ISSUE 129 | Summer 2025

Focus

On Commercial Aviation Safety

Speculate at Your Peril

Safety II -
Ancient Wisdom or Modern Safety?

SELECTED
CHIRP
REPORTS

Gold Coast Mid Air

Somatogravic Illusion Explained

Haneda Runway Collision
The ATC Perspective

MENTAL FLIGHT

Invisible Training That Enhances Pilot Performance

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Welcome to the summer 2025 edition of Focus.

In this issue, we explore the fascinating phenomenon of Somatogravic Illusion, a sensory misperception that can lead pilots astray during acceleration and deceleration. We also examine the power of visualisation in rehearsing cockpit drills and procedures—an often-underutilised tool that can significantly enhance preparedness and response under pressure.

Our articles include a timely reminder of the dangers of speculating about the causes of accidents before investigations are complete. We reflect on the Haneda runway collision from the ATC viewpoint and the Gold Coast helicopter mid-air collision from the ATSB perspective. These tragic events underscore the importance of evidence-based analysis and the perils of premature conclusions.

As always, we highlight selected reports from the CHIRP Programme, offering real-world insights into human factors, communication breakdowns, and procedural lapses. These anonymous reports serve as powerful learning tools, reminding us that safety is a shared responsibility built on transparency, vigilance, and continuous improvement.

Finally, we compare the philosophies of 5th century BC military strategist Sun Tzu and modern safety theorist Professor Erik Hollnagel. Though separated by millennia, align in their emphasis on anticipation, adaptability, and proactive preparation over reactive correction.

We hope this issue informs, challenges, and inspires you.

Rob

Cover photo: -

Sunclass Airlines the newest member of the UKFSC.

Image by Microsoft Image Creator.

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Speculate at Your Peril

Fallout From the 2025 Washington DC Mid-Air Collision

Dr Simon Ashley Bennett

After a disaster it falls to the Head of State to express condolences, pull the nation together and help the relatives of the deceased achieve closure. Following the 1966 Aberfan disaster in Wales in which an unstable coal tip careened down a mountain, buried a school and killed 116 children, Her Majesty Queen Elizabeth II visited the traumatised village in a show of Regal solidarity. The Queen stayed above politics. She expressed grief but avoided speculating as to the cause of the disaster.

Disasters inspire theorising, especially within the political class and mass media. This is understandable. Disasters are exploitable – there is political capital to be made out of blaming opponents. Disasters are newsworthy – nothing sells newspapers like bad news. In academic circles it is received wisdom that those in positions of authority should avoid speculating, if only because most disasters have complex, confused origins. To paraphrase British academic Professor James Reason, a disaster will usually have immediate and proximate or underlying causes, the latter being less obvious than the former. Failure to identify the underlying causes of a disaster – the latent errors or resident pathogens that ferment unnoticed and unremedied in every organisation – means they may produce further disasters. Speculation is itself a latent error – an accident waiting to happen.

Following the 29 January, 2025 Washington DC aircrash in which a passenger aircraft collided with a military helicopter, the US President held a news conference. It started conventionally, with the President expressing the nation's grief. The President then speculated about the cause of the disaster, making unevidenced claims that the Biden administration's diversity, equity and inclusion (DEI) policies had adversely affected the service quality of the nation's air traffic control system. Said Trump: 'The FAA's diversity push includes focus on hiring people with severe intellectual and psychiatric disabilities'. Having criticised the Biden regime's DEI policies, Trump criticised the regime's Secretary of Transportation Peter Buttigieg. Said Trump of Buttigieg: 'He's a disaster. He was a disaster as a mayor. He ran his city [South Bend, Indiana] into the ground and he's a disaster now. He's just got a good line of bullshit [smarm]. The Department of Transportation … [he has] run it right into the ground with his diversity'. Trump produced no evidence that the Department of Transportation had been 'run into the ground'. So incensed was Buttigieg at Trump's unevidenced claims that he immediately issued a riposte. Said the former Secretary of Transportation: 'As families grieve, Trump should be leading, not lying. We put safety first, drove down close calls, grew Air Traffic Control and had zero commercial airline crash fatalities out of millions of flights on our watch'. On 10 January, 2025, Airport Technology journalist Patrick Rhys Atack wrote: '$25bn has been spent in two key areas: terminals and air traffic control …. Funding has been "delivered" to at least 400 airport terminal projects, and 1,600 ATC tower regeneration projects have been "completed". $20 billion has been spent on airport infrastructure funding, and $5bn has been invested "into critical infrastructure improvements to Federal Aviation Administration … air traffic control facilities to enhance safety and efficiency … " the US Department of Transportation explains'. On 21 February, 2025, Newsweek journalists Hugh Cameron and John Feng wrote: 'According to the National Transportation Safety Board … 2024 saw 1,158 non-fatal and 257 fatal aviation accidents. Both sets of figures had been on a downward trend since 2020'. Biden assumed the presidency in January, 2021.

In the days following the news conference Trump indulged in further speculation, on one occasion blaming the helicopter crew for the collision. Said Trump on his social media site Truth Social: 'The Blackhawk helicopter was flying too high, by a lot. It was far above the 200 foot limit. That's not really too complicated to understand, is it?' What the relatives of the dead service personnel made of this claim is anyone's guess.

In the wake of a deadly accident, premature judgments cause distress, confuse and alarm the public and distract witnesses and investigators. In extremis, speculation can derail an investigation. The socially responsible response to a disaster is to keep one's counsel, even if one is privy to information not in the public domain. In a television interview with MSNBC, Chesley Sullenberger, the US Airways Captain who, with First Officer Jeffrey Skiles, landed a powerless Airbus on New York's Hudson River in 2009, said he was 'disgusted' by Trump's behaviour. On 31 January, 2025 the author of this article issued a statement through his university's press office urging politicians, the public and the Fourth Estate not to indulge in speculation: 'Everyone – including POTUS – should keep their counsel until the formal investigation, which will be conducted by the National Transportation Safety Board, is concluded. It will probably take 18-24 months for the NTSB to issue a Final Report'.

As Head of State, Trump's role in the wake of the Washington DC aircrash was to lead the nation in mourning. He did this. But then he speculated. It could be argued, with some justification, that the President's behaviour was disrespectful and dangerous. Disrespectful, because it bordered on being exploitative. Dangerous, because comments such as those made by Trump could have a chilling effect on the investigation, with witnesses and aviation professionals less willing to co-operate with investigators. A hostile political environment, such as that fostered by Washington and Elon Musk's Department of Government Efficiency, deters potential witnesses from coming forward. Experience suggests that it is difficult to conduct a thorough investigation in a hostile environment. Hostile environments spark defensiveness – a latent error. To the extent that defensiveness leaves evidence undisclosed and concerns unarticulated, it blunts the investigation and makes reoccurrence more likely.

Whatever the motivations behind Trump's interventions, the fact remains that they have been unhelpful to the families of the deceased, to US airlines, the FAA, the NTSB and the global aviation community. Possibly they have harmed America's standing on the world stage. Certainly they have produced copious quantities of bad blood amongst Senators and Representatives. As to what happens next, a Bette Davis line from the 1950 motion picture All About Eve suits the moment: 'Fasten your seat belts, it's going to be a bumpy night'.

As explained by the author in his book Safety in Aviation and Astronautics – a socio-technical approach, disaster inquiries proceed best when they follow the ABC model of investigation: Assume nothing. Believe no-one. Check everything

From Ancient Wisdom to Modern Safety

The Evolution of Learning From Success

Rob Holliday

Safety-II has allowed us to look at safety through fresh eyes, even if it may not be a completely new idea. Traditionally, Safety-I focuses on preventing things from going wrong by identifying and eliminating hazards, errors, and failures. While this approach has been effective in reducing accidents and incidents, it has its limitations, especially in complex and dynamic environments. Safety-II is a modern approach to safety management that shifts the focus from preventing things from going wrong to ensuring that things go right. The concept of Safety-II was developed by Erik Hollnagel (2014) as a response to the limitations of traditional Safety-I management approaches.

Ancient Wisdom

In the 5th century BC Sun Tzu, an ancient Chinese military strategist, wrote "The Art of War." One of his key principles is the importance of learning from both victories and defeats. Sun Tzu emphasised the need for continuous learning and adaptation. He advocated a thorough analysis of both successful and unsuccessful outcomes to improve future strategies. This principle is encapsulated in his famous quote, "Know yourself and know your enemy, and you will never be defeated." By understanding the reasons behind victories and defeats, a commander can make informed decisions and adapt strategies to changing circumstances.

Sun Tzu's approach to learning from victories involved analysing the factors that led to success, such as effective use of resources, strategic planning, and psychological manipulation of opponents. Conversely, learning from defeats involves identifying mistakes, understanding the enemy's strengths, and recognizing one's own weaknesses. This dual focus on success and failure ensured a comprehensive understanding of warfare and enhanced the military's ability to achieve victory.

Modern Safety

The idea of Safety-II is that safety should not only be about avoiding accidents and incidents but also about understanding and enhancing the everyday performance of systems and individuals. It recognises emphasises the importance of understanding how everyday work is performed successfully. It looks at the adaptations and adjustments that people make to deal with varying conditions and challenges. By studying these successful practices, organisations can learn how to support and enhance them. It acknowledges that variability in performance is a natural and necessary part of complex systems. Therefore, instead of merely trying to eliminate errors and failures, Safety-II aims to understand how and why things usually go right and to reinforce those successful practices.

Identifying Biases

Abraham Wald, who was a Hungarian mathematician, made a significant contribution to the field of statistical analysis during World War II. His work with the US military, particularly in addressing survivor bias, had a profound impact on improving the safety and effectiveness of bomber aircraft.

One of Wald's most notable contributions was his work on survivor bias, a concept that refers to the logical error of concentrating on the people or things that survived a process while overlooking those that did not due to their lack of visibility. This bias can lead to incorrect conclusions and decisions.

During World War II, the US military faced the challenge of determining how to strengthen the armour of their bomber aircraft to reduce losses. They collected data on the damage sustained by returning aircraft, noting the areas that were most frequently hit by enemy fire. The initial thought was to reinforce these heavily damaged areas. However, Wald identified a critical flaw in this approach.

Wald realised that the data only included aircraft that had returned safely, not those that had been shot down. The areas with the most damage on returning aircraft were not necessarily the most critical; rather, they were the areas where damage could be sustained without causing the aircraft to be lost. In other words, the returning aircraft were the survivors, and their damage patterns didn't represent the full picture.

Questioning the Data

It is a powerful attribute when presented with data to be able to question what you are not being shown, to understand what data is missing from the picture.

One of the critical issues identified in the Challenger Shuttle disaster was the lack of proper data regarding rocket booster O-ring performance at low temperatures. The night before the launch, there was a teleconference among engineers from Morton Thiokol (the manufacturer of the rocket boosters), NASA's Marshall Space Flight Centre, and the Kennedy Space Centre. The discussion focused on the forecast low temperature of 31°F at launch time and its potential impact on O-rings. Despite concerns raised by some engineers about O-ring ability to seal properly at such low temperatures, the data presented was not conclusive.

