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Focus

On Commercial Aviation Safety

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Welcome

to the winter 2024/25 edition of Focus and appropriately we have some snow on the front cover with the Norse Atlantic B787 in Antarctica. I love this picture, it captures in one instant the fun and adventure of flying and the pride and love for what we all do. It's like a throwback airline picture full of the spirit of the people that make up our industry.

In this edition we take a close look at Abnormal Runway Contact through the very detailed BEA report on the Transavia B737 hard landing at Nantes and the multitude of contributing factors that they discovered. One of those factors was the unintended consequence of over emphasising the landing tail strike risk at the expense of the hard landing risk. As James Reason wrote ' defences can be dangerous'. Appropriately, Martijn Flinderman takes a look at examples from various industries of adverse outcomes from the best of intentions.

We examine why the BEA is calling for a postponement of the phase out of ground based precision approach aids in their report into the altimeter setting error, CFIT near miss, on a Baro VNav approach at Paris Charles de Gaulle.

Social skills are sometimes taken for granted as part of a smooth functioning team, Carine Lage offers some advice to crew on conflict resolution.

Artificial Intelligence is being trialled at many airports. It has the potential to make a significant contribuion to the continuity and safety of ground operations.

Do you ever think about filing an Air Safety Report after a simulator session? The Royal Air Force talk about the importance of this source of safety information.

I hope you enjoy reading this edition and like me, the cover made you smile.

Rob

Cover photo: -

Crew posing in front of a Norse Atlantic Airways Boeing 787 after landing on an ice runway in Antarctica.

https://flynorse.com/

Photo by Maxwell Pels: https://www.pexels.com

Multiple Factors Combine in HARD LANDING.

The Bureau d'Enquêtes et d'Analyses (BEA) released its final report into the October 1, 2022, hard landing of Boeing 737-800 F-GZHA at Nantes.

Bradley Holtidor

The investigation provides detailed insight into the numerous factors contributing to the event, offering learning for pilots, operators, safety managers, and aerodromes. This is a story of how multiple latent factors aligned with human and environmental factors on the day to result in an accident.

The Approach

The approach to runway 21 at Nantes-Atlantique airport is operated under a variance signed by the Civil Aviation Safety Directorate (DSAC) of the French Directorate General for Civil Aviation (DGAC) because this approach is offset 13 degrees. The misalignment of the final approach is due to environmental pressures around Nantes-Atlantique airport, to avoid flying over the city centre. For this reason, the last turn of the RNP21 approach to line up with Runway 21 is at an altitude below 1,000 ft and between 1 and 2 NM from the threshold of Runway 21.

The Runway

The Initial part of the runway is not level but is initially downhill and then uphill in the area where the aircraft is below 50 feet and flaring to land. The changes in slopes with the steepest angles are at the beginning of runway 21, can disturb the visual perception of the pilot, who may have difficulty appreciating the moment when to start the flare and executing it correctly. These changes in slopes also induce a delay in the triggering of the radio altimeter announcements. These difficulties are accentuated when the weather conditions deteriorate or during a night arrival.

The BEA found that the runway at Nantes Atlantique airport does not meet the certification standard in three ways. The slope in the first quarter is 1.25% exceeding the maximum of 0.8%, the transitions

Images from the BEA accident report

between successive slopes are lower than required and the sight line, visibility distance, do not meet the required criteria. The runway is subject to special conditions based on a safety study from 2015, developed by the airport operator and approved by the Civil Aviation Safety Directorate of the French DGAC due to physical and topographical limitations.

Safety Study: "The slopes and changes in slopes of the landing area do not create an unacceptable risk to aircraft."

Risk Assessment

The conclusion of the safety study states that "given the absence of events related to non-conformities (which are also known to the crews frequenting the aerodrome), through the information in the aeronautical publications and the absence of a precision approach on runway 21, an acceptable level of safety is maintained, and the essential requirements are met. The slope and changes in slopes of the landing and take-off area do not create an unacceptable risk."

The airport operator was not actively soliciting hard landing data from operators to update their risk assessment. Although these landings are detected by airlines, they are not reported to or requested by the airport operator. The absence of notification of these events to the airport operator prevented the safety study from being updated. Consideration of these would contribute to the updating of this safety study, and could lead, if necessary, to a reassessment of the level of safety associated with the slope and slope changes of Runway 21. Risk assessments are live documents that must be continuously updated.

Aerodrome Classification

In the Operations Manual part C of the operator the Mykonos and Nantes runways are classified as B-q and B respectively. B-q requires minimum experience and training prior to operating to that runway.

The two runways represent similar challenges. However, they were treated differently in the OM-C, probably due to the level of detail in the respective AIPs.

Aeronautical Information

The BEA found that the operator had most hard landings on Nantes runway 21 and Mykonos runway 34. The Mykonos runway is challenging because it is narrow and sloping, similar to Nantes.

The AIP for each airport has different levels of detail regarding the special conditions under which their runways are certified. The Mykonos conditions are fully documented in the respective AIP. Whereas the BEA reported that the publication of information warning more clearly of the specific features of Nantes aerodrome would improve the way in which air operators and their crews take account of those features.

Normalisation

The Local Runway Safety Team minutes revealed that the runway slope had not been discussed in the preceding five years. This fact appears to indicate that the runway idiosyncrasies had become normalised.

The fact that the Type Rating Instructor (TRI) was familiar with Nantes Approach 21 and the characteristics of the runway may have minimised their perception of the difficulty that the co-pilot could face in carrying out a landing on this runway in these conditions.

Contacted by the BEA, two air operators operating flights to Nantes indicated that at the time of the accident, they did not have any specific training or instructions for this airport, even though it is recognized as having characteristics that are sometimes difficult to manage.

Unintended Consequences of Over Emphasising The Risk of Tail Strike

According to Transavia, at the time of the accident, the risk associated with the occurrence of a tail strike was, considered to be, greater than that associated with a hard landing with a bounce. The company points out that pilots have historically become more aware of the tail strike risk, through messages from instructors, interventions by flight safety officers, during training, or through various publications concerning flight safety. In fact, this situation could give the impression, wrongly, at the time of the accident, that the risk of tail strike was of particular importance, which could biased the pilots' awareness of the risk versus the risk of a hard landing.

Image from the BEA accident report

The theme of a hard landing with a bounce was rarely addressed in communication and this threat was absent during flight preparation briefings, or in flight, regardless of the characteristics of certain runways. In addition, the actions to be taken in the event of a bounce are only taught by a theoretical component with no practical application by the operator.

Approach Quota Pressure

The BEA reported that, in some cases, the instructor may have to not let the pilot carry out the approach or landing. The latter decision can only be made effectively if the instructor is not under the pressure of a number of approaches to be carried out by his student as part of the validation of their line flying.

Flight Data Monitoring

The BEA established that the operator had most hard landings at Mykonos and Nantes and the majority were on uphill runways. The implication is that the issue was present in the data that, if identified, could have been addressed.

Recency

The First Officer (FO) had taken a three-month hiatus from flying. The flight was a line training flight as part of the process prior to returning to line flying.

Weather

The weather was 250/10G17 4800 OVC/600. MDA 530’. The weather indicates that visual contact with the runway would occur just before Minimum Descent Altitude with a gusting crosswind.

Weak Signals

During the descent to Nantes, the co-pilot reminded the instructor captain of his apprehension of reproducing the same type of firm landing as the one made the day before in Nantes on runway 21. During the briefing, the non-centreline approach to runway 21, the profile of this runway ("the hump") and the evolution of the weather conditions were discussed by the co-pilot. These threats were not taken up by the instructor. The visual perception caused by the rising part of the runway and the stress related to the difficulty of landing in Nantes were not the subject of any particular strategy on the part of the instructor to manage them. The choice of when the automation would be disconnected was not discussed at that time.

Use of Automation

During the approach, at around 2,500 ft, the co-pilot told the instructor that he would disconnect the automation at an altitude of 2,000 ft, about two minutes before reaching the minima. The co-pilot wanted to take advantage of the instructor's presence to fly manually and regain experience. The instructor was willing to let the co-pilot do it to help him regain his confidence. However, given the presence of crosswinds, the ceiling close to the minima, and the co-pilot's recent low experience, manual piloting likely resulted in a high workload for the co-pilot.

Boeing's FCTM emphasizes that during non-ILS approaches, the use of the autopilot improves the accuracy of heading and vertical track following, reduces the likelihood of unintentional deviations below the profile; while providing the various autopilot alerts as well as the indications of the engaged modes. The FCTM recommends the use of the autopilot until an appropriate visual reference is established on final approach.

Final Approach

At one nautical mile from the Missed Approach Point and at an altitude of about 800 ft, the first officer turned left to intercept the runway centreline. The approach was stabilized, the first officer maintained the glide path following the PAPI indications, and the airspeed remained close to the reference approach speed. The instructor's announcements of corrections at low heights show that his attention was focused primarily on maintaining the runway centreline.

The Landing

After crossing the threshold of runway 21, the aircraft first flew over the descending section. At a height of between 40 and 30 ft, the first officer began to pitch up, moving the control column to round out, without reducing thrust, but this action was insufficient to change the aircraft's attitude. The aircraft then began to fly over the ascending portion of the runway. The "thirty" and "ten" calls were spaced one second

Image from the BEA accident report

apart, representing about 80 m of flight, the co-pilot applied a sharp, fast, nose-up action to the control column, pulling it at more than three-quarters of the travel, before placing the thrust levers to IDLE. At the same time, the instructor most likely became aware of the delay to the start of the flare and, by reflex, announced "attention" to the co-pilot. These straightforward, rapid actions at low altitudes above the rising portion of the runway did not reduce the aircraft's energy prior to contact with the runway.

It is very likely that the late flare was the result of a misperception of the final portion of the glide path due to the upward slope of the runway and the focus of both pilots on maintaining the runway centreline at low heights.

The influence of the runway profile, descending and then ascending, on the pitch announcements of the synthetic voice did not assist the first officer in initiating the flare and thrust reduction early enough given the upward slope before the bump.

The instructor did not consider taking control during the flare and most likely did not have time to do so.

The main gear touch down on the uphill portion of the runway was harsh with a recorded load factor of 2.95 g, at a sink rate of approximately 12 ft/s. Spoilers deployed and then the aircraft bounced.

The force of the impact on landing and the bounce surprised both crew members. The instructor reflexively applied a sharp nose-down action to the control column to the nose-down stop, which resulted in a rapid decrease in the aircraft's attitude. This decrease in attitude combined with the spoilers deployment led to a rapid decrease in the aircraft's lift. The nose gear and right main gear touched down on the runway simultaneously. Under the violence of the impact suffered by the nose gear, both tires were ejected from it, the aircraft continued the landing by taxiing on the rims. The aircraft suffered significant damage to the nose leg mounting and debris damage to the fuselage and engines.

The instructor then maintained the runway centreline during the aircraft's deceleration before turning left onto a taxiway to stop the aircraft and clear the runway.

Boeing recommend a go-around from a high bounce. For other bounces, the normal landing attitude must be maintained and thrust must be adjusted as necessary to control the rate of descent. For a low bounce, there's no need to add push. The Flight Crew Training Manual (FCTM) does not describe the difference between a low or high bounce.

