ARG/US®

PRISM

A member of the SGS Group

FIXED WING NEWSLETTER

April 2024 | Volume XXIV | Issue IV

SAFETYWIRE

Just Forget Safety Management System

(Source: Aviation Week, Robert Sumwalt February 29, 2024)

In November 2015, a chartered Hawker 700 stalled and crashed while on a non-precision approach to Akron, Ohio. The two pilots and the seven paying passengers were killed. NTSB determined the probable cause was “the flight crew’s mismanagement of the approach and multiple deviations from company standard operating procedures, which placed the airplane in an unsafe situation.” The safety agency also identified the operator’s “casual attitude toward compliance with standards; its inadequate hiring, training and operational oversight of the flight crew; [and] the company’s lack of a formal safety program.”

The NTSB, which I was part of at the time, noted that the operator did not have a Safety Management System (SMS). In citing the critical role that SMS can play, we wrote that SMS “has been recognized in the industry as an effective way to establish and reinforce a positive safety culture and identify deviations from [standard operating procedures] so that they can be corrected.” We concluded that SMS could benefit all Part 135 operators because they require the operators to incorporate formal system safety methods into their internal oversight programs. With that, NTSB recommended that FAA require all Part 135 operators to establish SMS. We reiterated that recommendation following seven other Part 135 crashes, which claimed 39 fatalities. We even placed the issue on our Most Wanted List. Congress apparently agreed with the our stance and, in 2020, mandated that FAA initiate rulemaking for Part 135 operators.

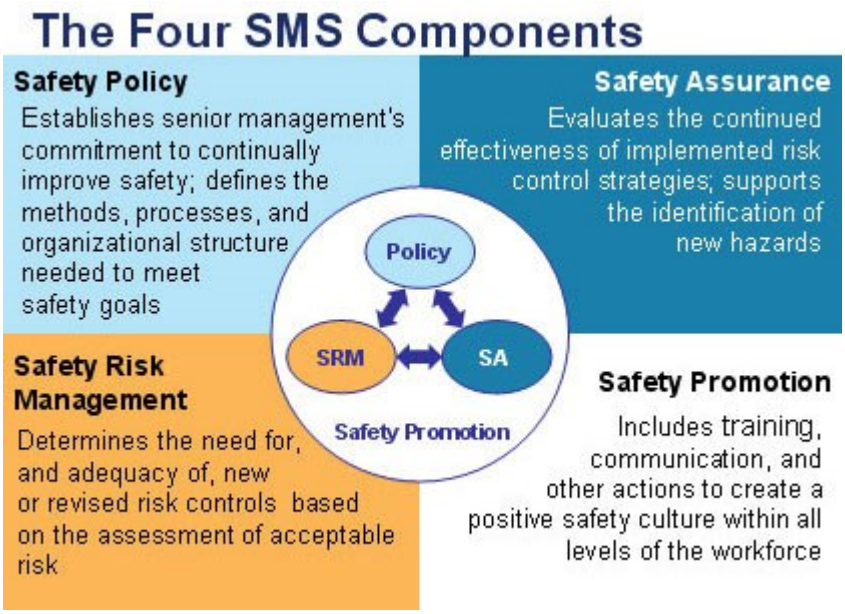
6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111
+1 513.852.5110
+1 800.361.2216
argus.sales@argus.aero

In response, last year the FAA issued the long-awaited notice of proposed rulemaking (NPRM). Since then, there has been a great deal of hand-wringing and complaining about what some view as an overburdensome requirement. Of course, this is only the proposed rule, and what the final rule will contain, or when it will be issued, is anyone's guess. By government rulemaking practices, the public is invited to comment on the proposed rule, via a Notice of Proposed Rulemaking (NPRM). Before a final rule is enacted, the FAA must consider these comments and explain how it addressed them.

Many of the comments I have read are supportive, but some among the 200 total writers remarked on suggested changes for the final rule. I also ran across some interesting comments, such as one that referred to an "onerous task of implementing a Safety Management System and all the administrative functions that come with such a program." Another referred to "FAA's over-regulation [that] smothers more and more small operators." That commenter ended with, "When does it stop—when we all go out of business?"

For those who feel that SMS is onerous or over-regulation, here's my advice: Just forget SMS.