It has been postulated that had the data from all the launches been presented then the correlation between effective O-rings in warmer temperatures would have been clear. The statistical analysis conducted after the disaster showed a strong correlation between low temperatures and O-ring failures. If this analysis had been performed before the launch, it would have indicated a high probability of catastrophic failure at the forecasted temperature. In short, the data from both success and from failure should have been considered together.

Thinking Critically

Wald's work serves as a reminder of the importance of considering all relevant data, not just the visible or surviving subset, to make informed and accurate decisions. His ability to think critically and challenge conventional wisdom exemplified the importance of rigorous analysis and evidence-based decision-making. His insight was to focus on the areas that showed little to no damage on the returning aircraft. He reasoned that these areas were likely critical to the aircraft's survival. If an aircraft was hit in these areas, it probably did not make it back. Therefore, these were the areas that needed additional armour.

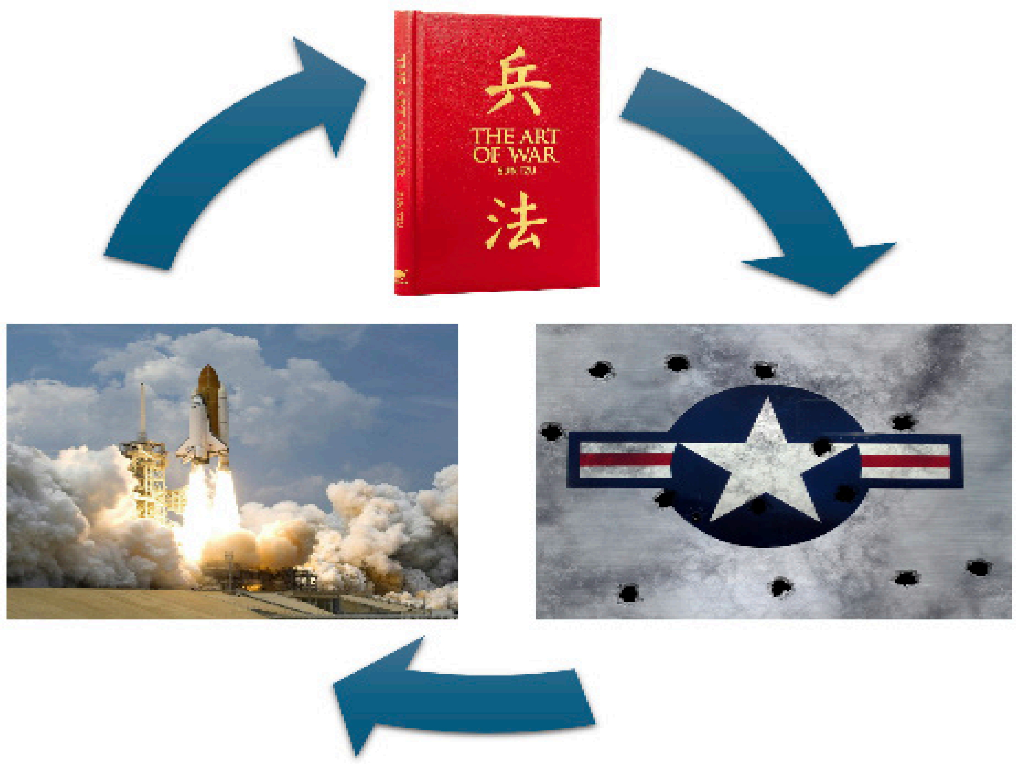
Wald's recommendations were counterintuitive but proved to be highly effective. By reinforcing the less damaged areas, the military could significantly improve the survivability of their bombers.

While Wald's work and Safety-II theory emerged from different contexts and disciplines, there are intriguing parallels between Wald's reversing survivor bias and the principles of Safety-II.

Learning from what went well

Both Wald and Safety-II focus on understanding and enhancing successful performance. Wald's approach involved learning from the successful return of aircraft and identifying the conditions that allowed them to survive. Safety-II similarly encourages organisations to learn from what goes right and to reinforce successful practices.

By properly understanding why successful outcomes occurred, we can focus on success, resilience, and learning from successful outcomes. It may be reasonable to consider Wald's work as an early example of Safety-II in action, demonstrating the value of these principles in improving safety and performance in complex and dynamic environments.



Somatogravic Illusion

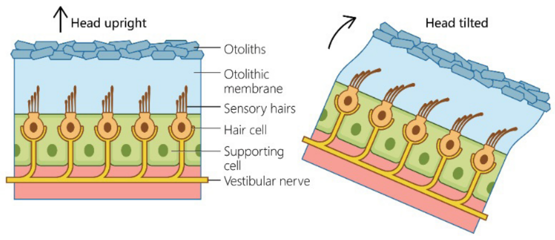
The Flight Safety Issue that Continues to Cause Accidents

Simon Ludlow

Spatial disorientation has always been a threat to safe flight path management, with accidents attributed to its various forms featuring regularly in air accident statistics. But one illusion is proving especially difficult to manage, the somatogravic illusion. Often referred to as the 'pitch up' illusion, it can create an erroneous perception of the aircraft attitude in conditions of limited, or no visual references during periods of acceleration or deceleration.

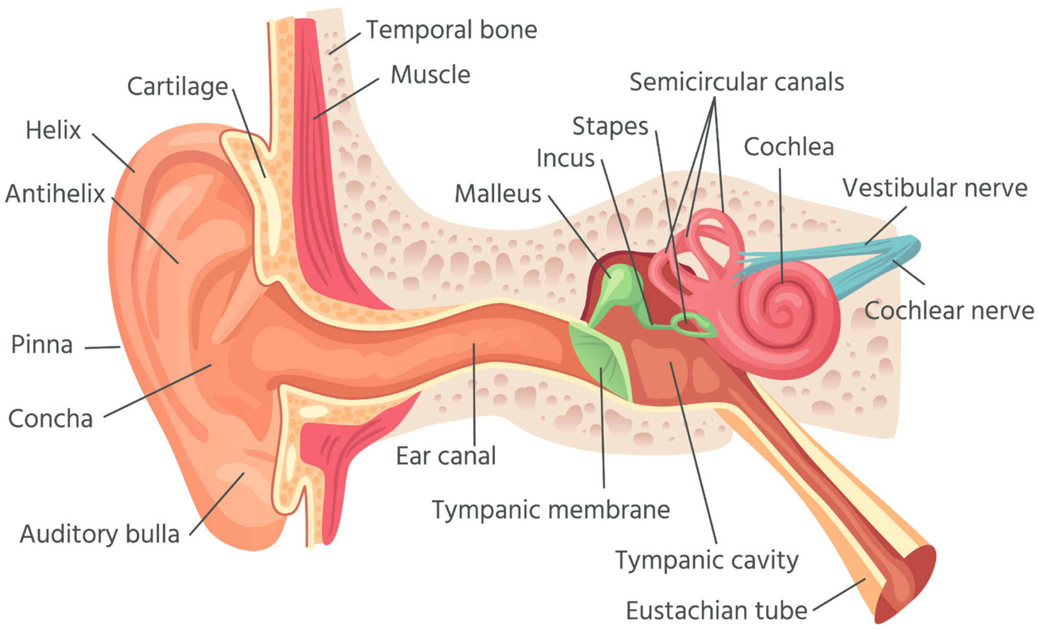
Somatogravic Illusion Explained

The vestibular apparatus in the inner ear has motion sensing in six axes. The semicircular canals sense rotational acceleration in pitch, roll and yaw, while linear acceleration in each plane is sensed by the utricle and saccule. These two organs utilise nerve endings terminating in calcium carbonate masses embedded in a jelly and sense both gravitational



force and acceleration.

The signals from the sensors are processed by the brain, low-pass filtered and combined with other sensory inputs to generate a perception of orientation. Whereas an aircraft instrumentation system will sense its orientation through gyroscopes which have been engineered to be immune to the adverse effects of acceleration, the human body must rely on accelerometers and an interpretation of their output, which is fallible.



In normal circumstances, it is considered that about 80% of orientation is derived from visual senses, and about 10% each from vestibular and proprioceptive information. But if the visual input is degraded or absent, orientation is derived only from vestibular senses and proprioception. This can lead to erroneous gravity sensing.

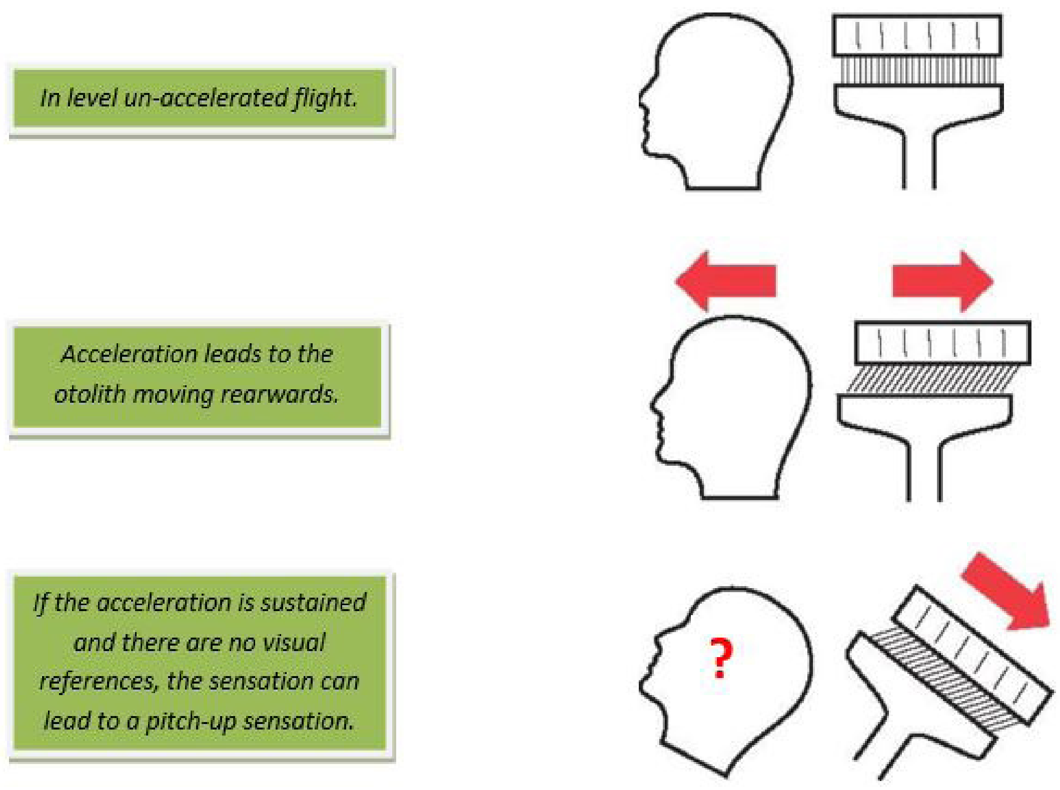
The human brain has only evolved to interpret linear acceleration for about two seconds, the time it takes to break into a run from standing still. Sustained acceleration can be misinterpreted as pitch as the gravito-inertial acceleration vector is displaced from the true vertical. The result is that if in cloud or at night with no visual clues, acceleration may be interpreted as pitch by a pilot if the visual input from the horizon, or the attitude indicator is not heeded. This may result in a nose down, or sometime a nose up control input to in response to this erroneous gravitational sensing. If the aircraft is close to the ground, such as during take-off or a go-around, the resultant flight path frequently results in controlled flight into terrain.