Instructor Analysis

A student's progress curve can vary depending on many elements. Flight conditions, the characteristics of the infrastructure, the environment, and recent experience or difficulties encountered during training. These may cause certain apprehensions that can alter the level of performance of the pilot in training.

The instructor must therefore identify and evaluate, during the preparation of the flight and in flight this threat and put in place means to reduce the associated risk. The instructor will then have to discuss with the student the actions to be performed or the procedures to be implemented in the event that the approach or landing does not proceed as planned.

Instructors must balance providing co-pilots with learning opportunities and ensuring operational safety.

Image from the BEA accident report

In some cases, the instructor may not let the pilot carry out the approach or landing. That decision can only be made effectively if the instructor is not under pressure for the student to complete a quota of approaches as part of the validation.

This approach to analysing threats linked to the training situation is identical to that carried out by crews during approach (TEM) briefings. However, being specific to the instructor, it could effectively complement the standard approach briefing.

Instructors must balance providing co-pilots learning opportunities with ensuring operational safety. Structured frameworks should guide instructors in determining when to take control during dynamic phases, such as the flare. Emphasizing the risks associated with non-standard runway profiles in preflight briefings to enhance situational awareness and decision-making.

Safety Actions by The Operator

•Remove complex airports from co-pilot line training.

•Adapt the PF/PM distribution between the co-pilot and the instructor according to the destination and degree of difficulty.

•Standardized landing technique instruction.

•Training on what to do in the event of a bounced landing.

•Information for instructors on taking control as a formalised in-flight protocol.

• Training in the awareness of the risk of hard landing in relation to tail strike.

Aerodrome Recommendation

The publication of information warning of the specific features of the Nantes-Atlantique aerodrome would be likely to improve the way in which these special features are taken into account by operators and their crews.

Conclusion

This system incident underscores complex interactions of runway characteristics, human factors, operational oversight, training, airport information and safety assessments. Barriers with weaknesses that all contributed to an abnormal runway contact event. Knowledge of the identified gaps may enhance operations involving challenging runways

UNINTENDED

Consequences of Well-intended Solutions.

Martijn Flinterman

Defences designed to protect against one kind of hazard can render their users prey to other kinds of danger, usually not foreseen by those who created them, or even appreciated by those who use them. In short, defences can be dangerous. James Reason, 1997

When we experience the failure of a solution by doing more of the same, we sometimes tend to overcorrect by adopting the opposite approach. But, the opposite of something bad is not necessarily good, of course. The opposite of a bad situation can sometimes result in even worse outcomes. For instance, the extreme pursuit of good can lead to evil, as seen in how the French Revolution's ideals led to the guillotine, and religious devotion led to the Inquisition (Watzlawick, 2005). Uncompromising efforts to achieve the highest good often end up producing the opposite result. So, we need to be wary of simplistic, binary thinking.

Diagram Categorising Consequences - Toma M, Dreischulte T, Gray NM, et al (2018) "Balancing measures or a balanced accounting of improvement impact: a qualitative analysis of individual and focus group interviews with improvement experts in Scotland" BMJ Quality & Safety

Moreover, we tend to cling to solutions that worked in the past, even when they no longer suit current circumstances. The solution itself becomes the problem. Our perception of reality and the solutions we develop are often influenced by both internal and external constraints as well as unexamined assumptions (Watzlawick, 2005). Even when we manage to break free from our self-imposed constraints, our policies and actions can still have unintended consequences, both positive and negative. These unintended consequences are common in human progress; they influence outcomes in ways that were never anticipated.

These consequences have been apparent throughout history, from ancient innovations to modern-day technology. Technological advancements can benefit from crises—penicillin, for example, was discovered during a time of need. Consider crime rates: traditional explanations like better policing and economic growth are often credited, but legalized abortion may have played a significant role. The legalization of abortion in the 1970s led to fewer unwanted children being born into challenging circumstances, ultimately reducing the number of potential criminals two decades later (Reijnders, 2019). This suggests that reproductive rights might have been more effective in reducing crime than punitive measures.

But negative outcomes also emerge. Here are some real-world examples illustrating how well-meaning policies and innovations can backfire, leading to unintended outcomes (Reijnders, 2019; Tenner, 1997):

View of SS Eastland from a fire tug (Wikipedia)

Amsterdam's coffeeshop policy

In 2015, a series of shootings targeted Amsterdam's coffeeshops (which legally sell cannabis). In response, then-mayor Van der Laan implemented a zero-tolerance policy, shutting down any shop involved in a shooting. Unfortunately, this policy led to an unintended effect: rival coffeeshop owners allegedly orchestrated shootings at competitors' shops to get them shut down. The financial and operational impact was severe. Eventually, the policy was revised, focusing on improved security measures, which reduced shootings and restored peace to the coffeeshop scene.

Advanced car safety features and increased risk

Modern cars come equipped with advanced safety features like lane assistance and parking sensors, designed to prevent accidents. However, studies have shown that cars with these technologies are more likely to be involved in accidents. Drivers tend to rely too much on these automated systems, leading to riskier behaviours like following other vehicles too closely or paying less attention while parking. Moreover, the complexity of these systems can confuse drivers, decreasing their overall alertness. Thus, technological solutions that aim to improve safety may inadvertently create new risks.

SS Eastland capsized after adding extra lifeboats

The SS Eastland disaster is a tragic example of how well-intended safety measures can lead to unintended and catastrophic consequences. On July 24, 1915, the Eastland, a passenger ship in Chicago, capsized while still tied to the dock on the Chicago River, killing 844 passengers and crew members. Ironically, one contributing factor to the disaster was the addition of extra lifeboats, mandated by the 1915 Seamen's Act in response to the Titanic tragedy. The goal of the law was to improve safety, but in the case of the Eastland, the additional lifeboats made an already top-heavy vessel even more unstable. The ship, which had a history of stability issues, rolled over as passengers boarded, leading to one of the deadliest maritime accidents in U.S. history.

A Broader Lesson: Avoid Rigid Ideologies

These examples demonstrate how well-intended policies and innovations can backfire. The challenge lies in recognizing that there are no absolute truths or perfect solutions. Clinging to rigid ideologies—whether in crime prevention, public health, or economic regulation—can often cause more harm than good. A flexible, evidence-based approach that considers the complexity of human behavior and societal changes is more promising for crafting effective policies.

Key takeaways for leaders and policymakers

- Understand that solutions that worked in the past may no longer be effective today.
- Sometimes, breakthroughs come from unexpected sources, such as public health initiatives rather than punitive measures.
- Examine the beliefs underlying your decisions. What worked yesterday might create new problems today.
- Always consider the broader societal impact of a policy—both its intended and unintended consequences

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HOW CAN **ARTIFICIAL INTELLIGENCE** BE USED TO IMPROVE SAFETY IN GROUND OPERATIONS?

Rob Holliday

Photo by Marina Hinic: https://www.pexels.com

Can AI Optimise taxi times and eleiminate ground collisions?

Photo by Tara Winstead: https://www.pexels.com

Science Fiction or Reality?

It seems like artificial intelligence is a relatively new term, but it is already being used at airports in a variety of ways and the future uses are only limited by our imagination.

Some of the areas include aircraft taxiing, ground handling, gate monitoring, security and equipment maintenance. Manual processes and human expertise are increasingly stretched in managing complex airside operations. AI offers solutions in many areas of ground operations. Here we look at examples where AI has been effectively implemented as well as research into new possibilities.

Autonomous Taxiing

Taxiing aircraft burn fuel, is time consuming and carries the risk of ground collision. Ground collisions are consistently in the top 3 of most frequent accidents in the Flight Safety Foundations, Air Safety Network Statistics. (asn.flightsafety.org). Taxiing efficiency has been discussed using bots or onboard electric motors. Imagine if this technology was deployed with AI algorithms using sensor data to taxi to and from runways without human intervention. The potential is there to reduce fuel consumption, minimizes delays, and improves safety by optimizing routes and avoiding collisions. SESAR (Single European Sky ATM Research) program is carrying out research into these ideas. The program has shown that AI can reduce taxiing times by up to 20%, with associated cost saving and environmental benefit.

Optimising Taxiing

AI can predict the most efficient taxi routings from data. Machine learning algorithms analyse traffic, weather, and gates to determine the best taxi routes. Optimising aircraft taxiing routes, reduces congestion and decreases delays. Heathrow has trialled using AI analysis of taxiing data to reduce overall taxi time.

Avoiding Ground Collisions

A video circulating recently of an A350 wing tip striking the tail off a CRJ (Atlanta Airport 10/09/2024) emphasised that ground collisions are a serious safety issue.

Dubai has taken steps to eliminate collisions by implementing an AI collision avoidance system. The system monitors the position of aircraft, vehicles, and personnel and provides alerts of potential collisions. Data from sensors, cameras, and radar feeds the system that predicts potential conflicts.

Dubai are trialling an AI collision avoidence system.

Predictive Maintenance

Ground handling equipment is in constant use and requires frequent maintenance. AI can be used to interpret sensor data to identify patterns that indicate when maintenance interventions are appropriate. Munich Airport has adopted AI predictive maintenance on its ground handling equipment, resulting in a 15% reduction in downtime. An IATA study concluded that predictive maintenance reduces equipment downtime by up to 50% and cuts maintenance costs by 30% (IATA, 2022). It can also program maintenance at off peak times.

Automated Baggage Handling

Changi in Singapore, use AI and machine learning to analyse baggage tracking data from sensors and cameras to improve the sorting and routing of luggage, reducing errors and speeding processing. Back in 2021 John Holland-Kaye, CEO of Heathrow Airport, said "AI helps us track every piece of luggage in real time, ensuring it reaches its destination on time,".

Security Surveillance and Anomaly Detection

AI algorithms can analyse video from surveillance cameras to detect anomalies such as unusual behaviour or unauthorized access. This allows security personnel to respond to potential threats. Such AI-driven surveillance has been introduced at Los Angeles International Airport, leading to a reduction in security breaches.

Photo by Harrison Macourt: https://www.pexels.com

Monitoring Compliance with Safety Procedures

AI is also used to monitor aircraft parking gates for compliance with safety procedures. CCTV cameras, integrated with AI, can automatically identify and flag non-compliances, such as missing wing walkers or ground staff not wearing high-visibility jackets. CCTV video feeds connected to AI detects and reports violations and can provide alerts.

Hong Kong International is looking into AI-powered surveillance for safety improvements at parking gates. This technology not only helps maintain high safety standards but also reduces the risk of accidents and operational disruptions.

A study in the Journal of Air Transport Management, claimed that AI-based safety monitoring would reduce ramp accidents by 40%, that would save the industry $1 billion annually (JATM, 2022).

Ground Equipment Monitoring and Collision Risk Assessment

AI can track the positioning of ground equipment around parked aircraft and determine when it is too close to an aircraft or is not parked in designated areas or poses risk of collision with the aircraft. Proactively preventing collisions and providing data for improvements to turn-around processes, reducing damage and delays. London Gatwick Airport has implemented AI-driven systems that monitor ground equipment placement, significantly reducing the risk of collisions.