Instead, think of it this way: The things that are part of a fully functioning SMS are the very things a professionally run aviation provider should be doing in the first place. Yes, you need a safety policy. Yes, a professional flight department should be assessing risks and mitigating those that are unacceptable. Yes, there should be safety assurance to verify that risk controls are effective. And, yes, the organization should strive to have a positive safety culture and actively practice safety promotion. Each of these components is a prescribed ingredient of SMS.



The late Don Arendt of FAA once told me that perhaps we should change the name of the Safety Management System to simply Safety Management. Don's point was ingenious: The term Safety Management System makes people think the SMS is something they have or want. Safety Management, on the other hand, implies the active management of safety.

6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111
+1 513.852.5110
+1 800.361.2216
argus.sales@argus.aero

SMS provides a businesslike framework for actively managing safety. Consider the business approach that organizations use for managing their finances: They have a chief financial officer. Their financial accounting is in line with generally accepted accounting principles. They conduct internal and external audits. They report irregularities before they become major issues. Why do they do these things? Because finances are important to them. By the same line of reasoning, if safety is important, should not safety be managed by a similar process? SMS provides that very process.

Whatever you call it, a professional flight department does the things associated with having an SMS, regardless of whatever they call it. It is about doing the right things for those who rely on your company to provide the safe service for which they are paying. Why would you want to do anything less? As aptly stated in the NPRM: “As a fundamental matter, the flying public expects safe carriage from operators offering flight services for hire. Irrespective of whether an operator employs one pilot or a thousand, that company has the same responsibility to conduct safe operations.”

My biggest concern with mandating SMS is that some organizations will simply buy an off-the-shelf product to show compliance. Although consultants can be helpful in assisting to develop an SMS, the system needs to be customized for the organization. As acknowledged in one NPRM comment: “A properly functioning Safety Management System can be a tremendous benefit to all the stakeholders, but merely satisfying regulatory requirements is not good business for either FAA or industry.”

SMS needs to be scalable to fit the size of the organization. Certainly, the SMS for a two-aircraft Part 135 operator does not need to be the same as NetJets’ safety system. Even the FAA’s advisory circular on SMS (AC 120.92B) states, “An SMS does not have to be an extensive, expensive or sophisticated array of techniques to do what it is supposed to do.”

Documentation and record-keeping are key components of SMS. I once ran a small Fortune 500 flight department with two aircraft. We started the SMS journey by writing down the manner in which we intended to operate. This evolved into a flight operations manual that included our safety policy. It was jointly signed by the CEO and myself, as the aviation department manager. This satisfied the SMS safety policy requirement.

6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111
+1 513.852.5110
+1 800.361.2216
argus.sales@argus.aero

Before I arrived, corporate management would say they wanted to go to a certain town, and the pilots would dutifully comply. If there was an airport, they went. But, over time, we realized we were just blindly accepting risks. If you are going to accept risks, at least know what you are accepting. So, we changed. Before agreeing to go to a new airport or implementing a new procedure, we did our best to identify the potential hazards, followed by assessing the level of risk associated with those hazards. For those that were above our comfort level, we took measures to mitigate the risks. In SMS vernacular, that is the safety risk management component of SMS. The process provided us with quantitative information we could take to senior leadership to explain our decision-making. Instead of pushing back, they appreciated that we were looking out for their safety by taking a risk-based approach to decision-making.

Safety assurance means, among other things, making sure you are following your processes and that the risk-management controls you have implemented are effective. It also involves data collection and analysis to seek out anything of safety significance. Sources of data may include reports submitted to the company incident-reporting system, flight dispatch logs and crew duty records. For a small flight department, “most of the data/information-gathering for monitoring of operational processes will likely occur as a normal business process by the management personnel who are directly involved in the day-to-day operations,” states FAA AC 120.92B. Safety assurance also involves continuous improvement. When safety deficiencies are identified, they must be corrected.

The final element of SMS—safety promotion—involves cultivating a positive safety culture. It also necessitates effective communications. In addition to clearly communicating safety hazards, FAA states safety communications may be something as simple as periodic safety meetings and posting information on bulletin boards.

Some of these requirements may sound onerous. If you do not like the term SMS, just forget it. However, do not forget that the things that are associated with SMS are the things that a good flight department should be doing in the first place. It is about ensuring you are providing the highest levels of safety for those who are paying for your services. Now that is something not to forget.

Robert Sumwalt

Robert Sumwalt, who writes BCA's Impact column, is executive director for the Boeing Center for Aviation and Aerospace Safety at Embry-Riddle...