The Issue

Somatogravic illusion has featured in aircraft accidents since instrument flight became commonplace in the 1930s but was only identified in 1946. Since 2000, 25 recorded cases in large transport aircraft have led to 13 hull losses. This loss rate of about one every two years has remained constant – there has been no improvement in this accident rate. And there have been many other somatogravic illusion accidents to helicopters, general aviation and military aircraft.

Safety Management Systems do recognise instances of the illusion, but it is rarely reported voluntarily. A survey of pilots in a medium sized airline in Asia recorded three pilots who had experienced a somatogravic illusion in the previous year, none of which were reported through the company safety system. The USA's Air Safety Reporting System only has one report of the illusion in its database, and that was reported by the jump seat passenger! And accident reports do not always identify where this illusion has been a factor. As crashes due to it are often fatal, there is sometimes limited evidence to make a positive identification.

Being a reaction, it is possible to calculate the displacement of the gravito-inertial force for a given acceleration. And this often translates into a corresponding control input. Acceleration of only 30kts over a period of 10 seconds will produce an acceleration of 1.54m/s² which translates into a perceived pitch of 9°. For many general aviation aircraft, this descent is greater than the rate of climb, and can result in controlled flight into terrain if not recognised. Many airliners will achieve greater acceleration than this leading to significant flight path deviation. In the worst cases, the sensation of pitching up is unbounded and may



lead to a constant control input with the resultant acceleration leading to a further displacement of the gravito- inertial acceleration force leading to extreme nose-down attitudes. Conversely. The sensation may be reversed with deceleration tilting the sensed gravito-inertial force forwards leading to a pitch up.

The circumstances where the somatogravic illusion is a threat are usually encountered when visual references are degraded, and the workload is high. These are take-offs and go-arounds in 'dark night' conditions where there is no visible horizon and no ground lighting, and during instrument meteorological conditions. Fatigue is also a factor in these accidents. But interestingly, experience does not seem to be a factor. The illusion has no respect for age or experience.

Pilots who have experienced the illusion report that it can be very strong and takes discipline to overcome. It can be powerful enough to convince them that their attitude indications and flight directors are wrong and can make them ignore warnings from the monitoring pilot, or on-board safety systems such as the Ground Proximity Warning System. In extreme cases, pilots have sensed they have pitched to an inverted attitude.

As the illusion is a physical response to a force, often both pilots can be victim to the same illusion. In this circumstance, the monitoring pilot will not be able to alert the flying pilot.

The Training Problem

It could be expected that training in somatogravic illusion would be a solution. But, unlike the somatogyral and Coriolis illusions which can be adequately replicated in the training aircraft commonly used, it is not possible to do the same with the somatogravic illusion. These aircraft do not have the power to accelerate enough to consistently reproduce it in flight, and modern six axis Stewart platform simulators can only accelerate a pilot a few feet before using pitch to simulate extended acceleration. If the acceleration detecting mechanism in the human body is being used to make a pilot believe they are accelerating, then it stands to reason it cannot be used to replicate the illusion at the same time.

As a result, education is usually restricted to theoretical training at the start of the pilot's career during ground school in the Human Performance and Limitations syllabus. Modern examining methods where all the pilot's knowledge is tested in a single exam session when they have limited flying experience tends to encourage a 'learn and dump' method of study. This leads to the lessons not being remembered when needed. A 2016 survey of 585 pilots showed that nearly a quarter had an adequate working knowledge of when the somatogravic knowledge could be a threat, and how to counter the threat.

The somatogravic illusion is usually considered more of a threat to military pilots operating high performance aircraft. Military pilot training usually incorporates practical training with the use of powerful jet training aircraft and dedicated spatial disorientation simulators, which, while not directly replicating the illusion, can adequately demonstrate it. Pilots operating within the NATO alliance are mandated initial spatial disorientation training and refresher training every five years using such simulators. Commercially available, these simulators, such as the Gyro IPT 2 disorientation trainer are almost exclusive to military flying training.

The 2016 survey found that military trained pilots were far more aware of the somatogravic illusion than civilian trained ones.

Solutions

Clearly, better training would be a useful mitigation of this threat. However, the limitations of the current training systems restrict its scope. Initial theoretical training could include the following:

- Highlighting the situations where it is a threat, using real accident data as examples.
- Including questions in Human Performance and Limitations examinations about the somatogravic illusion, with questions relating to specific circumstances where the illusion could be encountered.
- Distributing publications warning of the threat of the somatogravic illusion to pilots, operators and training organisations.

In addition, periodic spatial disorientation refresher training could be mandated.

In operational flying, counters to this threat could include:

- Engaging the autopilot soon after take-off on departures at night, and/or in poor visibility.
- Engaging the autopilot immediately if the sensed pitch attitude is different to that indicated while flying manually.
- Using the autopilot on approaches at night and/or in poor visibility. It should remain engaged until the required visual references have been established and landing clearance received.

- If going around at above minima, the manoeuvre should not be rushed and the use of less than full thrust should be considered. If the selection of full thrust is required to initiate the go-around, the selection of lower thrust should be considered as soon as it is safe to do so.
- Consideration should be given to flying go-arounds with the autopilot engaged. If the approach was flown manually, an autopilot should be engaged as soon as possible.
- Keeping the autopilot engaged during a go-around.
- If the autopilot automatically disconnects on go-around with only one selected for the approach, the use of more than one autopilot on any approach in limited visibility and/or night, or any approach where a go-around is possible should be considered.
- If the Pilot Flying feels uncomfortable with the situation, they should consider handing control to the Pilot Monitoring.
- The Pilot Monitoring should concentrate on monitoring the flightpath in the climb and go-around phases.
- Identifying airports where the illusion is a specific threat and including a note for crews to include the threat in their brief using Threat and Error Management principles to identify mitigations.

Air Traffic Control could also improve safety by the following:

- Allowing aircraft flying a go around to fly the published missed approach procedure without interruption, unless safety is compromised.
- Publishing a protected missed approach frequency and adhering to it to enable the crew to pre-tune it in the standby window of the radio.

Original Equipment Manufacturers should consider the following:

- Designing go-around initiation with automatic flight functions engaged so that one single pilot action engaging a dedicated go-around mode. It should not require the engagement of multiple auto-flight modes.
- Autopilots must not disengage on selection of a go-around.

In addition, research should be carried out into the feasibility of incorporating spatial disorientation demonstration functions into current six axis simulators. This would facilitate both initial training, and periodic refresher training.

Conclusion

The somatogravic illusion is a major cause of accidents with characteristically high loss of life, with a major cost to the industry. Despite having been identified for many years, there seems to be considerable inertia in addressing the problem and the accident rates do not seem to be improving. Many of the counters to the threat described in this article are cheap and easy to implement and successfully managing this illusion will have a significant impact on improved flight safety

Haneda Accident - 2 Jan 2024

Facts Released to Improve Safety

GATCO Transmit Magazine Spring 2025

The Japan Transport Safety Board (JTSB) has published a major update on the investigation into the cause of the runway collision that occurred on 2 January 2024, at Haneda International Airport in Tokyo, Japan, involving a Bombardier DHC-8 operated by the Japan Coast Guard and a Japan Airlines Airbus A350. There were six people on board the DHC-8 with only the pilot in command surviving after sustaining serious injuries when the aircraft burst into flames and was destroyed by fire. The 379 people on the Airbus A350 all survived despite the aircraft also catching fire and ultimately being destroyed by fire.

This interim report contains many factual pieces of information that may have been involved in the accident, but further analysis is required to determine the relationship between this information and the cause of the accident and the damage caused by the accident. The report adds that: 'as this factual information is recognised as safety related, it has been decided to make it public at an early stage in this interim report.'

It is hoped that this will enable many people involved in the aviation industry to come into contact with this safety-related information and use it to improve the safety of their own flights.

Where it all began

The crew of the DHC-8 had originally been on standby on a Gulfstream aircraft following a major earthquake in the Noto peninsula on 1 January. The aircraft type was then switched to a DHC-8 as it could carry more relief supplies on the flight from Haneda to Niigata airport near the earthquake zone. The crew were subsequently also tasked to collect disaster relief personnel from Komatsu airbase before returning to Haneda. The crew was qualified to fly both types of aircraft. From the outset the crew were concerned about the time it was going to take to unload the aircraft at Niigata and then return to Haneda via Komatsu. This was compounded by an auxiliary power unit failure as the aircraft was being towed at Haneda and the subsequent need to arrange power supplies to be able to restart the aircraft at Niigata and Komatsu. The delay resulted in the aircraft's departure slot being put back.

Photo from JTSB Accident Report

From the Tower

NOTE: Because this is a key subject area the text is shown with minimal editing, however, the terms aircraft A, B, C etc as well as taxiway or runway A, C, E can be confusing to assimilate and as such the two key aircraft are identified by type with other aircraft denoted as C, D, E etc with any landing aircraft emphasised in bold. Any reference to OTA (on the aircraft)relates to comments, views, thoughts or transmissions between those on the DHC-8.

The DHC-8 crew had a number of normal interactions with the 'Ground East' controller on its route towards runway 34R. Around this time the 'Tower East' controller noticed that taxiway C, used by aircraft departing from runway 34R, was also being used by departure aircraft normally heading for runway 05 via taxiway E and that taxiway C was becoming congested. Tower East did not know why the departure aircraft heading for runway 05 were using taxiway C but thought it might be related to an aircraft being towed.

At around **17:42**

Tower East noticed the DHC-8 crossing runway 34L and moving on to taxiway H on its route to runway 34R. Tower East had checked the flight plan in advance and understood that, although the DHC-8 was Coast Guard, it was a flight transporting supplies and did not require priority such as a search and rescue flight would. At this point, Tower East had not yet decided the take-off order for the DHC-8 because taxiway C, which merges with taxiway H, was congested.

At this time, Tower East received confirmation of the departure time of the DHC-8 from the controller in charge of the Haneda departure coordination position at Tokyo Radar Approach Control. Tower East answered that 'ground control is busy [because taxiway C is congested], so I don't know when the DHC-8 will be handed over to me'. Tower East was then informed that the aircraft taking off after the DHC-8 might be delayed because the DHC-8's flight speed was slower than other aircraft.

17:43:02

The Airbus communications had been transferred from the Tokyo Radar Approach Control Facility, called Tower East. Tower East, was planning to have another aircraft (C) take-off before the Airbus landed and instructed the Airbus to continue its approach to runway 34R and informed it of a departure aircraft. The Airbus read back the instruction to continue its approach to runway 34R.

17:43:06

Aircraft C, called Tower East which instructed it to taxi to the runway holding position on taxiway C1. Aircraft C read back that it would stop at the runway holding position on taxiway C1. Tower East felt that the taxiing speed of aircraft C was slower than expected due to the congestion on taxiway C and so decided that aircraft C would now take off after the Airbus had landed.

After that, Tower East considered that:

- the distance between the Airbus and the following aircraft (D) was approximately 7nm and that the distance between the aircraft would decrease even if Tower East instructed aircraft D to slow down
- that if aircraft C, which was the departure aircraft on a long-range international flight, took off before aircraft D landed, wake turbulence could affect aircraft D's landing.

