached the halfway point, the challenger appeared to be growing in confidence and had the champion on the back foot.

In the seventh, Joshua planted his feet and fired consecutive uppercuts at the Bulgarian who again stood firm. Pulev caught the Brit with a right hand in round eight and appeared occasionally dangerous, just as his opponent did vulnerable.

But it was all over three minutes later.

AJ found another knockdown in round nine and then ended the fight with a brutal right which put Pulev down for the count.

With an agreement already in principle for two meetings between Tyson Fury and Anthony Joshua in 2021, only the finer details need to be resolved for a mouthwatering unification bout.

Fury, who declined an invitation, immediately took to Twitter after Joshua's victory and said "I want the fight, I want the fight next and I will knock him out inside three rounds"

As we welcome 2021. We welcome new challenges, new opportunities and new experience. The COVID-19 pandemic gave us a new dimension on how we should approach change. Opened our minds to new possibilities and gives us an opportunity to redefine, reshape and rethink the role and future of sports.

Happy and Prosperous 2021. Let us make this year a home run no matter what curve ball will be thrown at us.

### CABIN BITE

Stephanie Frappart is the first female referee to officiate in a major men's UEFA Competition.

## JANUARY 2021 SPORTING CALENDAR.

- **Dec 23-**Basketball- NBA New Season
- **Jan 14-31:** Handball- World Men's Championship- Egypt
- **Jan 16 -7 Feb:** Football- Africa Cup of Nations- Cameroon





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