Turn-around optimisation

Research from MIT highlights that AI can reduce turnaround time by up to 20%. By analysing data from multiple sources, including ground handling, baggage, cargo, fuelling, and catering AI can suggest efficiencies (MIT, 2023). AI even has the capability to determine if it is safe to commence a pushback. AI systems can monitor that ground equipment and personnel are where they should be,

confirming that the aircraft is ready for pushback, issuing a signal to ground crew.

This technology has been deployed at airports, including Frankfurt Airport, reducing delays and improving safety.

Energy Efficiency

Schiphol Airport in Amsterdam is using AI to manage airport lighting, heating, and cooling systems, reducing energy consumption and contributing to a reduction in carbon emissions. Schiphol is one of the most sustainable airports in the world.

Military

In the military context the U.S. Department of Defence (DoD) is integrating AI into operations. AI tools are being trialled to automate routine tasks and enhance decision-making, and operational planning, Task Force Lima, is exploring how AI, can be used in different mission areas (Military Embedded Systems, 2023). In the UK, the Ministry of Defence are looking at AI and automated systems to support ground operations, to relieve personnel of dangerous or repetitive tasks

Conclusion

This may seem like science fiction. Ground operations safety and sustainability is being enhanced by this technology. Whether optimising taxiing, improving safety and compliance of ground handling AI is driving significant improvements in how airports operate. As technology evolves, the role of AI in airside operations is likely to expand and provide further benefits to the industry

BEA Calls for a Delay to the Phase Out of Ground-Based **Precision Approach Aids**

"in the absence of a clear change of direction in Europe between now and 2030, there will be a substantial decline in the level of safety on approach."

Rob Holliday

In recent years, advancements in aviation technology have transformed how pilots navigate and land aircraft. Satellite-based systems such as Performance-Based Navigation (PBN) and Required Navigation Performance (RNP) approaches have brought increased efficiency and precision. However, the reliance on these systems has introduced risks that should be addressed before the aviation industry can safely transition away from ground-based precision aids like the Instrument Landing System (ILS). The recent serious incident involving the Airbus A320, registered as 9H-EMU, on approach to Paris-Charles de Gaulle airport serves as a compelling case for why the phase-out of such systems should be reconsidered and postponed.

In the final report the Bureau D'enquêtes Et D'analyses (BEA) investigation found that the development of LPV capabilities is still in its infancy in commercial air transport. In the absence of the LPV capability, aircraft air operators will predominantly use Baro-VNAV approaches in a context where the exclusive use of PBN is imposed. They conclude that the continued phase out of ground-based ILS will, "in the absence of a clear change of direction in Europe, between now and 2030, will lead to a substantial decline in the level of safety on approach." They recommend the EU take appropriate measures to maintain the targeted level of safety of final approach operations in Europe in 2030. In other words, stop phasing out ILS, creating a reliance on Baro VNav approaches, until LPV approaches and associated onboard equipment are in place.

The incident

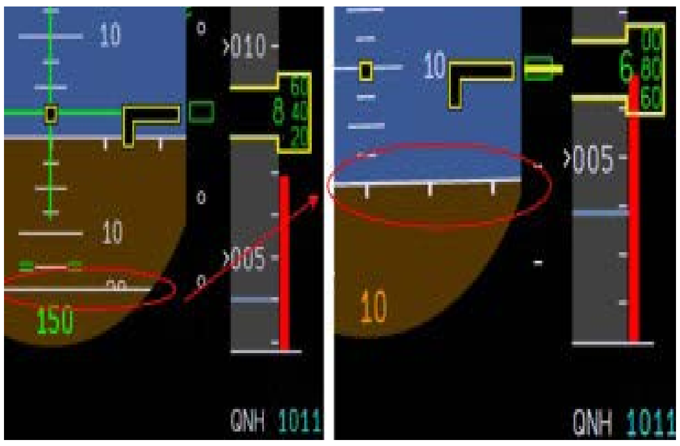
On May 23, 2022, the Airbus A320 operated by Airhub Airlines was conducting a satellite-based approach using barometric vertical navigation (Baro-VNAV) due to the unavailability of the ILS for runway 27R at Charles de Gaulle airport. During this approach, a critical error occurred when air traffic controllers transmitted an incorrect altimeter setting (QNH) to the crew. The provided QNH was 1011 hPa instead of the correct 1001 hPa, causing the aircraft to descend approximately 280 feet below the published vertical profile.

The incident unfolded during adverse weather conditions, including heavy rain and low visibility. Despite the availability of terrain warning systems and multiple procedural safeguards, the error went undetected by both the flight crew and air traffic controllers. A ground-based Minimum Safe Altitude Warning (MSAW) was triggered when the aircraft reached a dangerously low altitude, but the subsequent controller warning was not clearly communicated to the pilots. This miscommunication, combined with the reliance on the altimeter setting for the approach vertical profile, nearly resulted in a Controlled Flight Into Terrain (CFIT) accident.

The A320's crew initiated a go-around after reaching the minima without acquiring the necessary visual references. During the manoeuvre, the aircraft descended to six feet above the ground at a point less than one nautical mile from the runway threshold. While a successful landing was achieved on the second attempt, the incident underscores significant risks associated with the reliance on satellite-based approaches reliant on the altimeter barometric setting to determine the correct approach slope.

Dependence on Correct Altimeter Settings

The barometric vertical navigation used during RNP approaches is dependent on an accurate QNH setting. An incorrect QNH leads to an erroneous altitude display, which can cause an aircraft to deviate from the intended vertical profile. Unlike ground-based systems like ILS, which provide independent and precise glide path information, the Baro VNav approach relies on inputs that are prone to human error.



The 9H-EMU incident demonstrated how a minor discrepancy in QNH can escalate into a major safety threat, particularly when compounded by adverse weather conditions and high workload on the flight crew.Ground-based precision aids like ILS offer a level of redundancy that is not yet fully matched by RNP approaches. ILS operates independently of altimeter settings, providing a direct and reliable glide path for the aircraft to follow. In contrast, RNP approaches require accurate inputs from multiple systems, including barometric sensors, GPS, and air traffic control. This layered dependence increases the potential for cascading failures, as evidenced by the incident where the aircraft's instruments and procedural safeguards failed to detect the altitude deviation until it was nearly too late.

The incident revealed gaps in pilot training and air traffic controller procedures for managing such scenarios. The controller's tools were not equipped to detect the altitude error, and the subsequent MSAW alert was not handled effectively. This highlights the need for additional safeguards, such as automated systems capable of cross-verifying altimeter settings or alerting crews to discrepancies.

RNP, Baro VNav approaches can involve a higher cognitive workload for flight crews compared to ILS approaches. Pilots must continuously monitor altitude-distance cross-checks, ensure GPS accuracy, and manage complex flight management system inputs. In the 9H-EMU incident, the crew's situational awareness was impaired by the workload

Photo: riccardo - stock.adobe.com

associated with the approach in challenging weather conditions. The absence of visual cues compounded the situation.

The incident also highlighted communication issues between air traffic controllers and pilots. The use of incorrect and unclear phraseology during critical moments contributed to the crew's failure to recognize the altimeter setting error. Effective communication is particularly vital during RNP approaches, where pilots rely on verbal instructions from controllers to ensure they have the correct altimeter barometric setting.

Localizer Performance with Vertical Guidance (LPV) approaches represent a satellite-based solution that can achieve a level of safety equivalent to ground-based aids like ILS. LPV approaches utilize satellite augmentation systems, such as the European Geostationary Navigation Overlay Service (EGNOS), to provide highly accurate lateral and vertical guidance. These systems are not dependent on barometric altimeter settings, thus avoiding the type of error seen in the 9H-EMU incident.

The global fleet's current lack of widespread LPV-equipped aircraft limits their effectiveness as a replacement for ground-based systems. According to the BEA report, the adoption rate of LPV capability is insufficient to justify a full transition to satellite-based systems at this time. The report states: "The overall level of safety would be significantly reduced if the transition to Baro-VNAV approaches became the primary solution before the fleet is sufficiently equipped for LPV operations." This observation underscores the need to maintain a mixed environment of ground-based and satellite-based aids until LPV technology is more universally available.

The European Commission's Implementing Regulation (EU) 2018/1048 mandates the transition to PBN operations by 2030, with the aim of enhancing airspace efficiency and reducing infrastructure costs. However, incidents like the 9H-EMU approach call into question the readiness of the aviation industry to fully transition away from ground-based aids. The following considerations support the need to postpone the phase-out.

Ground-based aids like ILS have a proven track record of reliability and independence from human input errors. Until equivalent levels of safety can be demonstrated for satellite-based systems, the phase-out of ILS and other ground-based aids should be delayed. This includes addressing gaps in training, procedures, and technology to mitigate risks like those highlighted in the 9H-EMU incident.

Investments are needed in ground and onboard systems capable of detecting and alerting crews to errors in altimeter settings or deviations from the intended flight path. For example, enhanced Terrain Awareness and Warning Systems (TAWS) could provide real-time alerts for altitude discrepancies. Ground-based monitoring tools should also be upgraded to detect and correct errors before they pose a threat to safety.

Pilots and air traffic controllers require enhanced training to manage the unique challenges of RNP approaches. This includes familiarization with the importance of QNH accuracy, as well as standardized phraseology and procedures for responding to alerts like MSAW. Controllers should also be equipped with better tools and training to recognize and address altitude anomalies.

The BEA report into the 9H-EMU incident recommends that until satellite-based systems can provide the same level of redundancy as ground-based aids, it is essential to maintain both systems in parallel. Dual systems would allow for seamless transitions during failures or discrepancies, ensuring continued safety and operational efficiency.

The timeline for the phase-out of ground-based aids should be reevaluated in light of incidents like the 9H-EMU approach. A phased transition, with periodic safety assessments and the option to delay further implementation, would allow the industry to address identified risks without compromising safety.

The 9H-EMU incident serves as a reminder of the risks of premature phase-out of ground-based precision approach and landing aids. While satellite-based systems offer significant benefits, they also introduce vulnerabilities that must be carefully managed. Until these risks have been mitigated, the continued reliance on proven ground-based systems like ILS will maintain existing safety levels.

Photo: gordzam - stock.adobe.com

Postponing the phase-out of ground-based aids will provide the time needed to address these challenges through technological advancements, improved training, and the development of robust procedural safeguards. LPV approaches hold promise for the future, but their adoption must be accelerated to ensure fleet-wide compatibility. The ultimate goal must be a seamless and safe transition that upholds the highest standards of safety, ensuring that incidents like the 9H-EMU approach remain rare exceptions rather than cautionary tales

Dealing with Difficult Crew Members: Social Skills in the Workplace for Pilots and Flight Attendants.

Carine Lage
Aviation Psychologist
& Helicopter Pilot

The aviation workplace, like any other sector, comprises a diverse range of individuals with different personalities and behaviors. However, for pilots and flight attendants, coexistence is particularly challenging as we are often in confined spaces and deal with high pressure and demanding standards of responsibility. In these conditions, encountering difficult coworkers is a situation many have faced.