Then Tower East determined that:

- if the DHC-8 took off between the landing of the Airbus and aircraft D, aircraft D would be able to land without having to consider the effects of wake turbulence
- because aircraft D would land after the DHC-8 took off, the take-off interval between the DHC-8 and aircraft C, the following departure aircraft with a faster flight speed than the DHC-8, could be set efficiently.

17:44:13

Ground East instructed the DHC-8 to continue on taxiway C to the holding point – this was read back correctly.

17:44:36

Having decided that the DHC-8 would take off after the Airbus had landed, Tower East communicated this to approach control. Following this decision, approach control instructed Tower East to wait with the issue of take-off clearance for aircraft C, which was due to depart after the DHC-8 had taken off.

17:44:54

The DHC-8 was transferred from Ground East to Tower East.

17:44:56

Tower East issued a landing clearance for runway 34R to the Airbus, which was approaching a point approximately 5nm on the final approach course.

17:45:10

The DHC-8 told Tower East that it was on taxiway C.

17:45:14

Tower East instructed: 'JA722A (the DHC-8) Tokyo TWR good evening. Number one, taxi to holding point C5'.

17:45:18

The first officer read back: 'To holding point C5, JA722A. Number one, Thank you.'

This was the last communication between ATC and the DHC-8.

NOTE: Tower East informed the DHC-8 that it was number one to take-off. As there were four departure aircraft taxiing ahead of the DHC-8, to allow the DHC-8 to take off as planned after the Airbus had landed and before aircraft D had landed, Tower East instructed the DHC-8 to taxi to the runway holding position on taxiway C5 so that the DHC-8 could make an intersection departure from taxiway C5, which was the closest taxiway to the DHC-8's position. The DHC-8's first officer read back to Tower East that it was taxiing to the runway holding position on taxiway C5 and that it was number one. Tower East confirmed that there was no error in the readback from the DHC-8 and visually confirmed that the DHC-8 was taxiing to taxiway C5.

OTAI - the captain said 'number one' to cover the first officer's readback of 'number one' adding 'C5' and 'no problem' to which the first officer replied 'yes no problem'.

NOTE: the captain assumed that due to the flight being 'emergency relief' it had received priority over the preceding aircraft and instructed to holding point C5 rather than following the others to holding point C1.

OTA2 - After the accident the captain remembered being told 'Runway 34R, line up and wait, you are number one.'

17:45:25

The captain instructed the first officer to implement the 'before take-off checklist.

NOTE: The pilot understood that they had received clearance to enter the runway from taxiway C5. The before take-off check list would only be conducted after receiving clearance to enter the runway.

17:45:39

The departure aircraft taxiing ahead of the DHC-8 on taxiway C (aircraft E) was transferred from Ground East to Tower East, and called Tower East. Tower East advised aircraft E that it was number three [to take-off] and instructed it to taxi to the runway holding position on taxiway C1.

17:45:55

Aircraft D, whose communications had been transferred from approach control, called Tower East. Tower East instructed aircraft D to continue its approach to runway 34R, informing it that it was second (in order to land) and that there was a departure aircraft. It was also instructed to slow down to 160kts.

Tower East confirmed that all of the five aircraft for which it was responsible had been handled as expected:

- the DHC-8 had entered taxiway C5
- landing clearance had been issued to the Airbus
- aircraft C was stopped on taxiway C1
- aircraft D had been instructed to give the DHC-8 sufficient clearance for take-off
- aircraft E was behind the two departure aircraft heading for runway 05.

17:46:11

The controller in charge of Haneda approach coordination (south position) at radar approach control requested Tower East to reduce the separation between arrival aircraft scheduled to land in approximately 15 minutes. Tower East checked the status of departure aircraft on the airport surface monitoring screen, which shows the status of aircraft on the ground and found that there were many departure aircraft scheduled to take-off in about 15 minutes, so declined the request. As coordination Radar Approach Control regarding the landing intervals of arrival aircraft is normally the responsibility of tour coordinator Tower East communicated the results to the coordinator who was standing behind Tower East. The tower coordinator had received the same request from the controller in charge of Haneda Radar Coordination at Radar Approach Control and, like Tower East, had declined.

When Tower East turned its attention to the Airbus, which was approaching the runway to land, Tower East noticed that behind aircraft C, which was on taxiway C1, an aircraft which had been taxiing on taxiway C toward runway 05 had stopped. Tower East remembered an incident that had occurred about six months ago (a ground collision) and, while considering instructing aircraft C to move forward a little, Tower East kept an eye on Ground East, who was in charge of the aircraft stopped behind aircraft C.

17:46:13

The DHC-8 passed runway C5 holding point. A few seconds later, two of the Comms crew on the aircraft began a discussion on the power supply issue and at 17:46:47 asked the captain if it was a good time to discuss the issue to which he was told by both the captain and first officer later would be better.

NOTE: after the accident the captain, who was listening on both frequencies, remembered receiving a clearance - 'Runway 34R cleared for take-off' at a time partially overlapping this radio exchange.

17:47:12

Tower East heard an approach control voice over the hot speaker asking what was happening to the Airbus. Tower East did not understand the intent of this enquiry because the Airbus appeared to be continuing its approach to the runway for landing without any problems. Tower East continued to watch the Airbus, thinking that it might make a go-around.

17:47:22

To allow time for the DHC-8 to take off between the landing of the Airbus and aircraft D, Tower East instructed aircraft D to reduce its speed to the minimum approach speed and confirmed the readback from aircraft D. For the DHC-8 to take off before aircraft D landed, Tower East had to give the line up and wait instruction for the DHC-8 immediately after the Airbus passed in front of C5. Therefore, to not miss the timing of the instruction to the DHC-8, Tower East followed the movements of the Airbus as it was approaching the runway to land. Tower East was not aware that the DHC-8 was entering the runway.

As the Airbus passed near taxiway C5 and Tower East was about to give the DHC-8 the instruction to line up and wait on the runway, Tower East saw flames coming from the Airbus.

17:47:27

The DHC-8 cockpit voice recorder stopped and at 17:47:29 Tower East was asked again by approach control about the status of the Airbus, but Tower East did not respond.

17:47:40

The airport control tower reported the fire on runway C via the crash-phone.

Findings: The investigation found that the probable cause was a combination of three factors.

- The DHC-8 crew understood that it had received clearance from the controller to enter the runway and entered the runway and stopped there.
- Tokyo Airport Control was not aware that the DHC-8 had entered the runway or stopped on the runway.
- The Airbus crew did not recognise the DHC-8 which had stopped on the runway, until just before the collision.

In making these findings the report asks a number of questions - an edited version of those questions and facts around the issues follows. As noted above, this report does not make a deep analysis or draw conclusions but makes the safety related facts available to further flight safety worldwide.

Why did the DHC-8 crew think they had received clearance from ATC to enter the runway and stop?

- It is highly probable that the pilot and first officer recognised the instructions from Tower East to taxi to the runway holding point as the clearance to enter the runway and subsequently the DHC-8 entered the runway.
- In the ATC communications and on the DHC-8's cockpit voice recorder it was recorded that Tower East gave an ATC instruction to aircraft A: 'Number one, taxi to holding point C5.'
- After the crew correctly read back the control instructions from Tower East, no control communications between Tower East and the DHC-8 were recorded.
- The captain stated that they were instructed by Tower East to enter runway 34R from taxiway C5 and wait.
- Immediately after receiving the instruction, the captain instructed the first officer to carry out a Before Take-off Checklist which is performed immediately after receiving clearance to enter the runway and performed it.
- The DHC-8 entered runway 34R from taxiway C5 and stopped there.

But why did the captain and first officer recognise the instructions from Tower East to taxi to the runway holding point C5 as the clearance to enter the runway?

- In addition to DHC-8's late departure time and because they wanted to have time for the flight crew members to return home after returning to Haneda airport the flight crew members were in a hurry to leave Haneda.
- The captain and first officer were unaware of the Airbus' presence on approach because a landing clearance had been issued to the Airbus before the DHC-8 had switched its ATC communications to the Tower East frequency.
- Tower East instructed the DHC-8 to 'number one,' meaning that its take-off order was number one.
- Regarding the fact that the DHC-8 was given first priority for take-off even though there was another departure aircraft ahead of it, the captain recognised that the DHC-8 had priority for take-off because it had informed Tokyo Radio in advance that the flight's purpose was to airlift relief supplies for the earthquake disaster.
- In response to the first officer's readback of the ATC instruction to holding point C5, JA722A number one, thank you - the captain confirmed by saying only 'C5' and 'number one.'

- While taxiing toward taxiway C1, the DHC-8 was instructed by Tower East to taxi to taxiway C5, which implies they should prepare for a take-off from intersection taxiway C5. This reduced the time available to the crew to get ready for the take-off.
- It is highly probable that the pilot and first officer were not aware that the Airbus was approaching the runway and was about to land.
- The DHC-8 received radio communications from Comm A (a communications crew member) when it entered the runway.
- The stop bar lights were not operational.

It is most likely that Tokyo Airport Traffic Control Tower 'Tower East' did not recognise that the DHC-8 had entered and had been holding on the runway because:

- From having seen the DHC-8 turning to the taxiway C5 till the occurrence of the accident, Tower East never issued any ATC instructions to that aircraft.
- From having seen the DHC-8 turning to the taxiway C5 until the occurrence of the accident, Tower East had never had any conversation with other air traffic controllers regarding movement of the DHC-8 at the operation room.
- Tower East never instructed the Airbus to go around.

Why did the tower not recognise the runway incursion by the DHC8?

The following factors are likely causes (further analysis required):

- Tower East was visually monitoring five aircraft under its control, as well as two aircraft taxing on the taxiway C to take-off from runway 05.
- In response to the ATC instruction from the Tower East, the DHC-8 correctly read it back, and then Tower East saw the aircraft turning to the taxiway C5 as instructed for an intersection departure.
- Upon receiving a request regarding the transfer intervals of arrival aircraft from approach radar coordination Tower East shifted its gaze from monitoring outside the operation room to the airport surface monitoring screen installed on the control console. In the meantime, the DHC-8 passed the holding point marking and entered the runway.
- 13 seconds before the accident occurred, Tower East received an inquiry about the Airbus from approach control and then monitored the Airbus. At this time, approach control assumed that the Airbus would go around and inquired with Tower East, because the DHC-8 appeared to be on the runway on the screen displaying the airport surface. However, during all that time, the DHC-8 had been holding on the runway.
- Tower East was monitoring the Airbus because it needed to clear the DHC-8 for line-up and wait without delay immediately after the Airbus landed.
- Although a warning of the Runway Occupancy Monitoring Support System was issued 7 seconds after the DHC-8 passed the holding point marking of runway 34R and continued to be issued until 1 second after the DHC-8 and the Airbus collided, Tower East did not recognise the displayed warning.
- When the accident occurred, at Tokyo Airport Traffic Control Tower, there were no regulations stipulating how to handle the situation when the warning by the runway occupancy monitoring support system was issued and no training based on the curriculum were conducted.
- Warnings of the runway occupancy monitoring support system were visual ones.

Why did the Airbus not see the DHC-8 on the runway until just before the collision?

