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SKYwatch

SAFETY BRIEF | 17th EDITION | DECEMBER 2025

SAFETY FIRST: How to Keep Racing Fun and Risk-Free at Your Club

SACAA Leads the Way in General Aviation Oversight at AeroSA 2025

Drone Pilot Responsibility for Safety Beyond Automation

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MAST BUMPING: The Hidden Danger in Helicopter Flight Safety

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Upholding Integrity.
Protecting Safety.

top EMPLOYER South Africa 2025
FOR A BETTER WORLD OF WORK

Editorial Note
Poppy KHOZA

As we reach the end of 2025, I want to take a moment to thank every member of South Africa's aviation community for your commitment, enthusiasm, and contribution to aviation safety and security this year.

We acknowledge and appreciate that the General Aviation (GA) community remains an essential part of our aviation ecosystem, contributing meaningfully to the sector's growth and development. It is on this basis that this publication aims to keep the GA community engaged through informative and educational material that empowers and promote safe operations especially as we face a very busy festive period and therefore heightened aviation activity.

Our final Sky*Watch* of the year captures the essence of what makes the GA community thrive. Linda Dold shares practical safety tips for racing, while Dave Gove explores how anticipating threats keeps us all flying safely. Together, these articles highlight that safety is built every day, through awareness, discipline, and shared responsibility.

We also take a closer look at some of the unique challenges and lessons emerging in GA operations - from *Mast Bumping: The Hidden Danger in Helicopter Flight Safety to Drone Pilot Responsibility Beyond Automation.* These features remind us that while technology is advancing rapidly, sound judgment, training, and vigilance remain our most reliable safeguard.

Our feature on *Aero South Africa 2025* highlights how far General Aviation has come - not only in terms of technology and capability, but also through collaboration. Whether through airshows, model aviation clubs, or the growing drone sector, your engagement continues to strengthen South Africa's aviation safety culture.

Weather continues to be a critical factor in many GA operations and incidents. As we have emphasised previously rapidly changing weather conditions, inadequate pre-flight planning, and the misinterpretation of meteorological information can significantly increase operational risk. Pilots are encouraged to remain alert to deteriorating weather, respect flight and weather minima, and exercise conservative decision-making - including delaying or cancelling flights where uncertainty exists. In aviation, good judgement on the ground remains one of the most effective safety tools available to us.

In support of continuous safety improvement and regulatory modernisation, the SACAA submitted proposals for amendments to Part 43 and SACATS 43 to CARCom in December 2025. These proposals introduce approved aircraft maintenance and condition monitoring programmes for particular aeroplanes. A related proposal under Part 91 seeks to extend condition monitoring provisions to private operations. The Part 43 and Part 91 proposals were approved for publication for public comment on 19 December 2025, while the SACATS 43 proposal was referred to a dedicated workgroup for further deliberation. The workgroup is scheduled to meet in mid-January 2026, with public comments closing on 02 February 2026. Industry participation in this process is strongly encouraged.

As we pause for the festive season, let's take pride in what we've achieved together this year - safer skies, stronger oversight partnerships, and a GA community that continues to learn and evolve. I encourage you to enjoy the holidays responsibly, take a well-deserved rest, and return in 2026 ready to keep raising the bar for General Aviation.

See you in the New Year!

Warm regards,

Ms Poppy Khoza
Director of Civil Aviation

SACAA Leads the Way in General Aviation Oversight at AeroSA 2025

By Paballo Makgato – Aviation Development & Stakeholder Relations Officer, SACAA

The South African Civil Aviation Authority (SACAA) took centre stage at AeroSA 2025, unveiling a series of initiatives that signal both safer skies and stronger industry growth.

Under the leadership of Erik du Rand, SACAA's General Aviation Department introduced a two-pronged oversight model aimed at balancing rigorous safety protocols with industry development.

The approach, Du Rand said, is already reshaping how South Africa manages corporate and commercial operators as well as high profile events like air shows and aerobatics.

Speaking to delegates, Du Rand emphacised that their mission was simple, yet powerful to reduce accidents while fueling innovation.

Drones and Aerial Work on the Rise

One of the highlights in the Industry is South Africa's booming aerial work sector. With over 100 certified drone operators supporting agriculture, surveillance, and infrastructure inspections- and specialised helicopter and fixed-wing operations supporting firefighting and emergency services, growth has been striking.

The SACAA reported a 30% year-on-year growth in UAS certifications, highlighting how drones are transforming industries through cost-effective, high-precision solutions.

Building the Next Generation of Aviators

In her presentation, Khomotso Mmapheto (SACAA ATO Inspector: ATS Training) mentioned that the Authority has showcased its commitment to nurturing aviation talent. "South Africa now boasts 142 accredited aviation training organisations and over 15,000 exams are hosted annually for pilots, engineers, and air traffic controllers" she said.

With 98% of licensing applications now processed digitally within 21 days, the SACAA is setting new benchmarks in efficiency and accessibility.