This scenario, besides harming team harmony, can have serious consequences for operational safety. Aviation accident histories have shown that communication failures and interpersonal relationship difficulties among crew members can be critical factors in emergencies. For this reason, being assertive and fostering effective dialogue is not only a matter of individual well-being but also of collective safety. CRM (Crew Resource Management) emphasizes the importance of assertive communication among all crew members, making it one of the fundamental pillars for the success of aviation operations.

The Hostile Crew Member's Behaviour Is Not About You!

First of all, it is essential to remember that the behaviour of an arrogant or disrespectful person often does not reflect the value or merit of the person being

being treated that way. Such individuals may act this way due to insecurities, a need for control, or even dysfunctional patterns of interpersonal relationships.

In some cases, a colleague might be going through challenging personal moments, facing psychological problems, or even dealing with physical health issues that impact their actions. These situations do not justify or condone inappropriate behaviour but help to understand that, often, it may be more about the crew member's internal struggles than a character flaw or personality trait. Recognizing this can be an important step toward not internalizing these attacks and reducing their emotional impact.

The Role of Social Skills

Social skills are essential tools for handling conflict situations. These competencies involve knowing how to express feelings, ideas, and rights clearly and respectfully. In aviation, being assertive is particularly important to maintain a functional work environment, minimize emotional stress, and, most importantly, avoid incidents or accidents.

How to Develop and Apply Social Skills:

1. Self-Confidence and Self-Esteem

Recall your achievements and skills. Recognize your value as a professional and a human being. This strengthens your posture in challenging situations.

2. Assertive Communication

Use clear and objective phrases, such as:

"I feel uncomfortable when treated this way, as it compromises flight safety. Can we discuss this?"

This type of language avoids direct confrontation and promotes dialogue.

3. Set Boundaries

Being kind does not mean that you are accepting of disrespect. Show that you do not tolerate mistreatment, always in an educated firm manner.

"often, it may be more about the crew member's internal struggles than a character flaw or personality trait"

4. Emotional Control

In conflict situations, take a deep breath and remain calm. Reacting impulsively can worsen the conflict.

5. Strategic Empathy

Try to understand what motivates your colleague's behaviour without justifying their actions. The goal is to find a more effective way to deal with them.

Preserving Well-Being

No matter what happens, it is crucial to protect your mental health. Here are some tips to preserve your well-being:

Disconnect Outside Work:

After your shift, engage in activities that bring joy and relaxation.

Support Network:

Try Sharing your experiences with trusted individuals or seek a mentor for guidance.

Seek Professional Help:

If you feel the situation is unsustainable, speaking with a psychologist is an option.

Making Your Voice Heard

Remember: you are not alone.

The aggressor's behavior does not define who you are. Developing social skills is an effective way to protect yourself, maintain your dignity, and contribute to a healthier working environment.

If all options are exhausted or if the situation compromises flight safety, consider reporting the aggressor's behavior to leadership or HR. In work environments, respect and boundaries are rights guaranteed by law. And when this environment is an aircraft, it can make the difference between an accident and a safe operation ●

This article is dedicated to aviation professionals who, day after day, demonstrate resilience and professionalism amid human and technical challenges. Let us work together to build a more empathetic and respectful workplace.

Photo by Sipal Photography: https://www.pexels.com

The Importance of Synthetic Training & **Synthetic Occurrence Reporting** in the Royal Air Force

By RAF Safety Centre. Air Clues Issue 45.

Photographer Cpl Nicholas Egan RAF

Enhancing Safety and Operational Readiness

In the ever-evolving landscape of modern warfare, the Royal Air Force (RAF) has continually adapted to new technologies and methodologies to maintain its edge. One such advancement is the incorporation of synthetic training, which provides realistic, immersive experiences without the risks associated with live training. While synthetic training is an invaluable and increasingly important part of our training, it is equally crucial to ensure that the lessons from these environments are effectively reported and embraced by our personnel. This article delves into the significance of synthetic training, and the importance of improving reporting and learning from synthetic 'occurrences' and seeks to give some better direction on when and what to report.

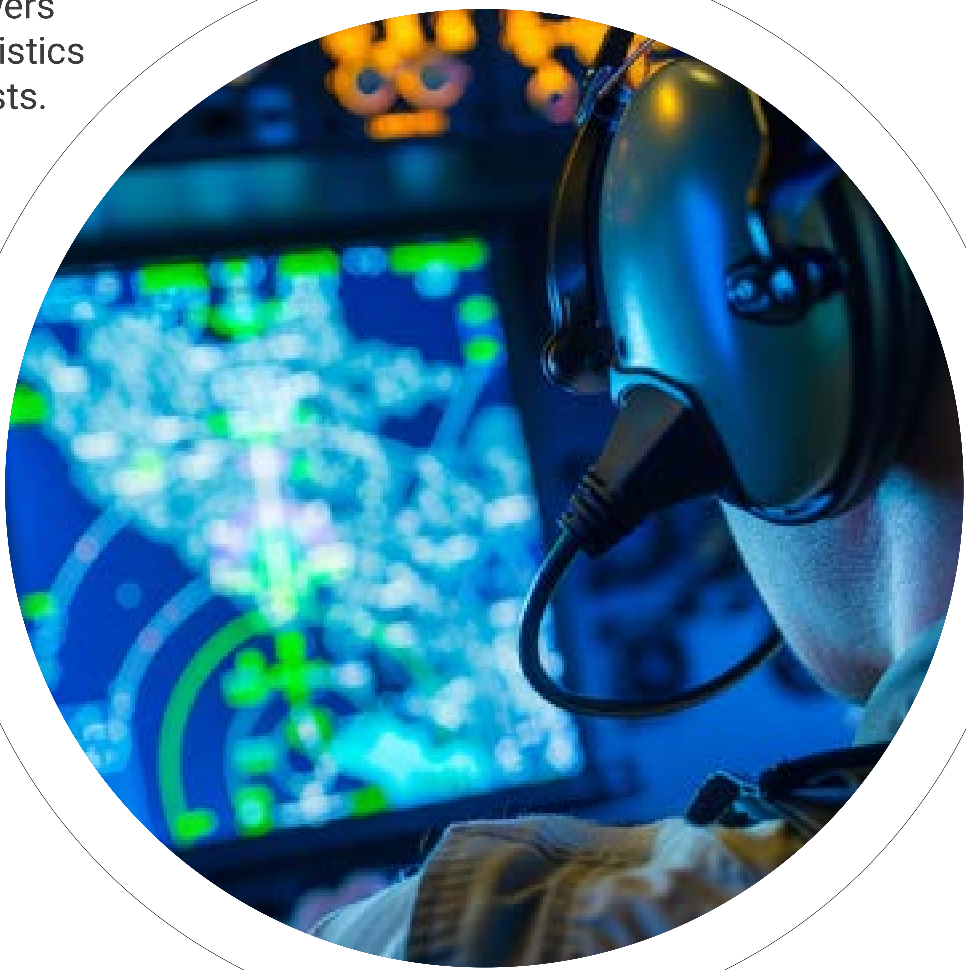
The Role of Synthetic Training and Impact on Flying Training and Operations

The RAF employs synthetic training across several aircraft types and includes Fast Jet, Multi Engine, Helicopter and Remotely Pilots Air Systems (RPAS); all with the aim to enhance the proficiency and readiness of our pilots. These simulators in their many forms can recreate realistic flight scenarios, allowing pilots to practice manoeuvres, emergency procedures and SOPs without the risks and costs associated with live flying. They enable pilots to train in immersive environments, ensuring that they can experience a wide range of situations, from routine airfield procedures to complex multi-domain combat missions. This not only improves skill retention and operational effectiveness but also supports safer, more efficient training. This is particularly beneficial for training in high-stakes situations such as combat, emergency procedures, and adverse weather conditions and significantly improves preparation for warfighting whilst on operations.

Repetition and standardisation of training is another key benefit of synthetic training. Trainees can repeatedly practice specific scenarios within a synthetic training environment without the complexities and time penalties of setting this up in the real world, enabling pilots to train repetitively until they achieve proficiency in the task. This helps ensure a standardised level of training across the RAF and within Defence.

In addition to improving the operational context, synthetic training can also be cost effective. It minimises fuel consumption, reduces wear and tear on aircraft, and lowers logistics costs.

By stock.adobe.com



If people consistently make mistakes in the simulator, then they are likely to make the same mistake in the air – a synthetic report is a free lesson where no one was at risk.

Synthetic training also aligns with the RAF's commitment to environmental sustainability by reducing flight hours, lowering carbon emissions, and decreasing noise pollution; this isn't why we do it, but it is a considerable benefit.

Now that we have covered the reasons why synthetic training is becoming more of a feature in our training and why Defence is committed to supporting it, we will review why reporting incidents that occur in this environment are invaluable in improving the safety of our live flying.

Reporting: A Key Component of Synthetic Training

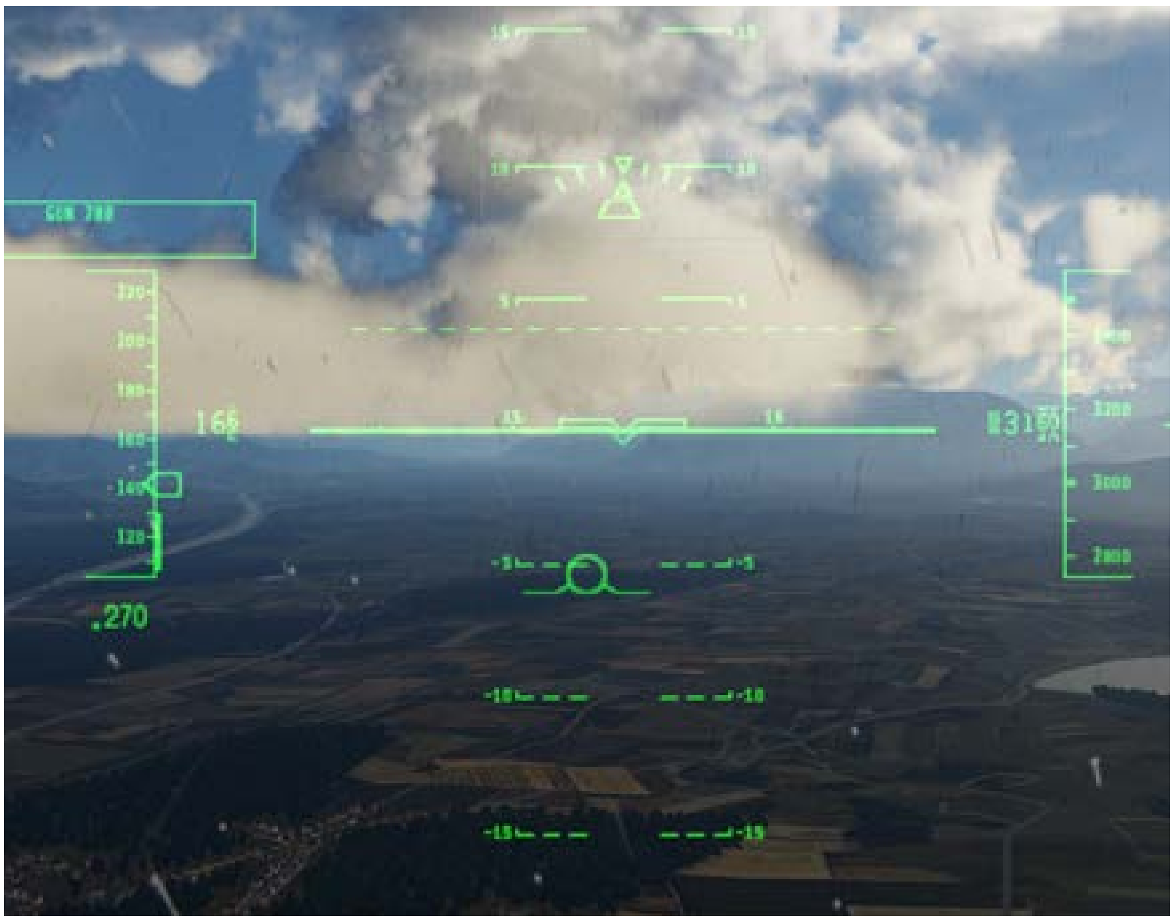
While the benefits of synthetic training are clear, its effectiveness is significantly enhanced when paired with robust incident (DASOR) reporting. Reporting from synthetic training involves documenting incidents, near-misses, and other critical observations so we can inform safety and operational protocols. However, reporting rates in synthetic environments have historically lagged behind those in live training which is something the Safety Centre is acutely aware of and the reason for this article. This gap must be addressed to fully leverage the advantages of synthetic training and ensure we make the most out of all the opportunities it offers.