- When the accident occurred, it was past the time of, civil twilight after sunset and the moon had not yet risen.
- Based on the circumstances at the time of the accident, due to the aircraft structure, the only external lights of the DHC-8 that could be seen from the rear were the anti collision light (white strobe) and lower tail light position light (white) attached to the tail of the fuselage, and the upper tail light position light (white) attached to the top of the vertical stabiliser.
- The runway centreline lights (white) and runway touchdown zone lights (white) embedded in the runway surface were illuminated around the area where the DHC-8 was stopped.
- The Airbus had been cleared to land.
- An in-house trainee for first officer qualification was flying in the right seat, and PIC B was supervising him in the left seat.
- During the final approach, until the aircraft reached an altitude of approximately 500ft, there was a discrepancy between the wind reported by the Tower East and the wind direction on board the aircraft, so the flight crew predicted a change in wind direction during final

Runway Occupancy Monitoring Support System

approach and were concerned about the sudden change in speed that would result from this.

- During the final approach before the accident, the safety pilot was monitoring communications with air traffic control agencies and flight parameters, in accordance with his assigned role, including monitoring runway 34R.
- The Airbus captain and training crew were using the HUD at all times, including during the final approach.
- While the flight crew was listening to air traffic control communications, there was no communication indicating concern about other aircraft making a wrong incursion into the runway regarding the use of runway 34R.

No more number one

Early on, Japanese investigators recognised that one of the issues in the accident was the use of the phrase 'number one' which had been misinterpreted by the DHC-8 captain as a clearance to enter the runway even if it was not standard phraseology. In January 2024 the Japanese authorities issued instructions that, to avoid confusion, numerical terms such as 'number one' (to land or take-off) should not be used by air traffic control.

The Last Safety Net - IGNORED

The report goes on to detail the tower's runway occupancy monitoring support system.

This system monitors runway occupancy by acquiring positional information of aircraft via the airport surface detection radars and multilateration system, and positional information of aircraft in the airspace via the airport surveillance radars. When an overlapping runway occupancy condition is detected, the runway indication of the airport surface blocks monitoring screen turns yellow along with the colour change of data of the related aircraft to visually alert air traffic controllers (see diagram). At the time of the accident the sound alarm was not fitted to the system. Warnings by the system are displayed on displays of all tower and ground control positions' consoles and the large monitor above the ground control position east - that's 14 locations in total.

The system' parameters mean that a warning may be issued when the runway occupancy does not actually overlap as well as when runway occupancies overlap but are within normal ATC procedures and do not present a safety hazard.

The investigation found that at the time of the accident there were no regulations stipulating how to handle a situation when warnings from the system were issued, and no training had been conducted. In addition, there was no material to provide controllers with the knowledge of the principles behind the warnings by the support system.

At the time of the accident, the support system was working normally and a warning of 'overlap' was issued at 17:46:20. This warning continued for one minute eight seconds. The collision occurred at 17:47:27 meaning there had been around one minute to avert the collision. However, the investigation report commented that:

- 'Tower East had always found the support system difficult to rely on, as it sometimes displayed warnings even when runway occupancy was not actually overlapping and in addition there was no sound alarms, and did not consider it to be a system that would support visually situational awareness. Even when the accident occurred, Tower East did not recognise whether a warning by the support system was displayed or not.'
- 'Ground East also felt that the support system often displayed warnings in situations that had nothing to do with the actual runway occupancy status, and that it was incompetent as a system to support visually situational awareness. Even when the accident occurred, Ground East did not recall any warnings by the support system being displayed'.
- 'The tower coordinator also considered, as the same reason as Tower East and Ground East, that it did not function as a support system, and normally did not expect to take any action even if TC saw a displayed warning. Even when the accident occurred, the tower coordinator did not recall seeing a displayed warning by the support system'

Mental Flight

Invisible Training That Enhances Pilot Performance

Carine Lage

If you have ever gone through simulator training, you know that repetition and mental anticipation of procedures make a significant difference in performance. As a pilot and psychologist, I can affirm that Mental Flight is a powerful tool used by both experienced pilots and student pilots in training.

This technique involves detailed mental visualization of each phase of the flight, from pre-takeoff moments to emergency procedures. Whether to improve proficiency in simulator sessions or to train the execution of manoeuvres and checklists during initial flight hours, Mental Flight is a game-changer that can significantly enhance pilot performance.

The Science Behind Mental Flight

Neuroscience research indicates that active visualization stimulates specific brain areas responsible for motor control, planning, and decision-making. When a pilot mentally rehearses a procedure, they activate the primary motor cortex, the pre-motor cortex, and the basal ganglia — key structures for executing and automating complex motor tasks. Additionally, this practice strengthens working memory, located in the prefrontal cortex, improving the ability to process information and respond quickly to high-pressure situations.

Studies show that the brain does not entirely differentiate between a real action and one vividly visualized. This means that when pilots mentally practice a checklist or an emergency response, they are strengthening neural connections in much the same way as they would by physically performing those actions.

For experienced pilots, Mental Flight reinforces procedural memory, reducing cognitive load in high-complexity situations and improving performance under pressure. For student pilots, it helps internalize checklists and become familiar with controls, reducing the learning curve during early flight hours.

The Benefits of Mental Flight for Pilots at Different Career Stages

Enhancement of Procedural Memory

Ideal for experienced pilots looking to refine the execution of checklists and operational routines, making them more automatic and natural in real practice.

Facilitation of Student Pilot Training

Student pilots can shorten the time needed to absorb new procedures by practicing them mentally before each flight.

Optimization of Simulator Performance

Mental Flight can be a game-changer before a simulator session, ensuring that commands and emergency responses are executed more fluidly.

Memorization of Emergency Procedures (Memory Items)

In critical situations, response time must be quick and efficient. Mental Flight helps pilots internalize memory items, the actions that must be executed immediately without referring to a checklist.

Reduction of Stress and Cognitive Fatigue

Mental familiarization with complex scenarios reduces anxiety and increases confidence in execution.

Improved Situational Awareness

Mentally rehearsing different operational scenarios strengthens anticipation and planning skills, essential for flight safety.

How to Effectively Implement Mental Flight?

Choose a Specific Procedure

Practice instrument approaches, go-arounds, engine failures, or any procedure that requires refinement.

Use a Virtual Cockpit in Your Mind

Imagine the aircraft's panel, instruments, button positions, and the exact commands you would execute.

Follow a Strict Mental Script

Mentally go through the checklist as if you were operating the aircraft, including radio calls and system monitoring.

Train in Different Conditions

Vary scenarios by adding adverse weather, dense traffic, or unexpected failures to strengthen adaptability.

Focus on Emergency Procedures

Mentally rehearse critical actions, such as engine failure after takeoff, rapid decompression, fire onboard, and complete electrical failure, ensuring these procedures are automated in your mind for quick and precise execution

Mental Flight as a Differentiator for Professional & Student Pilots

Mental Flight does not replace practical training, but it complements it effectively, allowing pilots at any stage of their career to refine their skills even outside the cockpit. Many aviators use this technique to prepare before complex flights or proficiency checks, ensuring a higher level of operational readiness.

Military pilots, especially fighter pilots, use this technique extensively to practice maneuvers before executing them in real flight. In military training, Mental Flight is crucial for precise execution of critical missions and maneuvers, where every second counts, and any mistake can have serious consequences.

A well-trained mind is a well-equipped cockpit. If you haven't incorporated this practice into your continuous training yet, now might be the time to try it ●

References

Jeannerod, M. (1995). **Mental imagery in the motor context**. Neuropsychologia, 33(11), 1419-1432.

Decety, J., & Grèzes, J. (2006). **The power of simulation: imagining one's own and other's behavior**. Brain Research, 1079(1), 4-14.

Ericsson, K. A. (2006). **The influence of experience and deliberate practice on the development of superior expert performance**. Cambridge Handbook of Expertise and Expert Performance, 683-703.

Driskell, J. E., Copper, C., & Moran, A. (1994). **Does mental practice enhance performance?** Journal of Applied Psychology, 79(4), 481-492.

Photo from ATSB Accident Report

ATSB Gold Coast Helicopter Midair Collision Investigation

The Importance of Multiple Layers of Defence in Commercial Aviation

On 2 January 2023, 2 EC130 B4 helicopters registered VH-XH9 and VH-XKQ were conducting scenic flights from the Sea World theme park on the Gold Coast, Queensland.

A pilot and 5 passengers were on board VH-XH9, and a pilot and 6 passengers were on board VH-XKQ.

After conducting concurrent scenic flights throughout the day, at 1356:06 the helicopters collided at a height of 130 ft, around 155 m west-north-west of the Sea World Helicopters heliport.

Following the collision, VH-XKQ was uncontrollable and fell to the ground. The pilot and 3 passengers were fatally injured, 3 passengers were seriously injured, and the helicopter was destroyed. VH-XH9 was substantially damaged from the collision, but the pilot made a controlled landing. The pilot and 2 passengers were seriously injured, and 3 passengers had minor injuries.

The accident occurred a week after the operator started using the 2 EC130 B4 helicopters for its scenic flights.

The pilots were conducting the scenic flights in good weather, concurrently from 2 nearby helipads.

The ATSB's investigation of the midair collision made 28 findings that highlight key lessons for operators and pilots.

Change Management

"The most fundamental lesson from this investigation is that making changes to aviation operations, even those that appear to increase safety, can have unintended consequences,"

Chief Commissioner Angus Mitchell said in releasing the investigation's final report.

"It is therefore critical that changes to aviation operations are managed through the implementation of a defined process to ensure overall safety is not adversely affected."

"In the months prior to this tragic accident, the operator had made changes to improve its tourism product, including commissioning the use of a second helipad location, known as the park pad, the introduction of the larger EC130 helicopters, and new hangar and office facilities,"

Mr Mitchell noted.

"Over time, these changes undermined risk controls used to manage traffic separation and created a conflict point between launching and departing helicopters, which is where the two helicopters collided."

"The operator's safety management system did not effectively manage the safety risk present in its aviation operation, and when numerous changes were introduced, did not implement processes to consider whether they would affect the overall safety of their flights."

Incident Background

On the accident flight, an inbound call from VH-XH9 failed to register with the pilot of VH-XKQ, who was loading passengers at the time. Advice of clear airspace provided by the ground crew of VH-XKQ was obsolete by the time of departure. The pilot of VH-XH9, inbound, elected to wait for a taxi call from the pilot of VH-XKQ as a cue to arrange separation. Neither pilot was aware of the existence of faults in the radio of VH-XKQ that likely prevented broadcast of the taxi call.

Visibility was limited for the pilot of VH-XKQ (departing helicopter) by restrictions on manoeuvring at the park pad and the angles of closure of the helicopters. The pilot of VH-XH9 had sighted VH-XKQ on the park pad and discarded that traffic as a threat, expecting to be alerted by the taxi call if that condition changed. Neither pilot had further information to target their search for the other helicopter.

The location required both pilots to manage separation from vessels on the water, with VH-XKQ passing to the west and VH-XH9 passing to the north of the same vessel. Additionally, VH-XKQ had to check a second known conflict point, Sea World grass, for traffic, while VH-XH9 had to manage their approach to the heliport.