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SACAA Leads the Way in General Aviation at AeroSA 2025

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Safety from Design to Physiology

Safety was a dominant theme throughout the showcase. Mr Kgama Melesi (SACAA Aviation Medicine Officer), reminded delegates that every detail matters –from streamlined certification of aircraft and drones to maintaining strict medical standards for pilots.

Melesi stressed that even minor medical discourses can make the difference between safe flight and a tragic accident.

Vision 2026 and Beyond

Looking ahead, the SACAA revealed a series of forward-looking projects, including:

1. A new GA Safety Hub for real-time regulatory updates
2. Development of eVTOL regulations
3. Expansion of drone corridors to support urban logistics

Wrapping up the showcase, Neil de Lange (SACAA Senior Manager: General Aviation) stressed the importance of collaboration.

“Partnerships are key to navigating aviation’s evolving landscape. By working together, we can position South Africa as a leader in aviation innovation.”

As Aero25 drew to a close, the SACAA invited industry partners and enthusiasts alike to share their ideas on the next wave of innovation.

What breakthroughs do you think SACAA should unveil at Aero2026?

Send us your suggestions via email to Skywatch@caa.co.za.

Connect with SACAA

GENERAL AVIATION	delangeN@caa.co.za
AERIAL WORKS	Part101.Enquiries@caa.co.za
LICENSING & TRAINING	PEL.Training@caa.co.za

SAFETY FIRST:

How to Keep Racing Fun and Risk-Free at Your Club

By Linda Dold – SAMAA Administrator

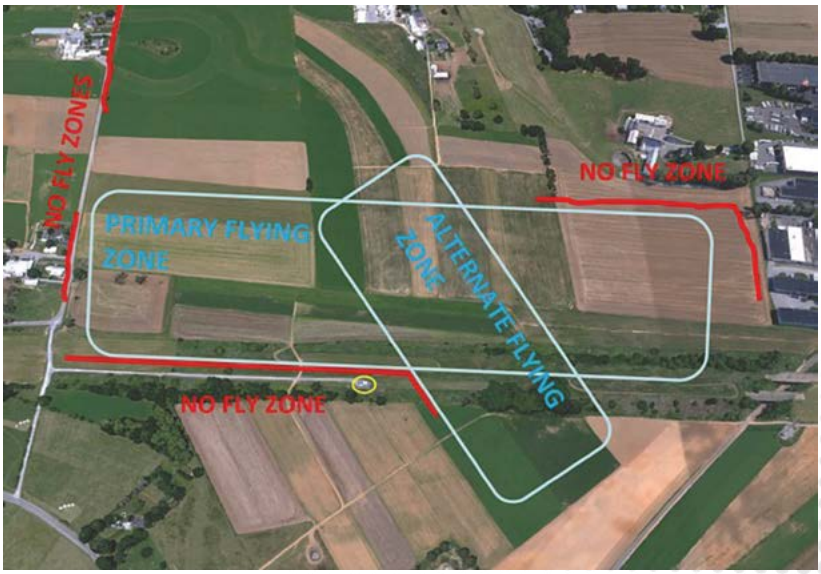
Racing at a SAMAA-registered club is one of the most exciting ways to enjoy model aviation. But with the thrill comes responsibility: safety. Protecting yourself, fellow pilots, spectators and your club's facilities is not just good practice – it's the foundation of keeping our sport fun, secure and sustainable.

Following established safety protocols is a shared responsibility and critical for maintaining the enjoyable and secure environment all model aviation pilots value.

1 FLY IN THE RIGHT ZONES

Every club has designated fly zones, clearly marked or described, to ensure that flying activities stay away from restricted areas such as:

- Spectator areas
- Pits or parking spaces
- No-fly zones such as roads, power lines, or residential properties



WHY THIS IS IMPORTANT:

Flying outside designated zones increases the risk of accidents involving people, property, or aircraft. It can also lead to violations of local aviation regulations, jeopardizing your club's compliance with SAMAA or other governing bodies.

TIP

Review your club's site layout before taking off, and stay mindful of geographical boundaries such as roads, fences, or buildings that serve as markers for fly-zone limits.

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SAFETY FIRST: How to Keep Racing Fun and Risk-Free at Your Club

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2 STICK TO THE CIRCUIT

Flying circuits dictate the organized flow of air traffic at a club. For races, the circuit often depends on the wind direction and type of activity (e.g., oval, pylon racing, or freestyle circuits).

WHAT YOU SHOULD DO:

Always confirm the active circuit with the race director, marshals, or senior pilots before launching.

- Maintain proper spacing between aircraft to avoid mid-air collisions.
- Fly with precision and follow agreed-upon entry and exit points for take-offs, landings, and emergency situations.

Pylon racers

WHY THIS MATTERS:

Following the correct circuit keeps the flying area organized and predictable for everyone, reducing the chance of incidents like head-on collisions or encroachments into others' flight paths.

3 COMMUNICATE CLEARLY

Racing often involves multiple pilots flying simultaneously, which can lead to congested airspace. Clear communication is vital.

- Call your actions out loud, such as "Taking off," "Landing," or "Dead stick" (in case of engine failure).
- Ensure your spotter or race caller assists in monitoring other aircraft during flight, providing you with situational awareness.
- Listen to race coordinators and adhere to their instructions during races and practice runs.