Why Reporting Matters

Synthetic training now often represents the majority of training delivery. For example, the basic mission qualification for a pilot on the A400M consists of 108 hours of synthetic training and 10 hours of live flying – 91% of potential safety lessons could occur in the synthetic environment.

To make sure we utilise the full benefit of synthetic training we need to assess and pass on the lessons we generate and reflect on the lessons of others. Reporting is used to identify trends, and regular reporting helps identify patterns of errors or near-misses that may not be immediately apparent. If people consistently make mistakes in the simulator, then they are likely to make the same mistake in the air – a synthetic report is a free lesson where no one was at risk. Continuing to report omissions and mistakes that would have or could have caused an incident

We can't afford to miss the lessons where a repeat in the live environment could result in an incident or even an accident.



on a real sortie ensures that we maintain a proactive safety culture and don't lose the opportunity to learn.

As well as early identification of potential safety hazards, synthetic training reporting allows us to improve training protocols, and feedback from synthetic training reports can highlight areas where training may need adjustment or enhancement, ensuring that simulations remain as realistic and beneficial as possible.

The final and most important aspect is sharing the lessons learned. If synthetic occurrences are not reported, then the learning stays within the simulator and we have lost the opportunity to learn the lessons collectively. If we are to foster a culture of continuous improvement and collective learning, we can't ignore the free gift of synthetic reporting!

Challenges in Reporting from Synthetic Training

Despite its importance, several factors contribute to underreporting in synthetic training environments and we would like you to reflect on this. The perceived relevance of reports within the synthetic environment may not be clear and you may perceive incidents that take place in a synthetic environment as less critical or less worthy of reporting compared to those in live training. With comments such as "it's just a sim" or "I'll try that again" regularly being shared when discussing synthetic training.

Many personnel will see the errors they make inthe sim as the entire reason/point of the synthetic environment, we've probably all heard that phrase "whoops, lets reset the sim there" followed by a second attempt to fly the sortie to the correct standard. We must shift this mindset to recognise that the synthetic experience is an integral part of training and must be treated appropriately to gain the most benefit.

I think we can all agree that it is much safer to make the mistake in the sim, but this is why we are highlighting the importance of reporting what happens there. We can't afford to miss the lessons where a repeat in the live environment could result in an incident or even an accident.

A DASOR report from a Typhoon simulated tactical night sortie highlights the importance of flying the aircraft first and foremost. After the first run of the sortie was completed, the pilot turned attention to making notes on a kneeboard for the debrief rather than continuing to fly the sortie as if it were live. Upon hearing an aural warning, the pilot quickly realised there was no longer enough time to recover the simulated aircraft or eject, leading to a simulated crash. The investigation noted that this occurrence could have easily occurred in the live environment and could have ultimately led to a loss of life and aircraft. The report shows how we must all respect the synthetic environment for what it can teach us and what it can let us walk away from.

The major lesson here may be obvious, but the report also resulted in other contributory factors such as difficulty in using a touch screen to set a warning which will be used for future sim development.

Photographer: Cpl Will Drummee RAF. Copyright:UK MOD © Crown copyright 2023

Photographer: Corporal Mark Dixon.
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What to report and when?

To maximise the benefits of synthetic training, it is essential to report deviations, unexpected system behaviours, and the trainee responses that can indicate potential weaknesses in training protocols or simulator fidelity.

The first question you must ask yourself, before stepping into the simulator is, *"What am I trying to achieve in the simulated environment?".*

All of these can have real world implications in live training and operations and through robust reporting we will be in the best place to ensure safety in all contexts.

The first question you must ask yourself, before stepping into the simulator is, "What am I trying to achieve in the simulated environment?". Are you replicating a live sortie or are you using the simulator as a part-task trainer? Each scenario will have its nuances in when and what occurrences you should consider reporting. There are various scenarios – a few examples are below - but ultimately, it is up to you, the reporter, to submit what you believe is relevant and what others can gain benefit from.

If in doubt, a quick check with STANEVAL should provide clarity, strengthen the reporting culture, and improve training.

- A part task trainer and you keep on getting one aspect wrong - is it your fault (just need practice or are you new to the task?) or is it that you've identified an ergonomic or HF issue? Report the latter certainly, but no need to report the former unless you believe others would benefit from your mistakes.
- Emergency simulation - no need to report the engine fire, but if you shut down the wrong one then we absolutely need to investigate why as it could transfer to a real emergency.
- The simulator training differs from live flying experience - reporting could help improve simulator experience.

The above examples are in no way exhaustive, but we would encourage all those that are using synthetic training to reflect on their role in the reporting chain. Sharing lessons can only improve the flying training system and by submitting that near miss or SOP issue, you will give the system the opportunity to fix things for you and colleagues. Reports should be made whenever an anomaly occurs that you believe is significant or could impact future live or synthetic training. Even minor issues can uncover underlying systemic problems that might have broader implications for safety and training efficiency.

https://medialibrary.thalesgroup.com/

Improving Reporting Rates: Guidance and Best Practice

To enhance the reporting culture within synthetic training environments, the following guidance and best practice are recommended:

1. Education and Awareness

- Training Sessions: Conduct training review sessions which highlight the importance of reporting in synthetic training; seek out synthetic training reporting and review how this can impact your individual training. Instructors should emphasise how reports contribute to safety for their trainees, and how it impacts operational readiness.
- Success Stories: Share success stories where reports from synthetic training have led to significant improvements or prevented potential incidents. Share these with the Safety Centre and other units. The more lessons we share the more impact synthetic training will have.

2. Integrating Reporting into Training Culture

- Debrief Reporting: Both instructors and trainees should strive to review synthetic sorties and submit any relevant DASOR reporting post sortie and make this part of the debriefing process.
- Leadership Involvement: We must ensure that at all levels we champion the importance of synthetic reporting and considers its benefit across our training schemes.

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Its [synthetic training] full potential can only be realised through a robust reporting culture that captures and disseminates the valuable lessons learnt within these environments.

Photographer:SAC Will Drummee. Copyright: UK MOD © Crown copyright 2021

Case Studies

Rivet Joint.

During a handling check sortie for a newly qualified pilot, the instructor initiated a simulated left hydraulic system return line leak shortly after departure. This led to the rapid loss of the left hydraulic system. As part of the crew's analysis, they referenced the LANDING WITHOUT NORMAL LEFT AND/OR RIGHT HYDRAULIC SYSTEM PRESSURE checklist that has a table describing which systems have been affected. One element in this table is labelled as 'FORWARD BODY PUMPS'. Having read this the crew agreed that they could not dump fuel from the forward body tank. Although the profile was a Handling Check it was decided by the instructor to interject to correct what appeared to be a misunderstanding.

Having lost the left hydraulic system, the aircraft had lost the 'forward' pumps in each body tank rather than both the pumps in the 'forward body tank'. The incorrect assumption led to the erroneous belief that the fuel in that tank could not be used or dumped. This could affect aircraft centre of gravity management and implications for fuel calculations.

The RC-135 Digital Flight Manual (DFM) was ambiguous in its description which led to the error in interpretation. After consultation with RJ STANEVAL and the Chief Ground Instructor, it was agreed that the language used in the DFM was ambiguous and should be changed. This resulted in an amendment to the DFM to avoid future confusion interpreting the checklist during that emergency procedure.

Lightning.

At the end of a night Annual Handling Check the pilot was recovering to the airfield. A simulated engine fire resulted in engine shutdown and an attempt to fly a flameout profile to the runway. The pilot found themselves very low on energy and although the correct decision would have been to eject, they elected to stretch the glide which was unsuccessful.

It was noted during the report review that the simulator will never present the same sense of jeopardy as the experience of live flying which can lead to pushing the boundaries or 'testing' in the simulated environment. The pilot however did comment that it was a timely reminder to 'train as you would fight' and is a good example of where the simulator sortie training rules should be appropriately defined. This should make it clear when the sortie should be flown as per the live environment and when the 'safe' simulator environment can be used to explore the boundaries of the performance envelope.

Conclusion

Synthetic training is a cornerstone of modern RAF training programs and increasingly represents a significant proportion of the training experience. Its full potential can only be realised through a robust reporting culture that captures and disseminates the valuable lessons learnt within these environments. By improving reporting rates and ensuring that incidents, observations, and lessons are documented and shared, we can enhance our training protocols, bolster safety, and maintain the operational excellence that defines the Royal Air Force ●

Safety Measures for

PART 135 OPERATIONS

In July 2024 the National Transportation Safety Board (NTSB) published a Special Investigation Report, Air-24-03, detailing a comprehensive investigation into the safety concerns surrounding Part 135, commercial aircraft operators.

Part 135 has specific limitations:

On-demand operations can be conducted in airplanes that have a passenger seating configuration of 30 seats or less, a maximum payload capacity of 7500 pounds, or in any rotorcraft.

On-demand certificate holders can also conduct limited scheduled operations with the following additional restrictions:

Commuter operations may be conducted in airplanes which have a maximum passenger-seating configuration of 9 seats and a maximum payload capacity of 7500 pounds, or in any rotorcraft. Commuter operations cannot be conducted in any turbo-jet aircraft.

Photo by Thomas Petit-Roche: https://www.pexels.com

Spanning a review of 116 fatal and 460 nonfatal accidents from 2010 to 2022, the findings revealed systemic deficiencies and made recommendations to address them. Here, we explore the NTSB's safety recommendations, with real-world examples from the report.

Operational Control and Flight-Locating Issues

The NTSB highlighted operational control deficiencies in twelve accidents, which resulted in forty-five fatalities and thirteen serious injuries. For example, a 2011 medical services flight in Riverwoods, Illinois, lost engine power due to fuel exhaustion, leading to a crash that killed the pilot and two passengers. The investigation revealed inadequate preflight planning and oversight by the director of operations, who failed to ensure compliance with fuel requirements. The pilot also exceeded duty-hour limits, underscoring a lapse in operational control procedures.