Limitations in visibility from both helicopters and especially VH-XKQ, combined with competing priorities and an understanding that the airspace was clear, led to a midair collision as both helicopters were passing through the conflict point created by the positioning of the helipads.

The operator had made changes to the location, facilities and helicopters to improve its product offering, and these changes brought unintended consequences. Over time these changes undermined risk controls used for management of separation and created the conflict point at which the helicopters collided. The unintended consequences were uncontrolled because the operator's safety management system did not effectively manage aviation safety risk, and change management was incomplete or absent.

The operator's procedures for scenic flights were not wholly specific to their operation and introduced variability in pilot decision-making and conduct of the scenic flights. Additionally, the operator's system of radio calls, hand signals and conspicuity devices, intended to warn pilots of the presence of another helicopter, was flawed. As a result, both pilots formed an incorrect understanding about the location of the other helicopter.

Passengers on board VH-XH9 and VH-XKQ were incorrectly restrained. The ATSB was unable to determine the level of contribution of incorrect restraint to passengers' injuries. However, sufficient research and knowledge of seatbelts exists to demonstrate that correct fitment improves outcomes for occupants of aircraft in the event of an accident.

The regulations required the passengers to be fitted with constant-wear lifejackets in addition to the seatbelts in the helicopter. There has been no testing or verification of the ability of these 2 safety devices to be integrated while maintaining the integrity of each. As a result, helicopter tourism operations worldwide are fitting seatbelts incorrectly when combined with constant-wear lifejackets.

Report Analysis

The report describes that in the lead-up to the collision, an inbound call from the arriving helicopter failed to register with the pilot of the departing helicopter, who was busy loading passengers on the park pad at the time.

Once passenger loading was complete, a ground crew member advised the pilot of the departing helicopter that the airspace was clear.

"However, this advice was no longer accurate by the time the helicopter took off more than 20 seconds later, as the inbound helicopter was continuing its approach to land,"

Mr Mitchell said.

"In addition, restrictions on manoeuvring at the park pad and the angles of closure of the two helicopters, limited the visibility for the departing pilot to identify the approaching helicopter."

The pilot of the inbound helicopter had earlier sighted the departing helicopter on the park pad, but had assessed it as not being a threat, and expected to be alerted by a 'taxiing' radio call if that condition changed, which would then be their cue to arrange separation.

"The ATSB found faults in the radio antenna of the departing helicopter which likely prevented broadcast of the taxi call," Mr Mitchell said. "Without the taxiing call being received, the pilot of the inbound helicopter, who was likely focusing on their landing site, had no trigger to reassess the status of the departing helicopter as a collision risk."

"This dependency highlights that aviation operations should have multiple safety defences in place and not be vulnerable to single points of failure such as faulty radios, or a pilot's ability to detect another helicopter in a visually constrained environment."

A visibility study conducted by the ATSB, which cross-validated onboard flight data with footage from multiple cameras onboard and outside the helicopters, confirmed that both pilots' view of the other helicopter was limited in the lead-up to the accident.

"This limited visibility combined with both pilots' competing priorities and understanding the airspace was clear, led to the midair collision as both helicopters passed through the conflict point created by the introduction of a second helipad nine months earlier,"

Mr Mitchell said.

"While the operator did have in place a system of radio calls, hand signals and visibility devices that was intended to alert pilots of the presence of another helicopter, the investigation found that system to have significant flaws."

The converging flight paths of XKQ and XH9 leading to the midair collision

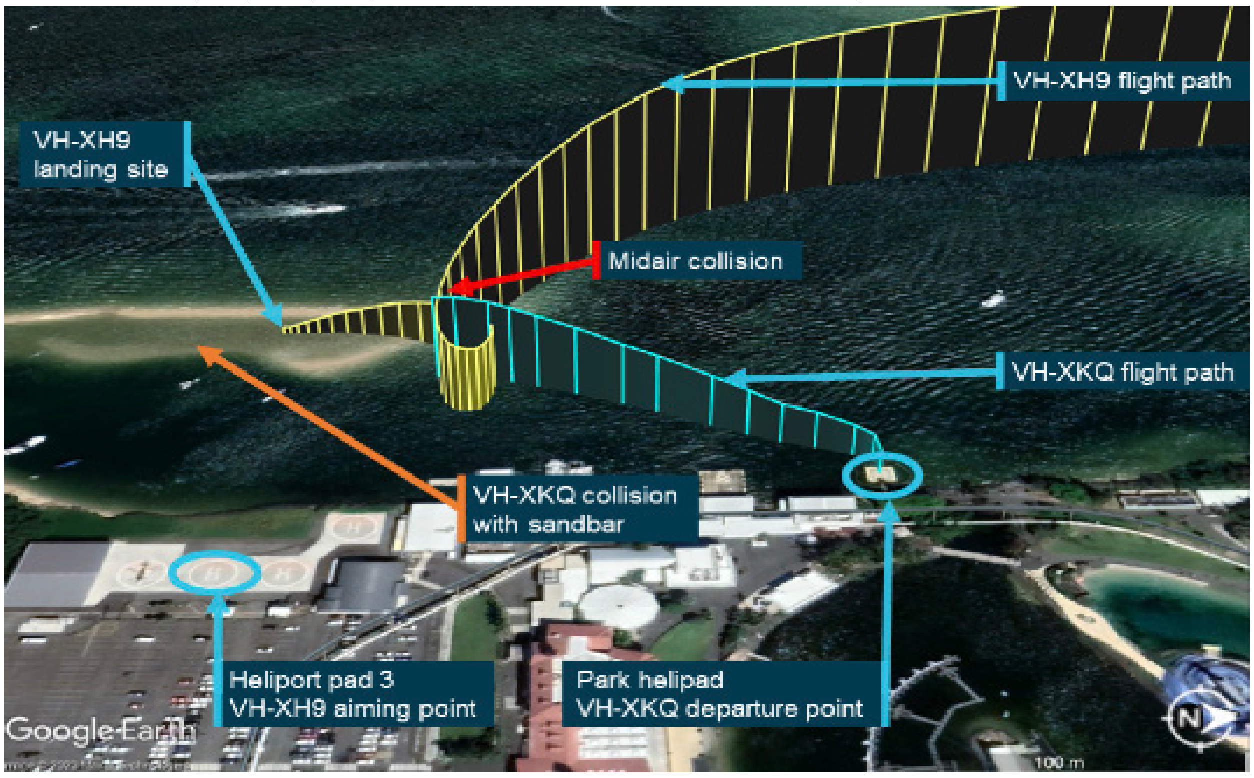


Photo from ATSB Accident Report

Stakeholder Responses

Sea World Helicopters (SWH) Pty Ltd, has taken a number of safety actions in response to the accident.

SWH reviewed its processes and procedures with reference to other high intensity operations undertaken by the group (such as aerial firefighting and low-level power line operations). Following that review it implemented:

- Updated job hazard analysis for scenic flight and operations from both helipads.
- A new position of 'Pad Boss', trained ground staff acting in a traffic advisory role.
- Air traffic systems added as a supplement to each helicopter avionic system.
- Increased communication protocols for SWH pilots including amended operating procedures to mandate a second call on final approach and to ensure pilots are not distracted by passengers during the approach phase.
- Increased aircraft visibility.
- High-intensity strobe lighting added to all SWH aircraft.
- Airbus high-visibility paint scheme added to main rotor blades.
- Mandatory human factors awareness training for all staff (previously delivered to pilots only).
- Updated briefing videos and ground crew training on seatbelt fitment.

The Civil Aviation Safety Authority (CASA) initiated a review of airspace around Southport which received 87 submissions from airspace users. CASA published the results of that review in March 2025.

CASA has updated AC139.R-01 v3.0 Guidelines for heliports – design and operation to include guidance for operators to consider flight path interaction with nearby facilities, and state an expectation that operations from nearby helipads will not be simultaneous without determination of appropriate separation distances.

CASA has also updated multi-part advisory circular AC91-19, AC 121-04, AC 133-10, AC 135-12 and AC 138-10 v1.3 Passenger safety information to include information about fitment of multipoint restraints and the problems identified when fitting those restraints with constant wear lifejackets. The guidance did not contain information about the correct combined fitment and instead directed operators to consult lifejacket manufacturers.

The Australian Transport Safety Bureau (ATSB) acknowledges the significant safety action that SWH has implemented since the accident to reduce the reliance on unalerted see-and-avoid through the addition of risk controls and improving the processes surrounding passenger restraint.

However, of the 11 safety issues identified by the ATSB in this investigation relating to SWH, 4 remained unaddressed by safety action already undertaken. The ATSB has therefore issued 4 safety recommendations to SWH to:

- Formally consider the design of conflict points within its operation to identify opportunities for elimination or control
- Develop objectives within its safety management system to focus on aviation safety risk
- Improve change management processes by ensuring assessments are expanded beyond the area of change to the wider organisation, ensuring new opportunities to control risk are identified and existing risk controls are maintained
- Clarify their change management procedure so that the introduction of additional helicopters is captured by change and risk management processes to ensure aviation safety is maintained or improved.

The ATSB has also issued 2 safety advisory notices to industry and more broadly concerning the correct use of passenger restraints, by themselves and with lifejackets.

The ATSB issued a safety advisory notice in September 2023 which highlighted the correct fitment of multipoint seatbelts and encouraged lifejacket manufacturers to produce guidance for use by aircraft operators on the combined use of constant wear lifejackets and multipoint seatbelts. The ATSB issued a further safety advisory notice with the Final report which calls for research organisations to determine a correct method of wearing a constant wear lifejacket with a multipoint seatbelt, while ensuring the correct function of each.

Wider Lessons

The investigation report contains 28 safety factors that provide lessons to flight crews, operators, and other organisations.

Overall, the most fundamental lesson is that changes that appear to improve safety can have unintended consequences. Without application of change management processes, it cannot be reasonably determined that a change will not undermine existing aviation safety. Consequently, there is a need for effective implementation of safety management systems with well-defined safety objectives and effective engagement with aviation safety risk.

While unalerted see-and-avoid is a vital last line of defence for pilots, multiple investigations have demonstrated that pilots' ability to visually identify and maintain awareness of one another is limited, and systems which rely on unalerted see-and-avoid commonly fail. Operators should seek mechanisms for supporting pilots in alerted-see-and-avoid. This should include consideration of how safe margins of separation will be maintained when risk controls fail.

As a result of limited available guidance to operators on how to fit constant wear lifejackets with seatbelts, multipoint seatbelts were being fitted incorrectly across the helicopter tourism sector. Seatbelts, when worn correctly, reduce movement, ensuring that other safety features such as energy absorbing seats work as designed. This reduces the risk of occupants contacting other objects or aircraft structures during an impact, thereby reducing the risk of injury or fatality.

Research and validation of the combined use of constant-wear lifejackets and multipoint seatbelts is required so that operators can provide the correct fitment advice and ensure passengers are correctly restrained. Addressing this gap in research will have a positive impact on passenger safety worldwide.

"Aviation safety relies on carefully considered mitigations and defences for all reasonably foreseeable risks."

"As such, reliance should never be on single defences, especially those related to human performance."