4 PRE-FLIGHT CHECKS

Before every race, check your aircraft thoroughly:

- Ensure the control surfaces, linkages, and radio systems are functioning correctly.
- Verify that your battery or fuel levels are sufficient for the race duration.
- Test your failsafe system to confirm your aircraft will respond appropriately if radio signal loss occurs.

5 ASSESS RISKS

Before racing, evaluate potential risks. This includes reviewing weather conditions, identifying nearby obstacles, and assessing the experience level of participating pilots. Address any concerns with your race coordinator or club safety officer.

6 KNOW YOUR LIMITS

If you are new to racing or unsure of your skills, it's better to start slow. Consult an instructor or an experienced pilot for guidance. Most clubs have training programs or mentoring systems that can help you refine your skills safely.

7 RESPECT THE RULES AND REGULATIONS

Every club operates under specific rules. These rules exist to promote safety and fair play. Ensure that you:

- Familiarise yourself with your club's rules.
- Stay updated on any changes to flying protocols or racing guidelines.
- Wear appropriate safety gear (if required).

Conclusion

By staying in the correct fly zones, following the designated flying circuit, and adhering to safety protocols, you contribute to a safer, more enjoyable racing environment for everyone. Always remember that safe flying is responsible flying—let's work together to keep our skies secure and fun for all.

Staying vigilant and ensuring safety compliance at all times is crucial for all SAMAA members. Proper incident reporting helps identify risks and implement measures to improve safety standards.

LET'S CONTINUE PROMOTING RESPONSIBLE AND SAFE FLYING PRACTICES AT ALL CLUBS.

INCIDENT REPORT AND SAFETY REMINDER

Safety Spotlight: Lessons from a Recent Incident

At a SAMAA club, a pilot recently lost control of an aircraft due to disorientation and a missed fail-safe setup. Fortunately, no harm was caused, but the event highlights critical safety lessons:

1 ACTIVATE AND TEST FAIL-SAFE

- Ensure the fail-safe function on the receiver is properly set and tested before every flight.
- The fail-safe function should be configured to return the aircraft to a safe throttle and control position if the signal is lost.

2 MAINTAIN VISUAL AWARENESS

- Avoid flying too far beyond your visual reference point.
- Always maintain a clear line of sight with your aircraft.

3 CALLER ASSISTANCE

- The presence of a qualified caller is essential in helping pilots manage their flights and recover from potential disorientation.

4 PRE-FLIGHT SAFETY CHECK

- Include fail-safe verification as part of your pre-flight checklist.
- Ensure that all control surfaces respond correctly and that the transmitter-receiver link is stable.

INCIDENT RESPONSE:

The Safety Officer provides a comprehensive incident report, including a detailed map showing the direction in which the aircraft flies. The club's prompt handling of such a situation and the pilot's cooperation ensures that no harm is caused.

STAY SAFE, FLY SMART:

This incident scenario serves as an important reminder to all model aviation pilots to prioritize safety protocols and equipment checks. Proper fail-safe configuration can prevent potentially hazardous situations and contribute to safe and enjoyable flying

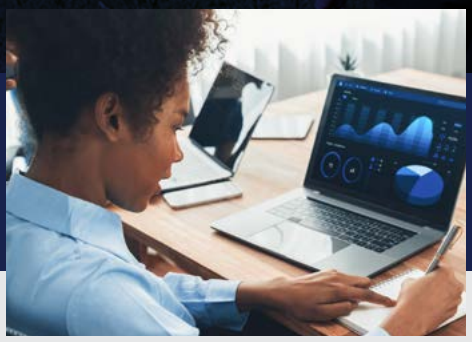
Fly Responsibly, Stay Sharp!

Until Next Time…

"Control the plane,
don't let the plane control you -
stay alert, stay safe."

Aircraft Occurrences Statistics

By Soomesh Maharaj - Manager: Safety Information with the Accidents and Incidents Investigations Division



Introduction

The Accidents and Incidents Investigations Division (AIID) is pleased to present this statistical report on aircraft occurrences as at 31 August 2025.

As the aviation sector is nearing the end of the 2025/26 financial year, it is important to monitor the trends shaping our safety landscape. This article provides a comprehensive overview of accidents and serious incidents data, highlights operational exposure, and examines causal factors to inform safety interventions.

By analysing both accidents and serious incidents statistics and their underlying causes, AIID aims to support all stakeholders in maintaining vigilance, strengthening safety culture, and preventing the recurrence of accidents and incidents.

Investigation Status: Service Delivery

Accident investigation reporting remains on track, with the majority of reports finalised within prescribed timeframes of six to 12 months.

2023/24 FINANCIAL YEAR

All accident reports are fully documented.

2024/25 FINANCIAL YEAR

89% (118 of 133) of reports completed; remaining reports will be finalised during the current financial year.

2025/26 FINANCIAL YEAR TO DATE:

6% (Seven of 27) reports completed; others are in early stages of investigation.

This performance demonstrates AIID's continued commitment to achieving a 90% on-time completion rate.