In another instance, a 2016 on-demand charter flight near Angoon, Alaska, encountered poor visibility and crashed into mountainous terrain, killing the pilot and two passengers. The investigation found that the operator lacked formal systems to track real-time risks, leaving the pilot without adequate support to address rapidly changing weather conditions. To address these systemic issues, the NTSB recommended requiring certificated dispatchers to share operational responsibility with the pilot-in-command (PIC). This measure ensures rigorous preflight planning, real-time monitoring, and enhanced decision-making during flight.

Flight-locating procedures were another area of concern. Delays in search and rescue efforts due to inadequate protocols contributed to severe consequences in several cases. For instance, in 2021, a helicopter crash near Palmer, Alaska, resulted in a two-hour delay in notifying rescue teams. One surviving passenger, exposed to subzero temperatures for nearly six hours, suffered severe frostbite injuries. The NTSB emphasized the need for robust flight-locating procedures to

Flight Data Monitoring (FDM) programs are essential for identifying and addressing unsafe trends before accidents occur.

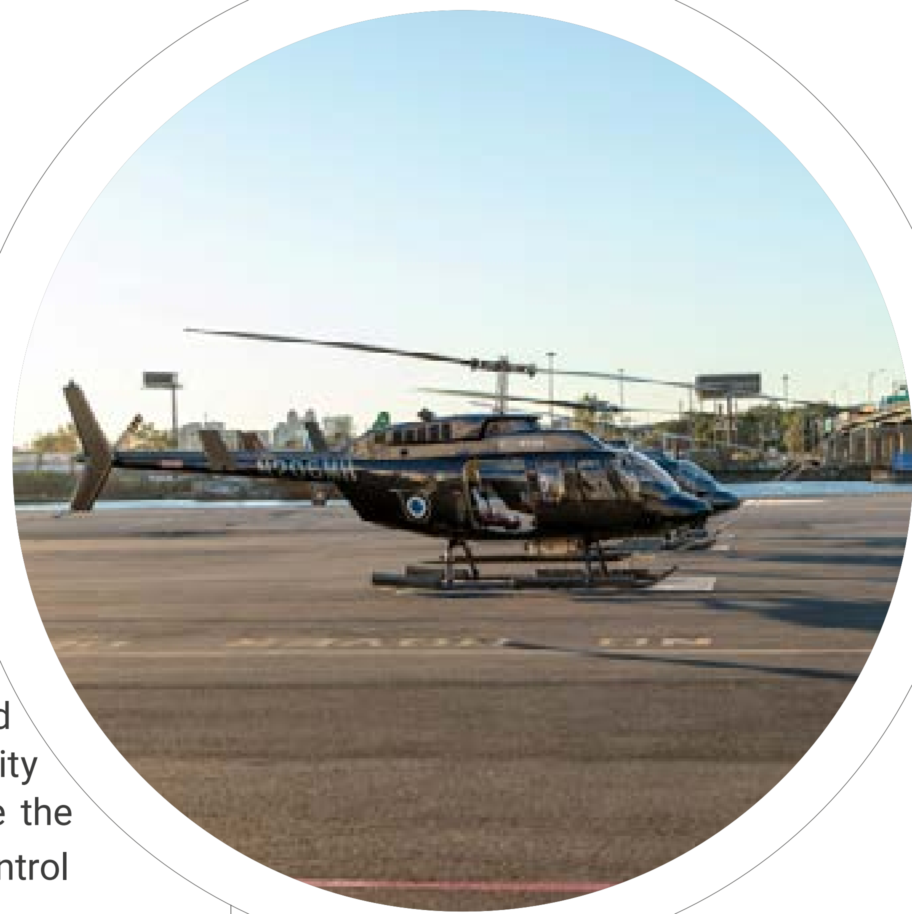

Photo by Suhail Suri: https://www.pexels.com

expedite emergency responses and improve survival outcomes.

Weight and Balance Issues

Improper aircraft loading was a recurring theme in Part 135 accidents, particularly in single-engine operations. One such case occurred in 2018 near Willow, Alaska, when a floatplane crashed shortly after take-off due to an out-of-limit weight-and-balance condition. The investigation revealed that the plane was overloaded, with its centre of gravity beyond safe limits. Despite an initial failed take-off attempt, the pilot did not offload any cargo. Similarly, a 2022 crash near Yakutat, Alaska, occurred when a single-engine aircraft stalled on final approach due to improper loading. The pilot's inability to counteract nose-up tendencies led to the accident, injuring the pilot and three passengers.

Business jets have also faced weight-and-balance-related incidents. In one notable case, a 2014 business jet accident near Akron, Ohio, was attributed to improper weight distribution and exceeding the maximum take-off weight. The crash, which killed all nine people onboard, underscored the need for accurate load manifests. Investigators found that the failure to balance passenger and luggage loads led to a centre-of-gravity imbalance that made the aircraft difficult to control during take-off.

These accidents highlight the importance of extending load manifest requirements to single-engine aircraft and ensuring strict adherence to existing regulations for larger aircraft, such as business jets. By ensuring accurate weight-and-balance calculations and proper documentation, operators can mitigate this risk. The NTSB's recommendation aims to address identified systemic operational pressures that contribute to improper aircraft loading.

Organizational Risk Management Through Safety Management Systems (SMS)

The implementation of a Safety Management System (SMS) has proven to be a cornerstone of risk mitigation in Scheduled air carrier operations. However, its adoption among Part 135 operators has been inconsistent, leaving many without formal risk assessment processes. An example is the 2018 air tour flight near Talkeetna, Alaska, which crashed into steep terrain, killing the pilot and four passengers. The operator's lack of a standardized risk assessment process meant that weather-related hazards went unchecked. Pilots were also allowed to modify routes without oversight, exacerbating the risks. A 2019 accident in Florida involved a chartered business jet that overran the runway upon landing, causing significant damage to the aircraft and injuries to passengers.

The investigation revealed inadequate preflight risk assessment and that poor communication between the flight crew and ground personnel contributed to the incident. Had an SMS been in place, the operator could have identified and mitigated these risks.

To address these issues, the NTSB recommended mandating SMS implementation for all Part 135 operators. Recognizing the diverse scope of operations, the NTSB advised scaling SMS requirements to fit the size and complexity of each operator's activities. This approach ensures that even small operators can systematically identify and mitigate risks.

Photo by Joerg Mangelsenhttps://www.pexels.com

Flight Data Monitoring (FDM) Programs

Flight Data Monitoring (FDM) programs are essential for identifying and addressing unsafe trends before accidents occur. Despite their proven effectiveness in scheduled air carriers' operations, many Part 135 operators lack such programs. A 2019 medical helicopter crash in Zaleski, Ohio, underscores this gap. The helicopter encountered instrument meteorological conditions (IMC) and crashed, killing the pilot and two medical personnel. The investigation found that the operator's risk assessment failed to account for critical weather hazards. Additionally, the lack of FDM capabilities meant that deviations from standard procedures went unnoticed.

A 2017 a Learjet at Teterboro Airport stalled on an unstable approach, the investigation found procedural non-compliances highlighting the need for enhanced monitoring systems. The investigation revealed that improper speed management during approach contributed to the incident. An effective FDM program could have provided data to identify and correct such deviations in pilot performance before they escalated into an accident.

The NTSB recommended requiring Part 135 operators to install flight recording devices and establish structured FDM programs. These tools provide operators with objective data on pilot performance and operational risks, enabling proactive safety management.

Part 135 operations face unique challenges that differ from those encountered in scheduled air carrier operations. For instance, commuter flights in remote regions like Alaska often operate in challenging weather and terrain without the infrastructure to support instrument flight rules (IFR). The 2016 Togiak, Alaska, crash illustrates these risks. A commuter flight operating under visual flight rules (VFR) collided with mountainous terrain in low-visibility conditions, killing two pilots and one passenger. The investigation found that reliance on VFR, despite adverse weather, significantly increased the risk of controlled flight into terrain.

The NTSB emphasized the need for tailored safety measures to address these unique challenges. Expanding IFR infrastructure in remote areas and implementing stricter preflight planning requirements are critical steps toward mitigating risks associated with adverse environments.

Conclusions

The NTSB's investigation underscores the need for targeted safety measures to enhance the Part 135 operations. By addressing deficiencies in operational control, dispatch, weight-and-balance management, risk assessment, flight data monitoring and scalable safety management systems the safety gap between scheduled air carriers and non-scheduled carriers can be closed

Selected Reports from CHIRP.

1 B737 flightdeck jump-seat

Report text:

The main 737 flightdeck jump-seat and centre console have been in the same position since the aircraft came to market over 50 years ago, yet the height of the average European/American person has increased around 6cm. The legroom provided is less than in the passenger cabin, and is further restricted by the centre console which goes all the way to the floor meaning you cannot put your feet under it. The seat is also poorly padded, and has a 90 degree angle between the seat and the seat back. The scale of the training operation at my airline means I will be sat on the seat on at least 6 sectors per month, as will safety pilots. Obviously changing the design of the seat would be a huge task, however there should be mitigations put in place to reduce the amount of time spent sat on it. For example rostering line checks on UK-Canaries sectors (4+hrs each way) should be avoided, and limited to flights of say 3hrs or less. The Company has no interest in introducing anything that make rostering less flexible, and takes the attitude that if the jump-seat is approved by regulators then there should be no restrictions on its use. I regularly leave the aircraft with two 'dents' in my knees where the top of the centre console has been pressing into my knees – if this was in any other workplace it would not be acceptable.

Airline comment:

CHIRP contacted the airline concerned but there was no response to our repeated requests for their perspective on extended use of B737 jump-seats.

Manufacturer specification:

With the help of our AAIB Advisory Board member, we were able to find some Boeing data from the original certification specs for the B737. Boeing's sizing for the 737 observer seats was drafted to consider occupants in the range of heights from 5ft 2" (157.5 cm) to 6ft 3" (190.5 cm) in height. We were not able to locate similar ranges for occupant weight/mass, or for other more specific sizing criteria for individual body measurements. The seat is designed to fit within the physical space available in the flight deck, with the following primary considerations:

- Physical space for occupants in the previously listed range of heights.

- Normal 16g Forward and 14g Down crash loading certification.
- Head-strike protection area for occupants in the range of heights above.

Given that certification was some time ago it is unlikely that there are more details than this. Looking at the 2020 Anthropometric data for US adults this would include around 95% of men and around 75% of women. That data is for US adults so there is no exact read across to worldwide populations, but it gives a guideline.

CAA comment:

It is for the operator to assess the use of the seat, its suitability for long periods, and what mitigations they might want to put in place. The CAA's role is to identify if they have raised it as an issue and review what, if any, mitigations they feel are appropriate.