Read the final report

The full ATSB Final Report can be found at:

[Midair collision involving Eurocopter EC130 B4, VH-XH9, and Eurocopter EC130 B4, VH-XKQ, Main Beach, Gold Coast, Queensland, on 2 January 2023]

Confidential Human Factors Incident Reporting Programme

Selected Reports

1 ATC861: Arrival slots due to weather

Report text:

It's becoming very common that arrival slots into EGLL (Heathrow) are being put down as destination airfield weather slots, when in fact the weather is completely fine.

Nature of the problem - In my submitted example, the assigned delay code AW/015 cited weather as the primary factor, but both the METAR and TAF indicated light winds, good visibility, and only insignificant cloud. Such discrepancies between the stated cause (weather) and actual MET conditions appear to occur regularly—perhaps several times a month, if not more.

Safety Concerns

Fuel and Flight Planning

If flight crews consistently see arrival slot delays attributed to weather—even when it's evidently not a factor—it can lead to confusion about how best to plan fuel loads or how to anticipate potential holding or diversion scenarios.

Proper situational awareness is crucial for decision-making in flight. Misleading "weather" attributions may cause crews to over- or under-fuel and misjudge potential risks.

Crew Fatigue and Disruption

Frequent last-minute changes to Calculated Take-Off Times that are labelled as weather delays can result in operational inefficiencies, extended on-ground or airborne holding, and potential crew fatigue.

Fatigue is a well-known risk factor in flight safety. Unplanned or poorly explained delays can disrupt crew rest cycles and degrade alertness.

Trust and Transparency

The integrity of slot allocation systems - and by extension, trust in ATC and airport operations - depends on honest reporting. Consistently citing weather when it is not the genuine cause undermines that trust.

A culture of openness is essential for a healthy safety environment. When front-line personnel perceive inaccuracies or obfuscations, they may be less inclined to report genuine issues or anomalies.

Conclusion

I hope this expanded explanation clarifies the nature of my concern: the frequent misattribution of arrival slot delays to weather, especially when conditions are demonstrably benign. I believe this practice, whether intentional or due to system limitations, could indirectly impact flight safety, operational efficiency, and trust within the aviation community.

CHIRP comment:

Our Advisory Board members had much sympathy CHIRP has consulted experts and been informed that such weather slots can be imposed when there was a 'prob xx' forecast of bad weather, or when dedicated Met staff at major airports predict a risk of low visibility. Airports will prefer to account for potential bad weather even though it might not materialise. This means that they are postured with pre-planned slot times and therefore ready to continue operations if the forecast weather occurred.

For the early first waves, this decision is often based on weather forecasts published the evening before, and so it is often the case that the actual weather might be different come the morning. The decision to invoke slot times involves use of software analysis of weather data which includes historical data from previous similar weather patterns and whether there have been restrictions applied before.

NATS have provided some information on slot times and weather patterns on their website although it is acknowledged that the intended audience is not experienced aviation professionals such as the reporter of this CHIRP report. NATS also provided to CHIRP a breakdown of the decision making regarding the imposed flow rates leading up to, and on, the day the reporter quotes. ATC and airport capacity regulations are labelled as such; only those that are due to forecast poor weather, or a risk of low visibility, will be classified as weather regulations.

2 FC5384: Airside selfies

Report text:

A [Company] pilot was seen making a 'selfie' style video on the ramp while performing exterior safety inspection. Multiple other videos are [know to have been] taken in the cockpit including during critical phases of flight such as taxi, entering the runway and landing. This introduces inevitable distraction to the operation. [Pilot in question] operates for [Airline, not same as reporter's] on a UK CAA licence and posts content publicly on [social media]. Link to social media posts provided by reporter as evidence.

CHIRP comment:

CHIRP recognises that such 'selfie' activities are very common these days and there is a difficult balance to be struck between beneficially promoting the airline/industry and negatively impacting safety. Filming or taking photos when conducting aviation tasks at the same time has clear risks of distraction and lack of situational awareness. It could not be determined whether in this case the photos were staged or were being conducted ad hoc whilst operating, but there was undoubtedly a risk of normalisation of deviance from procedures given that the others involved in taking the photos (i.e. the associated captains) seemed to condone the activities by allowing them to be carried out.

Companies have specific social media policies these days and so those conducting such activities need to be aware of what these were (some companies allow such activities above FL200 only for example); companies might even provide assistance in conducting such activities if there were promotional benefits for the company. Individuals also need to be aware that many airports prohibit filming or photography on their ramps and therefore doing so during a walkaround might also contravene the airport's rules.

CHIRP doesn't want to be a spoilsport and there is much value in showing off the aviation industry in a positive light to as wide an audience as possible; but before pulling out a personal mobile when airside or airborne, it's worth ensuring that the rules and risks are understood, that company social media policy has been applied and that all actions would stand up to scrutiny in the court of public opinion.

3 FC5388: Ground incident not reported to Captain

Report text:

I (current captain) was the last passenger to board through the rear door on a delayed flight due to wind strength. When the Flight Attendant attempted to close the rear door, they could not move the door and requested assistance from the ground crew. The aircraft stairs had moved position in the wind and were resting against the bottom of the door (as reported by ground crew on the stairs). The ground crew asked the flight attendant to stand clear while the stairs were lowered, however the direction selected was incorrect and the stairs lifted into the bottom of the door causing slight movement to the aircraft.

I highlighted to the flight attendant that, as an [Airline] captain myself, this must be reported to the captain. He agreed and I believe spoke to a colleague on the cabin telephone. When seated and waiting for weather to allow departure I asked the cabin supervisor if the captain had been informed. He was unaware of the incident. I said the captain must be informed before departure. He spoke to a colleague and informed me that it was 'fine'.

After landing I spoke to the captain about what I had witnessed. Both he and the first officer were unaware and had not been informed by any member of the cabin crew. He requested that I explain what happened and also said that there had not been any pressurisation warnings during the flight. He said the door would be checked for damage. Good communication is vital between all crew members to allow safe operation. Any incident that has the potential to cause damage to an aircraft must be reported to the aircraft captain. Recommend this incident is included in recurrent CRM training.

CHIRP comment:

CHIRP Cabin Crew FEEDBACK included this event for cabin crew emphasising that "good communication between cabin crew and flight crew isn't just a nice-to-have — it's a safety essential. Cabin crew are an integral part of the safety chain, and their role in communicating with the flight crew is paramount. Whether it's a passenger who has drunk too much, ice on the wing or as in this situation, a problem with the rear steps, anything that happens out of the norm, no matter how small, must be communicated to the flight crew as soon as possible. The flight crew expect the cabin crew to communicate any concerns to them.

Unfortunately, the incident described in this report highlights a significant lapse in that communication and despite the potential for structural damage (any impact to the aircraft structure needs immediate attention), the initial cabin crew member didn't escalate the issue to the SSCM or the flight crew. What's further alarming is that the SCCM when advised by the passenger also didn't report these concerns to the flight crew which should have happened immediately. Assuming "it's fine" is a risk no one should take."

CHIRP finds it really disappointing that an important safety message didn't reach the flight crew until after the flight, especially when it was communicated clearly by someone who identified themselves as a credible witness.

The reporter identifies the importance of effective communication between all crew, including ground handlers. The captain and first officer are unlikely to know directly of such incidents owing to the location of the rear steps and the busy cockpit work activities that are needed before push back and departure. Therefore, it is at times like these that teamwork is vital, and it is the eyes and ears of the cabin crew and ground handling teams that the flight deck relies upon. In a situation like this, cabin crew are also strongly encouraged to tell ground handlers and their supervisors, as well as communicating with the flight deck.

As Lieutenant General David Lindsay Morrison, AO, who served as Chief of Army in the Australian Army famously said: "the standard you walk past is the standard you accept". In other words, if you allow something unacceptable to occur, you're essentially setting a precedent for it to happen again. This comes back to the theme of our editorial and the need to be brave and 'call it out'. All credit to the reporter who was 'off duty' but still took the time to raise a valid safety concern, repeatedly and tenaciously, and then report it afterwards for the benefit of all.

For this incident, it was an observant passenger, who happened to be an aviation professional, that raised the alarm. The ground handling team in this circumstance were ultimately responsible for the safe positioning of the steps and consequently duty bound to report the incident to the captain as soon as it occurred. There is some doubt as to whether it had been wind that had caused the steps to contact the door, as commented by the reporter, but it may also have been a result of the aircraft settling after being loaded with fuel, passengers and bags. Irrespective of cause, the incident should have been reported immediately to the captain so that they could arrange for a qualified engineer's inspection to be carried out.

The reporter suggests that the ground handling team witnessed the incident, but they don't appear to have reported it to cabin crew or flight deck. The ground handlers are a critical part of the safety team, and they have a vital responsibility. It is never acceptable to just 'assume it will be ok', whatever the pressure to get the aircraft off on time.

The cabin crew were also made aware of the incident, but did not pass on the information provided by the concerned passenger to the flight deck. The reason for this isn't apparent on this occasion. It is appreciated that if every safety concern made by every passenger was passed unfiltered to the flight deck, then not many flights would take off on time. However, cabin crew are encouraged not to dismiss passengers concerns out of hand, rather to use best judgement in deciding what information to onwards transmit, based on what happened and the qualification and understanding of the person making the raising the alarm. It's always worth putting yourselves in the shoes of the captain and considering 'given the source, would I want to know this information?'; if there's doubt, there's no doubt and the information can always be discounted if necessary. Potentially it was a lack of confidence or sense of perceived pressure to achieve an on-time departure by cabin crew or ground handlers; this is covered by our CHIRP Comment above.

Finally, on learning of the incident after the flight, as well as arranging for the door to be checked for damage, it is hoped that the captain of the aircraft submitted an internal ASR highlighting the breaks in the chain on this occasion that led to safety critical information not being onwards communicated.

4 FC5387: Route with impossible turnaround time

Report text:

I work as flight crew for [Airline]. We have a seasonal route to [Location] which has a planned FDP of 13.40 as an extended duty. With the normal check in time, the max FDP with extension is

14 hours. The turnaround time is scheduled as 35 minutes (standard [Airline] turnaround) and whilst this is just about possible with some destinations, it is not doable in [Location]. The 35-minute turn is based on front and rear stairs for disembarkation and boarding, in [Location] where only a front jet bridge is used. On top of this, the flight is often full both ways, this means that the cabin takes considerably longer to clean after a 5 hour + flight. I believe that [Airline] are fully aware of the fact that the turnaround is never completed in the scheduled time however they will not change it to reflect the true time taken as this will make the flight impossible within the max FDP. Instead, the duty regularly requires discretion to work.

CHIRP comment:

CHIRP continues to get reports such as this where turnrounds are required to run like clockwork to make the route work. On the face of it, the theoretical plan works but, in reality, the time taken requires the use of commander's discretion. The CAA do monitor AT routes closely, and take a strong interest if, over a season, the actual operation of a scheduled route exceeds the maximum FTL for 33% of the times. If this happens, then the operator is required by the CAA to make changes to the route structure (ORO.FTL.110 (j) refers).