Accident Trends Over Three Years

Accident totals across the three financial years show fluctuations but indicate an overall decline in the number of accidents:

"While the most recently completed fiscal year saw a 17% increase in accidents compared to FY 2023/24, current year-to-date data shows a significant reversal of this trend, indicating a strong trajectory toward a substantial decrease in accident numbers."

Operations-Based Accident Trend Analysis

ANALYSIS BY AIRCRAFT CATEGORY

Accident distribution by aircraft type shows that fixed-wing aircraft dominate occurrence totals, particularly within training and general aviation operations:

1. **FIXED-WING** — 2023/24: 96 | 2023/24: 117 | 2025/26 to date: 2
2. **HELICOPTER** — 2023/24: 16 | 2023/24: 13 | 2025/26 to date: 2
3. **GLIDER, GYROCOPTER, AMATEUR-BUILT:** Isolated cases only
4. **MICROLIGHT:** No recorded accidents in three years
5. **PARACHUTE OPS:** Two accidents in 2023/24, none thereafter

This breakdown confirms that general aviation and recreational sectors account for the majority of exposures, they have also demonstrated the most significant improvement to date.

ANALYSIS BY OPERATIONS CATEGORY

Analysis by type of operation offers further insight into accident exposure:

Operations Category	2023/24	2024/25	2025/26 (YTD)	Grand Total
Aerial Work Operations	10	6	4	20
Air Transport Ops (Large Aircraft)	0	0	0	0
Air Transport Ops (Small Aircraft)	2	0	0	2
Aviation Training Organisations	30	26	8	64
Commercial Helicopter Operations	2	2	0	4
General Aviation (Part 91)	27	36	8	71
Non-Type Certified Aircraft	41	62	7	110
Maintenance Rules – NTCA	0	1	0	1
Parachute Operations	2	0	0	2
Total	**114**	**133**	**27**	**274**

Non-Type Certified Aircraft (NTCA):
Highest contributor, with 110 accidents (40% of total).

General Aviation & Training Organisations:
Significant exposure, with 71 and 64 accidents respectively.

Airline Transport Operations:
Very few cases, confirming strong oversight in commercial airline operations.

The findings reaffirm that South Africa's greatest exposure lies in general aviation, NTCA, and training environments, which highlights the need for continuous oversight and support.

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Aircraft Occurrences Statistics

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Fatal Accidents and Fatalities

SEVERITY REMAINS A CONCERN IN FATAL ACCIDENTS AND FATALITIES:

The number of fatal accidents has already exceeded the total for the entire 2024/25 financial year by one. This concerning trend underscores the need for heightened vigilance and proactive safety measures. Fatalities have doubled compared to the same period in the previous year.

This shift shows that while overall accident numbers are stabilising, outcomes have become more severe.

Serious Incidents

Serious incidents, regarded as critical precursors to accidents, have increased in recent years and warrant close attention.

Financial Year	Serious Incidents	% Completed	Notes
2023/24	27	100%	All reports completed
2024/25	30	83% (25/30)	Remaining to be finalised in 2025/26
2025/26 (YTD)	28	14% (4/28)	Majority still under investigation

This upward trajectory indicates that, while industry compliance with occurrence reporting is improving, operational vulnerabilities remain. Serious incidents require early analysis and safety action to ensure that they do not escalate into accidents.

Casual Factors

Causal analysis from the investigations completed highlights three dominant categories:

FLIGHT CREW/PILOT FACTORS: Most prevalent, linked to loss of directional control, poor technique/ airmanship, and hard landings. These are largely preventable through stronger training, adherence to procedures, and enhanced decision-making.

MECHANICAL/ENGINE/ POWERPLANT ISSUES: Fuel starvation/exhaustion (24%), power loss (13%), and carburetor icing (13%) are the leading contributors.

STRUCTURAL/AIRFRAME FAILURES: Driven by landing gear failures (79%), with doors/ windows (11%) and brake/ wing failures (10%) also noted.

The majority of causal factors are preventable, underscoring the need for systemic improvements in pilot proficiency, maintenance oversight, and operational planning.

Safety Recommendation Response Status

Between April 2021 and August 2025, AIID issued 71 safety recommendations:

61 (86%) closed, following acceptance and implementation.

10 remain open for monitoring, with two recently issued and within the 90-day response window.

12 new recommendations have been issued in the 2025/26 FY to date.

This strong closure rate reflects the responsiveness and proactiveness of the entire safety value chain, including the SACAA, key stakeholders, and the industry. The true impact of these safety recommendations is often not immediately apparent, as overall improvements are typically incremental and long-term.

Key Reflections

- Overall accident numbers are declining in the 2025/26 financial year.
- Fatal accidents and fatalities are increasing, showing more severe outcomes.
- Serious incidents are rising, indicating weaker safety margins.
- NTCA, general aviation, and training remain the sectors of highest risk.
- Safety recommendations are being addressed at a closure rate of 86%, but full implementation is critical.
- Each occurrence that is preventable and must be treated as a call to action. Through targeted interventions in training, maintenance, operational decision-making, and regulatory follow-up, the industry can reduce risks and strengthen the safety of our skies.