CHIRP comment:

Our Advisory Board members had much sympathy for the reporter, with those who had operated as B737 training/supervisory pilots being particularly vocal about the discomfort of B737 jump-seats. As we all know, the B737 was designed as a short-haul aircraft probably well before cockpit ergonomics became a mainstream consideration but they're now being used for ever-longer sectors as longer-range variants are developed. Although it's perhaps unlikely that significant design changes will be made to the seats, mitigations such as better cushions or limited occupancy periods might be achievable. The potential associated musculoskeletal risks of such poor ergonomics are obvious, and there may also be long-term risks to health that should be taken into account for those who are regularly tasked to operate from these uncomfortable and awkward jump-seats for long periods of time.

It's disappointing that we couldn't get a response from the airline as to how they might mitigate longer duration flights for jump-seat occupants in the B737. CHIRP thinks that either a limit on the number of such flights being rostered over a defined period or the use of 'rest seats' in the main cabin to provide opportunities for breaks would be appropriate. There would undoubtedly be cost implications in providing alternative 'rest seats' in the cabin for jump-seat long-term occupants to take breaks in, but this should not be a barrier to recognising that the use of such seats on long sectors should probably be mitigated by appropriate periods away from the jump-seat or limiting their use to shorter sectors.

We'd be interested to hear if other B737 operators have introduced policies for extended flights using the jump-seat, contact us at mail@chirp.co.uk for the attention of Director Aviation if you have any thoughts or information.


Photo by David Guerrero: https://www.pexels.com

2 Fatigue/tiredness/use of in-seat napping

Report text:

I am increasingly concerned with the use of in-seat napping as a tool to stave off the inevitable fatigue issues the company's rostering is producing. In-seat napping is meant to be a last resort but is continuously used on day and WOCL flights in order to continue with the safe operation of the flight schedule. Two pilots operating through the WOCL is a gruelling schedule and I believe the company are not approaching the task with the greatest of safety in mind. If you look at the flight reports, I can assure you that most will have the in-seat napping check box ticked. This is becoming the norm when it should be a last resort. We do have a FRMS in place, but the reporting system is overly complicated and when you've landed it normally gets forgotten due to tiredness. The flight reports will show when in-seat napping is used though. I believe we need to move away from these 2 pilot schedules and allow the crew

Pilots are regularly sleeping for over 2 hours at a time, in seat, in one block on both the outbound and inbound sectors.

to rest correctly to ensure the safe conduct of our flights before the inevitable incident occurs due to tiredness. Pilots are regularly sleeping for over 2 hours at a time, in seat, in one block on both the outbound and inbound sectors. Not for 30mins as advised.

Company Comment:

The report was passed to our FRM Team by our Safety Team. It was noted that the reporter operates the A330, some of which do not have dedicated crew-rest facilities. These aircraft are due to be phased out in the coming years, but they do have the option to curtain off 1 to 5 business-class seats that create a class 2 rest facility for crew if needed. These seats will be used if these aircraft are used on longer trips that require IFR (In Flight Rest) to extend FDPs.

Currently the difference between rostering 2 or 3 pilots is the requirement of rest based on FDP under an approved Flight Time Limitations (FTL). However, as a result of FRM work, we also monitor double-WOCL trips with 2 pilots and one night down-route, and either restrict these to one per roster period or add a third pilot dependant on layover length. That said, Flight Crew Management have an industrial agreement soon to be implemented (timescales to be confirmed) that gives greater protections than the current CAA regulations. It is also worth noting that these agreements

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were underpinned by work achieved by the FRM department.

The relevant IR rule states that:

All flights will be assigned two operational pilots unless:

a) An extension of an FDP is required as per OMA 7.1.6.1 and then in accordance with OMA 7.1.6.4.1. In this case an additional crewmember will be rostered on the flight.

b) If the outbound or inbound sector BTRT is 9.5 hours or greater an ACM will be assigned on both the outbound and inbound flight.

In the case where an A330 is used, and until the fleet rollover of the A330-300 to the A330-900 is completed, the following variation on the above rule applies:

Instead, any 2-pilot flights on the A330, or an intermix pairing of the A330 and the A350 (SFF), where the outbound sector of 9.5 hours BTRT or greater, will be rostered two local nights free of duty at destination if the flight arrives at the destination after 00:00 UK time.

In reference to the CRR statistics, FRM do monitor this and are able to pull data supplied to us by the Pilots on the Flight reports. It can also be noted that there is potential to add further fields to the flight report that will allow FRM to ask questions more specific to fatigue. This is yet to be agreed but ideas are Karolinska Sleep Scale (KSS) score at TOD, CRR and CRR length. These questions are asked in our FCAFs but as the reporter says, the old forms have become troublesome to complete. This is not necessarily due to the design but more to do with a recent update issue that will be hopefully resolved soon. We appreciate that filling in extra forms after a long flight is not ideal, hence why we are looking at incorporating some FRM questions into the flight report and only asking for extra, confidential, voluntary information if the reporter scores themselves highly on the KSS. We have already achieved something similar with our Cabin Crew and we are receiving reporting rates close to 70%. If agreed, we hope to implement this by the middle of 2025 however, with the data we receive from the flight reports, we see that 36% of our pilots report taking CRR on all flights and, when isolating the A333 these numbers increase to 37%.

We hope to implement this by the end of the year [2024] but, until then, we can only draw on the FCAFs we have received. If we take a closer look at the data, we currently have a reporting rate of 9% (YTD to Oct) for our Flight Crew and from that snapshot we see that 56% of our pilots report taking CRR on all flights. Of that 56%, only 6% suggested they took longer than an hour by selecting the "other" field under time taken in CRR. There is no field for multiple occurrences, but this is something we have addressed in the new FCAF form mentioned above. When isolating the A333 these numbers are very similar at 56% and 7% but this of course relies on the user inputting the details correctly. With that in mind, and according to the data our pilot's supply, we can see that just over half our pilots take CRR and approximately 4% potentially take more that 1hrs CRR.

As to what we have in our Ops Manuals regarding CRR, we have several references and, to summarise, our procedures suggest this is not a last resort option and it does not state that multiple uses of CRR cannot be utilised.

Photo by Ricky Esquivel: https://www.pexels.com

CHIRP Comment:

In-seat napping (more correctly referred to as Controlled Rest (CR)) appears to be becoming a prevalent practice due to some rosters pushing the boundaries of FTL/FDP and reluctance to roster 3 crew for transatlantic flights. CR had originally been intended as an occasional short-duration relief for crews, but it now appears to be becoming more widespread in its use. Current CAA guidance material is contained within GM1 CAT.OP.MPA.210 'Crew members at stations' and, at para (6), allows crew members to take more than one period of CR in a flight if necessary, subject to restrictions. CHIRP has commented before on this issue (see ATFB149 Editorial for our most recent comments) and, as we commented there, although we acknowledge that multiple use of CR during a flight can be acceptable (as long as it is used properly), it must be carefully planned not only to ensure that not too much sleep is taken in one go (which, despite the temptation to sleep for extended periods, can result in increased drowsiness on waking), but also so that sufficient recovery time from the nap is factored in so that individuals are suitably alert and free from 'sleep inertia' before demanding, high-workload tasks are performed.

As noted elsewhere, the CAA have commenced an overall review of FTL regulations and we strongly support the inclusion of more guidance on the use of CR within this review. This would also usefully consider the long-term medical implications of fatigue and

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'napping'. As people age, some cope less well with fatigue and disruption to their circadian rhythm, so this should also be considered in fatigue management terms. The review should also consider the introduction of standardised ways of measuring alertness for fatiguing flights and after the use of CR so that comparative assessments of alertness can be made across the industry for sleepiness statistics. In the short term, crews are encouraged to keep on reporting fatigue issues and the use of CR so that data is accumulated to promote changes.

> ...multiple use of CR during a flight can be acceptable (as long as it is used properly), it must be carefully planned not only to ensure that not too much sleep is taken in one go...

3 Aircraft flown twice with open Tech Log defects

Report text:

I raised a safety report within our company's SMS after an aircraft was flown twice with open Tech Log defect entries. As this was an incident involving 2 sets of flight crews, the report was handed over to the CAMO Safety team for investigation. Subsequent action from the CAMO Safety team was to ask both crews of their recollections of the event. Following on from this, the CAMO Safety team have not addressed any of the issues these events brought forward: a) a cultural lack of awareness and bad practice from both sets of crews admitting not to normally check the Tech Log for open entries; b) an assumption that a manned base would have corrected any defects; c) a lack of recognition to the potential dangers of flying with open Tech Log entries by not carrying out any remedial action to raise awareness; and d) a lack of any response other than showing they asked the crew for their perspectives. There is also evidence to show an historic lack of confidence in the CAMO safety team coming from the Part-145 Safety Manager because previous issues seem to not be actioned.

Operator Comment:

Thank you very much to the reporter for submitting their concerns. As an airline, we take pride in ensuring every report is processed, categorised, and risk assessed before they are shared with the relevant stakeholders and investigated or closed for trending as required. Reports are handled in accordance with our Just Culture, and those that are investigated focus on the systemic aspects as we believe errors and mistakes are a symptom rather than a cause.

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On this occasion, we accept that the report could have been investigated further. This was missed due to a number of factors, including but not limited to the volume of reports we receive, requiring a level of prioritisation. Administrative changes have been taking place, while risk assessed accordingly, still increased the likelihood of mistakes.

Having said that, defect status management by flight crew is an issue that was identified as a trend by our SMS and, as a result, addressed as a wider organisational concern. It has been discussed at key safety meetings such as Safety Action Group and Safety Review Board and a dedicated Operations Notice will be published to the crew community in the next few weeks. This has highlighted a gap in the way we provide feedback to our contracted services also, which we are looking to address.

We would like to encourage all colleagues to continue to report safety occurrences, hazards, near misses and safety concerns.

CHIRP Comment:

Quite apart from the report's subject matter and the issue of why the Tech Log had open defects in the first place, this is not the first organisation to recently admit to experiencing issues in their respective safety departments. It may be that the shortcomings on the Ramp or Hangar floor are becoming the norm, but perhaps support departments are still, or suddenly, also feeling the squeeze.

Operating an aircraft without consulting the Tech Log concerns us. Engineers must consult the Tech Log prior to carrying out many tasks: applying Ground Power, starting an APU, applying hydraulics, commencing fuelling, and most certainly prior to starting an engine (plus a full sweep of the panel) for example.

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How prepared were the flight crew if they were unaware of open and/or carried forward items (especially those that require operational action (O))? Not to mention any Line Maintenance that might have taken place on the turnround (chip-plugs for example). We assume that this was a paper-based Tech Log rather than the increasingly common electronic versions because the crew would not have been able to accept the aircraft without acknowledging the electronic Tech Log, and the engineers would not have been able to hand the aircraft to the crews with open entries.

One question is what human factors issues were at work? The Dirty Dozen would point us towards complacency! Why was that the case? Is it 'familiarity breeds contempt'? Flight crew walk-rounds concerned many engineers when they were introduced several years ago. There have been cases where flight crew who were expected to do their own walk-round never even left the flight deck. More accurate to describe such activities as heedless rather than complacent one might think.

The importance of the Tech Log and ensuring that it has been properly checked cannot be overstated; it is not something that should be taken for granted or paid lip-service to. It has been the case where an aircraft arrived at an outstation and it came to notice of someone in the organisation that the aircraft had departed with another registration's Tech Log. Not only does this raise questions as to lack of awareness about the state of the aircraft concerned, but there are enormous legal ramifications as an illegal operation with potentially invalid insurance had something gone wrong; the potential consequences of which are unimaginable.