5 ENG767: Crew asked not to put fault in Tech Log

Report text:

I took over an aircraft in [Base] for a double [Station] duty, even though I'm normally based in [2nd Station]. The outgoing captain informed me that during their turnaround in [3rd Station], they experienced a smoke event. After arming the doors with the APU and one PACK on, the cabin manager reported smoke in the cabin. The captain opened the flight deck door and was shocked by how much smoke there was. They turned on the second PACK, set the flow to high, and the smoke cleared. They contacted Maintenance Control, who instructed them to fill out a smell report—but specifically told them not to log it in the tech log. The crew followed that instruction and flew the aircraft back to [Base].

Once I heard this, I contacted Maintenance Control myself and made it clear I wouldn't accept the aircraft without an engineering inspection. I also entered an open defect in the tech log. This was agreed, and engineers carried out an APU inspection, PACK burn, and checked the avionics bay. The aircraft was cleared for service, but we ended up being swapped onto a different aircraft for operational reasons.

I'm raising this CHIRP because I'm concerned that Maintenance Control told the crew not to log the event in the tech log. Why? Our Ops Manual clearly states that if a smell report is completed, a tech log entry is required. This feels like commercial pressure—perhaps because they knew investigating the event would cause delays. I later found out the aircraft had significant maintenance scheduled that night and needed to be back in [Base]. Was that influencing the decision?

What worries me most is that if I hadn't spoken to the outgoing captain, I wouldn't have known this serious event had occurred. There's also a wider issue: I believe there's growing complacency in the industry around smoke, fume, and smell events. I've heard of crews not using oxygen masks during such incidents, and the AAIB has investigated multiple cases where masks weren't used. BALPA has published warnings about the risks, but the message clearly isn't getting through.

CHIRP comment:

This is a very useful CHIRP report and we're grateful to the reporter for highlighting this concerning drift into poor practice, which appears to be an example of normalisation of deviance.

It's not clear why the captain didn't use the tech log to record the fumes event. Perhaps there was a lack of trust in the operator's safety culture and this particular captain was keen not to rock the boat? Or maybe the legal requirements of tech log use weren't understood. Alternatively, the captain may have been put under pressure by Maintenance Control not to report and went along with it.

It takes courage to do the right thing, especially if this could be erroneously viewed as 'unhelpful'. If this deviation was led by Maintenance Control, it's not clear why they wouldn't want the event formally recorded. As the reporter says, it could have been commercial pressure, or perhaps it was complacency because fume/odour events are such a common feature on some aircraft types.

Whatever the background on this occasion, the bottom line is that it is always the responsibility of the aircraft captain to ensure that all defects are recorded in the tech log. This responsibility should never be verbally 'handed on' to the next captain or left, without formal record, with Maintenance Control. A smoke event could be a precursor to something even more serious, therefore following the correct procedure is especially important in these circumstances.

Communication is one of the Dirty Dozen and a key Human Factor consideration. Communication is not just limited to the contents in Chapter 23, it is verbal, written, printed, hand signals, lights, oral warnings, bells and horns, megaphones, smells and other physical sensations. Not using the tech log takes us back to the days of recording defects on a discarded cigarette packet. Are we not better than that nowadays?

6 FC5383: Extremely fatiguing trip with 18-30hr rest gap

Report text:

I'm a UK-based captain with [Airline], and I've recently become aware of a duty pattern that I believe is unacceptable. On Day 1, I report at 09:35 to operate a flight to [Location]. On Day 2, I return from [Location], going off duty at 04:10—technically into a third day.

Let me break it down using UK time. Say I wake up at 08:05 on Day 1—90 minutes before report. The outbound flight is at sociable hours, but knowing I've got a long night ahead, I stay up until midnight (which is 02:00 in [Location]). I then sleep a solid 10 hours and wake at 10:00 (midday in [Location]). That means I'm awake for over 18 hours before going off duty at 04:10—assuming everything runs on time.

If I happened to wake up at the same time on Day 2 as I did on Day 1, I'd be expected to land the aircraft after being awake for 19.5 hours. That's not just exhausting—it's dangerous. BALPA recently highlighted that being awake for 17 hours impairs performance to a level equivalent to being 2.5 times over the alcohol limit for flying.

Frankly, I think it would be negligent for any ATPL holder to operate that duty as it stands. When you factor in the cumulative fatigue from over 700 hours on a [Airline] roster, it's clear this isn't okay. I know someone submitted a fatigue report for this duty, and the system rated it as "medium." That alone shows how out of touch the Fatigue Risk Management System (FRMS) is—it feels more like a tool to justify questionable scheduling than a safeguard for safety.

Company comment:

The company acknowledge that these rotations were initially operated as extended out-and-back Flight Duty Periods (FDPs). However, due to concerns about their operational integrity and the use of discretion, FRMS recommended a change in approach. As a result, longer sectors were converted into night-stop sequences, with some—like the one in question—structured as asymmetric pairings requiring positioning from a different return airport.

FRMS continued monitoring pairings without a down-route rest day, acknowledging the challenges of early-to-late transitions. Although FRMS applies stricter-than-required rules, this particular route was discussed with scheduling and only operated five times in late 2024 before being discontinued.

We understand the concerns around 18–30-hour rest periods. These are not subject to a blanket restriction, and depend on context (e.g., prior duties, individual crew circumstances). Their rostering system uses algorithms to assess these periods in relation to circadian rhythms.

We can only identify one fatigue report relating to the route in question during its short existence and this was a request asking us to review the duty in advance and therefore not based on the actual experience of operation. We do not provide [roster assessment scores] for reports concerning anticipated fatigue as we do not wish a relatively low score, based on theoretical conditions, to discourage a crew member from subsequently claiming a fatigued absence on the day of operation. We are therefore unsure, without further detail, of the provenance of the [medium score mentioned in the report].

For information, pre-emptive fatigue report forms are quantitatively assessed purely on roster construction characteristics. An [risk assessment of medium] would signify exceedances of one or more fatigue precursors, identifiable mitigations, when considered in the fatigue context in the referral period. During peak summer workload and disruption, we may see up to 20% of reports exceeding this level and these would almost exclusively be associated with a fatigued absence so with no transference of risk into actual operation. Towards the end of the year, the figure is more around 10%.

CHIRP comment:

CHIRP commends the airline for providing such a detailed response in time for publication of this edition of FEEDBACK. The report describes the well-known problem of 18-30hr periods between duties. We've commented before to the CAA, and in our FEEDBACK newsletters, about the difficulty of getting in the required 2 sleeps within such gaps (see our FEEDBACK Edition 152, Report FC5347). The 18-30hr period between duties is troublesome because, although it's 'legal' and would appear on first sight to give plenty of time for rest, it can also be problematic owing to the difficulty of fitting in 2 sleeps during the period. In the example given, if arriving at the destination and getting to bed at around midnight then it's not surprising that their body then finds it difficult to get to sleep again about 10-12hrs later as they prepare for Day 3's early wake-up.

The company involved in this report identifies that it uses rostering algorithms for dealing with fatiguing rosters, but such practices differ from company to company. Nonetheless, there should be a recognition by all airlines that repeated rostering of such 18-30 rest period duties can be very debilitating. Consecutive rosters with 18-30hr duty gaps will soon lead to chronic fatigue in those rostered in such a way.

The CAA is currently conducting a study into FTL/FDP assumptions to make them more coherent for UK purposes. CHIRP has made representations to the CAA before about this concern, so we hope that they will look at the recurring 18-30hr issue in their ongoing FTL review. Of note, the CAA's role in monitoring rostering practices is to ensure that the patterns are legal and that any fatigue issues raised by crews are appropriately mitigated by the airline, this being done by the CAA oversight team. Any identified systemic issues would then be the responsibility of the operator concerned to mitigate, to the CAA's satisfaction.

7 ENG760: Engineering Licensing System - Aircraft Maintenance Safety Concerns

Report text:

I've worked in aircraft maintenance for over 20 years, with the last 10 as a Licensed Aircraft Engineer (LAE). Across multiple MROs and airlines, I've never been more concerned about safety and standards than I am now. The system is being undermined in ways that directly affect airworthiness.

Key Concerns

1. Education & Training: Many new entrants lack approved apprenticeships or relevant qualifications.

2. Work Experience: Some logbooks may be fabricated, making experience unverifiable.

3. Licensing: Loopholes are being exploited by some applicants.

4. Examinations: Reports of fast-tracked, compromised exams - including impersonation - are alarming.

5. Licence Applications: The process itself may be manipulated.

6. Continuing Education: Online renewal training is too easy and lacks rigour.

Cultural & Operational Issues

A growing culture of fear and compromised integrity is evident.

Incidents involving VFSG chip detectors and ODMS sensors highlight poor workmanship and oversight.

Some engineers sign off work without understanding the risk.

Systemic Failures

The systemic failures in aircraft maintenance safety are multifaceted and deeply concerning. Despite internal reporting mechanisms, there has been a lack of discernible change, raising questions about the effectiveness of these processes.

The interview and authorisation procedures are compromised by candidates having access to questions beforehand, undermining the integrity of assessments. Additionally, commercial pressures and staffing shortages exacerbate these issues, as companies struggle to attract and retain qualified engineers.

The fear of termination for errors is prevalent, as evidenced by incidents involving routine maintenance tasks. For example, during the inspection and reinstallation of magnetic chip detectors on VFSGs, significant damage was noted due to improper installation.

Similarly, a mechanic with six years of experience struggled to complete a straightforward task, highlighting the disparity in skill levels and the potential risks involved.

Internal reporting to the quality, safety, and compliance departments has not prompted any significant changes, suggesting a need for escalation to higher authorities such as the CAA or the Department for Transport. The shortage of qualified engineers in the industry, driven by commercial pressures, further exacerbates these issues.

Recommendations

Implement structured onboarding with project management oversight.

Conduct thorough background checks.

Escalate unresolved safety concerns to the CAA or Department for Transport if necessary.

Not all overseas engineers fall short, but a significant proportion do—this must be addressed to protect safety and restore trust.

CAA comment:

The CAA acknowledged the report and confirmed that the issues raised are being monitored through their oversight programme. They have requested further information from the organisation involved. So far, investigations indicate that the organisation is conducting appropriate competency checks, and no regulatory concerns have been identified.

They clarified that HR and probation

matters fall outside CAA regulation, and competency assessments remain the responsibility of the Part 145 organisation. The CAA would only intervene in licensing if there were concerns about an individual's character or fitness.

The CAA regularly reviews the organisation's internal safety and compliance meeting minutes and MOR data. They are also aware of the current shortage of licensed engineers in the UK and the rising salaries and are actively monitoring this trend with industry stakeholders to mitigate associated risks.

CHIRP comment:

CHIRP confirmed that the CAA was contacted with the reporter's permission. They noted that under Part 145 regulations, responsibility for competency assessments lies with the organisation, not the regulator. While no evidence of falsified documents was found, making false representations is a criminal offence under the Air Navigation Order.

CAA oversight is limited, as HR processes are confidential and not shared. Competency assessments are guided by CAA document CAP 1715, but assessing "fitness of character" remains challenging. ICAO defines competence as observable behaviours that predict job performance.

In the reported case, the system worked: the company identified competency shortfalls and terminated the individual before they gained authorisation. CHIRP questioned whether all organisations would act as effectively and suggested that the robustness of competency assessments, and the regulations supporting them, may need to be revisited.

Photo By pavel1964 Stock.adobe.com

We warmly welcome Sunclass Airlines as the latest addition to the UK Flight Safety Committee membership

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