Upholding Integrity. Protecting Safety.

The South African Civil Aviation Authority (SACAA) is committed to conducting its operations with the highest levels of integrity, transparency, and accountability. In line with this commitment, the SACAA enforces a zero-tolerance approach towards fraud, corruption, and unethical conduct.

Fraud and misconduct not only damage the reputation of the aviation industry but can also pose serious risks to **public safety**, **regulatory compliance**, and **operational efficiency**.

SACAA Fraud & Ethics Hotline

If you witness or suspect any unethical or irregular activity - report it.

If you witness or suspect any unethical or irregular activity – report it. The SACAA Fraud and Ethics Hotline provides a confidential and secure channel for reporting concerns. Whether you're an employee, contractor, service provider, or stakeholder your voice matters in keeping aviation safe and ethical.

EXAMPLES OF REPORTABLE INCIDENTS

This list is not exhaustive - if in doubt, report it.

AVIATION IRREGULARITY
Breaches of aviation laws, rules, or safety regulations – often by non-employees or industry stakeholders.

CONCERN / COMPLAINT
Dissatisfaction with treatment received or poor service by the SACAA, training schools, airlines, ACSA, or maintenance organizations.

ABUSE OF POSITION
Authority or role by a SACAA employee or contractor to benefit themselves or others improperly.

IRREGULAR HR PRACTICE
Unfair recruitment, promotions, salary increases, or HR decisions that violate policy or employment laws.

IRREGULAR BUSINESS PRACTICES
Business actions or decisions not aligned with SACAA policies, strategy, or operational best practices.

PROCUREMENT IRREGULARITY
Non-compliance with procurement policies, Treasury regulations, or the PFMA in the sourcing of goods and services.

FRAUD
Deliberate misrepresentation of facts to gain unlawful or unfair benefit — including falsification of documents, theft, or financial manipulation.

CONFIDENTIAL. ANONYMOUS. PROTECTED.

All reports made via the Vuvuzela Hotline are treated with strict confidentiality. You may report anonymously if you choose. We ensure protection from retaliation for whistleblowers who report in good faith.

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- SMS: **30916**
- Mobile App: Download **"Vuvuzela Hotline"** from your app store
- Email: **sacaa@thehotline.co.za**
- Online Reporting: **www.thehotline.co.za/report**

WHY REPORTING MATTERS

Fraud in aviation is not just about financial loss; it can endanger lives. By reporting irregularities, you help:

- ✓ Preserve aviation safety
- ✓ Maintain regulatory compliance
- ✓ Protect public trust
- ✓ Support ethical leadership

Report Now

If you witness or suspect any activity that undermines the safety, ethics, or integrity of the aviation industry,

If you suspect it – report it.

Drone Pilot Responsibility for Safety Beyond Automation

by Jonathan Bates and PJ Aitken from VIO Aviation Solutions

Many recreational drones come equipped with automated safety features, built into their firmware right out of the box. These features, including geofencing, flight control overrides, and real-time notifications on some models, are designed to assist pilots in flying safely. However, while these tools help ensure safe operations, they do not absolve the pilot from responsibility. Automation may reduce certain risks, but the ultimate responsibility for flight safety remains with the Pilot in Command (PIC).

Manufacturers regularly update these automated safety features, but pilots must initiate these updates themselves. It's important to note that even the best automation cannot prevent every potential issue. For instance, while geofencing helps prevent restricted airspace violations and unsafe flying conditions, it's not foolproof. Moreover, some manufacturers are now limiting the amount of airspace data provided to pilots, which could further increase the risk of restricted area violations.

The implementation of "bow-tie" airspace restrictions around registered airfields – designed to allow drone operators to fly closer to airports – has added another layer of complexity. These restrictions cover the runway area, as well as approach and departure flight paths, but provide little protection for areas where helicopters may operate. Pilots must remain vigilant and understand the nuances of these regulations to ensure safety.

Beyond this, drone pilots must stay informed about a range of operational factors, including regulations, weather conditions, and their surroundings. Pre-flight checks are critical, particularly when flying near airports or other high-risk areas. Pilots should maintain line-of-sight during flights and be prepared to take manual control if automation fails. Most importantly, pilots must maintain situational awareness throughout the flight—automation can only do so much. Over-reliance on technology can lead to complacency, significantly increasing the risks to people, property, and other aircraft.

This is especially relevant for Beyond Visual Line of Sight (BVLOS) operations. Unlike Visual Line of Sight (VLOS) flights, BVLOS flights rely more heavily on automation. However, the same level of manual oversight, risk management, and mitigation is required – if not more so, given the extended operational range. In these cases, pilots must have a clear mission objective and a comprehensive risk management plan in place to handle any unforeseen circumstances.

When considering the responsibility of the PIC in the context of First Person View (FPV) drone flights, safety concerns become even more pronounced. FPV flying offers a unique, immersive experience, placing the pilot inside the "cockpit" of the drone. While this perspective enhances the flying experience, it also significantly limits the pilot's ability to observe their surroundings. By focusing solely on the view through the goggles, pilots can lose awareness of potential threats in their environment, making it harder to take evasive action if needed. For this reason, the use of a spotter is strongly recommended, especially when operating in or near busy airspace.