CHIRP have received a number of reports recently from flight and cabin crew where reporting times have been reduced, even to the point of preflight briefings being carried out on the moving crew bus. Whilst not suggesting for a moment these pressures were taking place in this report, could time pressure be a causal factor for why two separate crews did not look at the Tech Log?

4 Flights in conflict zones

Report text:

After my duty on [date], I received a duty change notification for the next day to operate [Base to Amman]. After my last Amman (AMM) flight, I was worried/stressed about the safety to operate again into AMM. When I operated AMM on [date], after landing back in [Base] I found out there had been a Hezbollah attack with Falcq rockets just north of the route I had just flown over. This caused serious stress to my wife and family when I was enroute. Afterwards I was surprised how I was not informed about serious incidents like this while I was operating very nearby.

So when I was informed I would need to operate to AMM again, I was seriously stressed. As of [date], Israel has deployed military operations on the Western Jordan bank with aerial bombardments and ground attacks. Our normal arrival route into AMM overflies the Western Bank north of Jerusalem at 10000'. GPS jamming and spoofing add an additional threat to situational awareness and the aircrafts actual navigation/ position.

I contacted [Company] crew control explaining the situation and requesting to operate any other duty than the AMM duty. Or, if a detour via Egypt would be available, I would be happy to operate around Israeli airspace. Crew control advised they cannot give me information about the routing, and advised me to contact the duty pilot. On the phone with the duty pilot, he advised me they are constantly monitoring the situation and assuring the safest route. He explained the routing via Egypt might not be possible due military activity in the south near the Red Sea, so overflying Israel might be the safest option for the moment. He informed me [Company] flights to Tel Aviv are currently cancelled. He understood my concerns about the safety. He couldn't give any more information than that.

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Further I raised the fact there is zero information available to [Company] flight crew towards current no fly zones, military actions, safe altitudes, emergency routings, loss of comm procedures, contingency procedures when approaching Israel or overhead Israel in case of aerial activity etc. I contacted crew control again to advise I was seriously worried about the safety on the AMM flight, and I was not able to guarantee safety to passengers and crew operating into AMM. Operating any other duty would have been fine, but crew control advised me they understood my position but had to assign me an UA/A (unauthorised absence). This UA/A is a serious threat into pressuring/intimidating pilots to operate into or overhead an active war zone. Gathering information to ensure safety of the flights we operate is something we do every single day (weather, NOTAMs, defects etc), but, as stated above, there is no situational information available to pilots operating into AMM/TLV. I operated into AMM before, both around Egypt and over Israel, and I experienced the difficulties of operating in that region. My decision as a commander not to operate into AMM on this day was made after gathering all the (very limited) information available to me. As a commander am legally responsible for the safety of the aircraft, crew and passengers onboard. [Company] is interfering in this decision-making process and forcing commanders to take legal responsibility of flying over an active warzone without providing extensive information by assigning unauthorised absence and a disciplinary hearing.

Photo by asim alnamat: https://www.pexels.com

DfT Comments:

DfT is responsible for providing advice to UK registered aircraft operating in overseas airspace where there are risks linked to ongoing conflict. It is a host state responsibility to issue warnings of potential risks to civil aviation operations but, where this is not done, the UK will issue its own advice. This is done through issuing NOTAMs. The UK follows a three-tiered approach to NOTAMs as follows:

Level 1 (Advisory)

The lowest level of advice and highlights concerns for airlines to consider in their own risk assessments.

Level 2 (Recommendation)

Recommends airlines do not operate either below a certain altitude, or at all, over specific airspace.

Level 3 (Legal Prohibition)

The NOTAM is accompanied by a legal Direction under the Aviation Security Act to UK airlines, making it an offence to enter certain airspace.

DfT-issued NOTAMs only apply to UK airlines and UK registered aircraft and HMG has no ability to require airlines registered in other countries which may be carrying UK nationals to avoid using particular airspace.

Aside from a Level 3 NOTAM, which utilizes legal powers, it is ultimately down to individual airlines to decide if they will operate or not based on their own internal risk assessments, however going against formal HMG advice may impact on their liability and insurance should an incident occur. Industry will (and do) take operational decisions on pausing flights where they judge the risk has reached their threshold. Different airlines have different thresholds. DfT remains in regular contact with UK airlines operating in the wider region. This includes: ongoing bilateral engagement with individual carriers on route-specific queries; bi-annual "all carriers" meetings on overflights risks (including a threat briefing at SECRET from UK intelligence partners); and ad hoc "all carriers" meetings in response to developing events (a crisis response mechanism). All of the major UK air carriers have security cleared staff within their security departments who are able to be briefed by appropriate HMG partners.

Internationally, DfT represents the UK in a number of expert forums including the Safer Skies Consultative Committee (SSCC) and the Expert Group on Risk Identification for Conflict Zones (EGRICZ) which bring together states-level experts in this area to develop best practice and guidance in this area; EGRICZ also has a coordination function in a crisis to try and align state responses where possible. DfT also works closely on a bilateral basis with key like-minded partners including the 5Eyes as well as France, Germany and EASA amongst others.

Photo by Lara Jameson: https://www.pexels.com

DfT assesses the level of threat to civil aviation in overseas airspace in line with ICAO guidance (Doc 10084, 3rdedition, published October 2023). This is informed by information from the Joint Terrorism Analysis Centre (JTAC) and Defence Intelligence on state-based capabilities. There is a rolling programme of assessments for those areas where DfT has existing airspace advice, ensuring advice does not remain in place when it is not required. For fast developing situations (e.g. Sudan, Israel/Hamas) DfT uses fast-time reporting from HMG and open-sources to make an initial assessment of the situation and issue relevant advice which is then refined as more information and considered assessments become available.

CHIRP Comments:

This is a very topical report relating to activities in the Middle East that are fluid and where airspace activities and threats can be uncertain. However, whilst an individual may have valid concerns, it is unlikely that they will have sufficient information with which to make definitive real-time judgements and so they have to rely on companies and government agencies to make assessments about the safety of specific airspace areas.

The issue of flights in conflict zones is one that CHIRP has previously discussed and the response we have received from the CAA is that there are intelligence assessment methods that are discussed between airlines and DfT/CAA in order to determine the risk at any given time. Furthermore, the airline insurance industry also reviews such conflict risks on a daily basis and instructs their airline customers accordingly as to which airspace areas they can or cannot operate in.

As noted in Air Transport FEEDBACK Edition 152 and their comments above, DfT provide the conduit for airspace threat assessments based on various intelligence feeds and, although we can understand personal concerns and agree that it is always healthy to ask appropriate questions of the company as to what assessments have been made, ultimately, when assured that a process had been conducted, then the captain of an aircraft (or other vessel) must operate within the associated company constraints rather than second-guess such assessments based on open-source media that may or may not be an accurate reflection of what is really going on. It is likely that insurers would be the most cautious in this respect and would advise companies when they could or could not fly in specific airspaces.

...they [companies] ought to communicate clearly to their crews what processes and risk assessments are in place to review airspace use...

Companies will not casually put aircraft, crews and passengers at risk due to safety and reputational risk. Whilst captains are of course responsible for the safety of the flight, this does not extend to refusing to operate when a rational explanation has been given as to the threat assessment based on robust intelligence assessment processes carried out at State level through Security Services, DfT and the companies themselves. Of course, once operating, if captains became aware of threats as they are actually approaching conflict airspace (either visually or from other sources such as ATC or other aircraft) then, if they cannot get advice from their company in a timely manner (for example through ACARS), they would have to make a decision themselves as to whether it was appropriate to continue into that airspace rather than just blindly carrying on.

But the company ought to at least reassure captains that they have applied due process and, whilst we wouldn't necessarily expect the company to be specific about what is discussed within their threat assessments, they ought to communicate clearly to their crews what processes and risk assessments are in place to review airspace use, and when that was last conducted in relation to the flight; it seems that this was not initially done in an effective manner in the case of this report.

Photo by Melike B: https://www.pexels.com

5 Report time pressures

Report text:

For aircrew using [Location] Airport, the use of the Staff Car Park is the parking option. This is meant to provide a bus service to the airport every 10 minutes. However, after repeatedly being told that all issues are being dealt with, this service runs consistently every 15 minutes at peak morning/ 1st wave times. Not a major problem ordinarily, this however reduces the hourly capacity. As such, many busses leave once full as overcrowding can be a major issue. This leaves aircrew feeling pressure to arrive at the car park very early (first thing in the morning) to ensure they can actually get on a bus to the airport. Alternatively, arrive appropriately with a bus time in mind and this will lead to a high chance of arriving at the airport late, putting pressure on crew once again. The problems with [Location] Airport's bus provision is well known and being going on for far too long.

Airport comment:

The staff bus service operates on a 10-minute frequency and, since April 2024, has operated at 93% frequency rate. Since mid-August 2024 this has increased to 96%. This means that only 4% of journeys made have been outside of the 10-minute frequency. Bi-weekly / monthly (depending on airline) catch-ups are held with the airlines regarding the performance / concerns of staff bus routes and there have been very little to no concerns over the last 3-4 months. Where there are delays to the staff bus, caused by absence, communication is issued via the airport app informing all airport users that the bus will reduce to a 15-minute service and will specify times.

CHIRP Comment:

The issue of transportation from the staff car parks at this Airport is a topic that we've discussed before at CHIRP, but more in the context of how the airlines should cope with it. Recognising the burden that this puts on individual crew members, we have previously urged the airlines to bear down on the airport management because it was in their interests to do so to avoid delays in flights departing.

Photo by Aman Uttam: https://www.pexels.com

...aircrew feel pressure to arrive at the car park very early (first thing in the morning) to ensure they can actually get on a bus to the airport.

The Airport's response suggests that buses are operating at a good frequency but that doesn't help those who fall into the periods where reliability may not be so robust or the buses might regularly be full even if they are on time. That any delays or interruptions in service will be published on the Airport App is useful, but we wonder how timely this is (bearing in mind commuting times for crews leaving home), how many crews will have this App anyway, or how many crews published on the Airport App is useful, but we wonder how timely this is (bearing in mind commuting times for crews leaving home), how many crews will have this App anyway, or how many crews will have the time to access it before they leave home. The reporter indicates that the problem is recurring and worse than the statistics might indicate. It is not CHIRP's place to second-guess the information we've received, but the impact of delays on reporting times and associated FTL calculations should not be underestimated.

Unfortunately, the burden of coping with bus problems falls wholly onto the crews because such delays occur before the report point and their remit is to get to the report point on time (which is where FTL calculations will start). If crews are having to arrive at the Airport staff parking well in excess of what would be a reasonable expectation because of uncertainties in bus services, then it is their notional FTL rest time that is lost. The alternative of arriving on time at the car park but then late at the report point will attract unwelcome attention from airline management. One would hope that the airlines would express any concerns to the Airport during the weekly/monthly 'catch-ups', but it may be that the airlines are not aware of the problem, and so we would encourage all crews who are affected by bus service problems to report them to their line management so that they can make representations to the airport

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