Ultimately, while automation can support a pilot's efforts, it cannot replace human judgment and accountability. Safe drone operations hinge on a pilot's awareness, decision-making, and responsibility for the flight, regardless of the level of automation in use.

MAST BUMPING:
The Hidden Danger in Helicopter Flight Safety

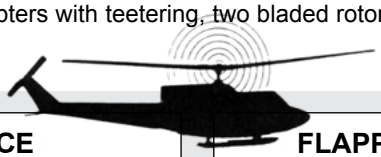
By Dave Gove

It is one of the deadliest hazards in helicopter flying, yet many outside the rotorcraft community have never heard of it. Known as mast bumping, the phenomenon has caused fatal accidents worldwide, often unfolding within seconds and leaving little chance of recovery.

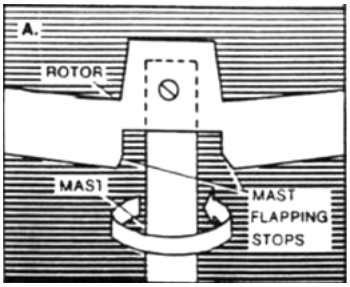
Aviation experts are warning that pilots, particularly those flying semi-rigid rotor systems must remain vigilant against this little-understood killer.

What Exactly Is Mast Bumping?

Mast bumping occurs when the rotor hub makes violent contact with the main rotor mast. This typically happens if the rotor blades exceed their normal flapping range - typically in response to rapid maneuvering, turbulence, or low-G flight conditions. The result can be a catastrophic. This forceful impact can fracture the mast or cause rotor detachment. Helicopters with teetering, two bladed rotor systems are especially vulnerable.

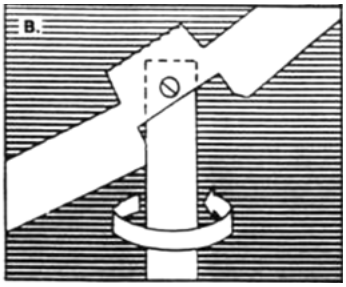


NORMAL FLAPPING CLEARANCE



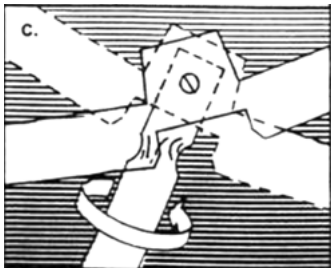
During normal flight, the Bell teetering rotor flaps up and down as it spins around to ensure stable flight. So long as the flapping is not severe enough to bring the rotor flapping stops in contact with the mast, the flight remains normal.

FLAPPING STOP/MAST CONTACT



But under a variety of flight conditions – some of which have been a standard part of military training – the rotor teeters too far, causing the mast flapping stops to bump the mast up to 10 times a second.

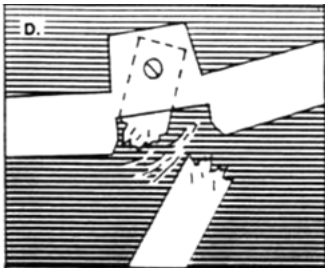
MAST DEFORMATION



After the initial rotor flapping stop has hit the mast, it bounces off, sending the other side of the rotor down to strike the mast. The rotor begins to chew into the mast, weakening it substantially.

SOURCE: U.S. Army drawings

MAST SEPARATION



As the mast fractures, the wild blades often slice into the helicopter fuselage, killing pilots and cutting fuel lines. Without a rotor, the helicopter cannot autorotate safely to the ground like a Frisbee. When it hits the ground, it often explodes into flames. More than 99 percent of the servicemen aboard Bell helicopters that lost their rotors due to mast bumping were killed in the crashes, military records show,

Star-Telegram/DON COOK

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MAST BUMPING: The Hidden Danger in Helicopter Flight Safety

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A Lesson First Learned in Combat

Mast bumping first gained attention in the 1960s and 70s when U.S Army light helicopters such as the Bell OH-58 Kiowa and its civilian counterpart, the Bell 206 began experiencing unexplained in-flight breakups. Investigators eventually traced many of the crashes to low-G conditions where improper control inputs led to mast bumping.

These findings prompted changes in training, flight manuals, and operating procedures, not only in the military but also in the civilian rotorcraft community. But decades later, mast bumping continues to surface, often involving small training helicopters.

Helicopters Most at Risk

Aircraft types most commonly linked to mast bumping include

Robinson R22 and R44	Bell 206 JetRanger and OH-58 Kiowa	Hughes 269/300 (under certain conditions)

All feature semi-rigid, teetering rotor systems that, while efficient in normal operations, leaves little margin for error when the rotor system is unloaded.

Causes and Triggers

Experts say mast bumping usually arises during low-G conditions manoeuvres – when the rotor is temporarily producing little or no lift. Under these conditions, tail rotor thrust can roll the fuselage, and if a pilot responds with lateral cyclic before restoring positive G-load, the blades may flap asymmetrically into the mast.

Common scenarios include:

- Abrupt pushover maneuvers from level flight
- Flying fast and low through turbulence
- Inadequate training in low-G recovery techniques
- Overconfidence or unfamiliarity with teetering rotor systems

Prevention and Training

Safety specialists stress that mast bumping accidents are preventable if pilots respect limitatoins and train accordingly. Recommended practices include:

1. Avoid low-G maneuvers and abrupt forward cyclic movements that unload the rotor.
2. Recover properly by gently restoring positive G before making lateral corrections.
3. Reducing speed in turbulence and staying within published maneuvering limits.
4. Maintaining proficiency through recurrent training
5. Studying aircraft manuals and strictly observing operating limitations. Know your aircraft: Study the flight manual and adhere to operating limitations specific to your helicopter.

A Preventable Killer

Unlike many mechanical failures, mast bumping is usually the result of pilot inputs under specific flight conditions. Investigations have shown that it is not simply a hardware issue but a dynamic that can be controlled with discipline and awareness.

Today, the responsibility falls onto every pilot, instructor, and safety officer to keep the lessons we have learnt alive. The message cannot be repeated enough, respect the physics of flight, fly within the envelope and never underestimate mast bumping.

SACAA
SOUTH AFRICAN CIVIL AVIATION AUTHORITY
Keeping you safe in the sky

CIVIL AVIATION INDUSTRY AWARDS
Celebrating Aviation Excellence

ExecuJet Aviation scoops top honours at the Civil Aviation Industry Awards

Centurion, 19 November 2025 – ExecuJet Aviation took top honours, winning in five categories at the fourth Civil Aviation Industry Awards (CAIAs) ceremony that took place at the Focus Rooms, Modderfontein, on 14 November 2025.

The CAIAs are prestigious awards hosted by the South African Civil Aviation Authority (SACAA), held every two years, with the objective of recognising sector excellence in safety, security, and sustainability in South Africa.

In all, there were 21 categories on offer with ExecuJet scooping, among others, Aviation Safety, Aviation Security, Support Services, Customer Service and the National Aviation Company of the Year Awards.

There were also winners of the Best Airport (ACSA- Cape Town International Airport) and Best Airline (FlySafair) who won South Africa's hearts in the two categories that were voted for by the public.

The SACAA would like to congratulate all the winners of this year's prestigious CAIA. The awards celebrate innovation and excellence in the country's aviation sector. South Africa is ranked top in Africa, and among the top twenty safest aviation operators in the world as ranked by the International Civil Aviation Organisation.

BELOW ARE THE OVERALL WINNERS AT THE CAIAS:

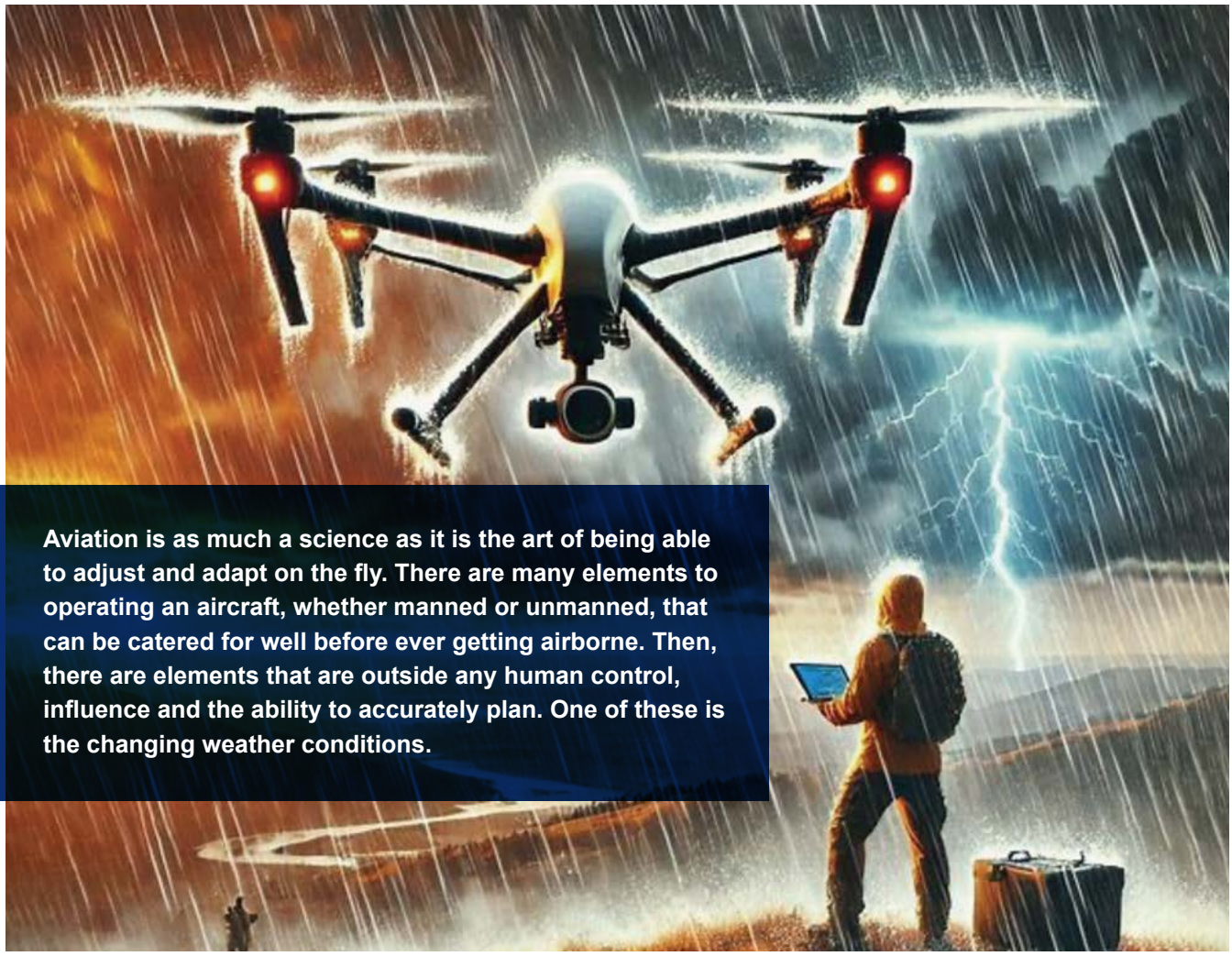
CATEGORY	WINNER
Aviation Safety Award	**ExecuJet Aviation**
Aviation Security Award	**ExcuJet Aviation**
Aircraft Operator Award	**FlySafair**
Airport Award	**Cape Town International Airport**
Aviation Sustainability and Environment Award	**Lanseria International Airport**
Aviation Innovation Award	**FlySafair**
Aviation Training Award (Small - Medium)	**Skyy Aviation Academy**
Aviation Training Award (Medium - High)	**ATNS Aviation Training Academy**
Aviation Customer Services Award	**ExecuJet Aviation**
Aviation Research and Development Award	**Scientific Multidisciplinary Advanced Research Technologies (SMART) Lab**
Aviation Maintenance Organisation Award	**Airlink**
Aviation Manufacturing Organisation Award	**Bat Hawk Aircraft**
Recreation and Sport Aviation Organisation	**Balloon and Airship Federation of South Africa**
Aviation Support Services Award	**ExecuJet Aviation**
People Development Award	**FlySafair**
Aviation Transformation Award	**Airlink**
Aviation Professional Award	**Blacky Komani**
Outstanding Contribution to South African Aviation	**Rodger Foster**
National Aviation Company of the Year	**ExecuJet Aviation**
Public Vote: Best Airline	**FlySafair**
Public Vote: Best Airport	**ACSA – Cape Town International Airport**

The Director of Civil Aviation at the SACAA, Ms Poppy Khoza, said: "the SACAA would like to congratulate all the winners of this year's CAIAs. The awards celebrate innovation and excellence in the country's aviation sector. South Africa is among the best States globally for our aviation safety record. This is something that needs to be celebrated with industry where we commend their dedication towards compliance and sustaining our sector."

WEATHER ADAPTION:

Safer Drone operations in changing weather conditions

By Mr Jonathan Bates



Aviation is as much a science as it is the art of being able to adjust and adapt on the fly. There are many elements to operating an aircraft, whether manned or unmanned, that can be catered for well before ever getting airborne. Then, there are elements that are outside any human control, influence and the ability to accurately plan. One of these is the changing weather conditions.

For those involved in aviation we are all familiar with the 'Hot, High and Heavy' analogy. These three critical elements, along with the addition of wind, are all impacted by the existing and forecast weather conditions and are important when planning a flight or drone mission.

We are fortunate to have reliable weather information service providers in South Africa, however even with the best forecasting and modelling, the micro climate can be unpredictable.

These rapidly changing conditions can have a major impact on large commercial aircraft and an even more profound impact in the drone space. This is largely due to the smaller and lighter size of drones. Recreational drones may be more susceptible to even slight weather changes that may exceed either the drone operational limitations or the pilot's abilities.

As part of the commercial drone licencing process, pilots are exposed to modules covering weather and its impact on drones and drone operations. Commercial drone pilots are versed in being able to read and interpret aviation specific weather services. These allow them to operate safely and have some predictability in how the weather may change over the course of a mission and then adapt and anticipate as required.

Recreational drone operators do not necessarily have this safety knowledge available. Pilots in this segment are encouraged to make use of weather services to assist with safety concerns, however, they may not be able to interpret the information provided and how this may impact the operation of their aircraft. Weather elements such as wind speed, wind direction, temperature, moisture content and visibility can, and will impact a drone's and human performance to some degree.

There is a drive to provide all drone operators, private and commercial, with customised tools that will assist with the de-coding and impact of weather on their planned missions. The intended purpose of these platforms is to encourage safety and compliance as well as grow the level of aviation understanding to a wider section of those who are engaged in or have an interest in aviation in South Africa.

SACAA
SOUTH AFRICAN CIVIL AVIATION AUTHORITY
Keeping you safe in the sky

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