6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111

+1 513.852.5110
+1 800.361.2216

argus.sales@argus.aero

How BizAv Pilots Can Mitigate Altitude Deviations at Non-US Airports

(Source: Business Aviation Insider; March/April, 2024)

Non-U.S. airports sometimes introduce different risks for operators, resulting in pilot altitude deviations from ATC flight clearance – also known as level busts.

What makes some airports so challenging and how can pilots mitigate the risk of a dangerous level bust or other deviation?

Ireland's Shannon International Airport (SNN) is a particular hot spot for level busts, considered to be a deviation of 300 feet or more from ATC clearance. Jonathan Byrne, operations manager at AirNav Ireland, said that North American-registered business jets account for 30% of the total approaches to SNN, and most of the level busts on approach.

This type of error is not limited to SNN; however, the common use of the airport as an entry point to Europe results in a high number of deviations occurring at that facility. That said, best practices offered by Byrne and other experts are relevant for airports around the world.

6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111

+1 513.852.5110
+1 800.361.2216

argus.sales@argus.aero

In the table below, 2020 and 2021 are excluded, as the global pandemic resulted in relatively fewer operations. It's important to note that while the number of deviations in 2022 and 2023 were lower than 2019 and previous years, Byrne reported they are still significantly higher than the norm.

Level Busts on Approach at EINN

YEAR	TOTAL	NORTH AMERICAN BUSINESS JETS	U.S. MILITARY	OTHER
2018	18	12	4	2
2019	22	11	4	7
2022	11	7	3	1
2023	13	10	2	1
2024 (Jan.–Feb.)	1	–	–	1

Source: AirNav Ireland

Possible Causes Behind Level Busts

Byrne suggested the primary causes for these level busts are delayed change – or failure to change – from inches of mercury (hg) to hectopascals (hPa) and untimely change – or failure to change – to local QNH, which is the barometric altimeter setting that causes an altimeter to read airfield elevation above mean sea level when on the airfield.

A related cause is the significant difference in transition altitude, which is 18,000 feet in the U.S. but 5,000 feet at SNN.

Of the 24 occurrences in 2022 and 2023, AirNav Ireland confirmed 13 were due to incorrect altimeter settings. In three occurrences, the pilot reported autopilot issues. In two occurrences, the pilot reported deviations due to weather conditions, and the remaining six were self-reported "pilot error," which were likely incorrect pressure settings.

Specific Level Bust Examples

Shawn Scott, co-founder of Scott IPC, shared an April 2019 scenario in which a business jet came within 2 nm and 500 feet of high terrain while on approach to Runway 24 at SNN. When cleared to 3,000 feet on QNH of 0988 hPa, the aircraft descended to 2,300 feet.

6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111
+1 513.852.5110
+1 800.361.2216
argus.sales@argus.aero

Scott's team of expert analysts determined the likely causal factors to be failure to switch to local QNH of 0988 hPa, as standard QNH is 1013.2 hPa, a difference of 750 feet; or a entering a setting of 29.88 hg instead of 0988 hPa, a difference of 720 feet.

A similar event occurred in 2022, when a U.S.-registered business jet was cleared to 4,000 feet on a QNH of 0987 hPA on approach to Runway 24 at EINN. The flight crew incorrectly set the altimeter to 29.87 hg, a difference of 720 feet, so while the altimeter indicated 4,000 feet, the aircraft was at 3,300 feet.

Suggested Standard Operating Procedures

Experts agree implementation of effective standard operating procedures (SOP) are the key to mitigating the risk of errors on approach at non-U.S. airports.

These SOPs should include:

- Changing to hPa prior to entering controlled airspace.
- Use of challenge and response procedures between the pilot monitoring and pilot flying.
- Reminders of the difference between U.S. and European transition levels.
- Completing full readback, including unit of measurement (i.e., hPa), when issued QNH by ATC.
- Verifying unit of measurement when issued a clearance by looking at the altimeter.
- Notifying ATC immediately of any error or delay in proper altimeter settings.

Beware of ATC Hear-Back Errors

"To reduce the chance of ATC missing an incorrect read-back, if there is any misunderstanding, a question between crewmembers, or you're not sure you heard the full clearance, don't repeat what you think you heard," Scott advised. "Ask ATC to repeat the full clearance and then read back the full clearance, including the unit of measurement for the altimeter setting."

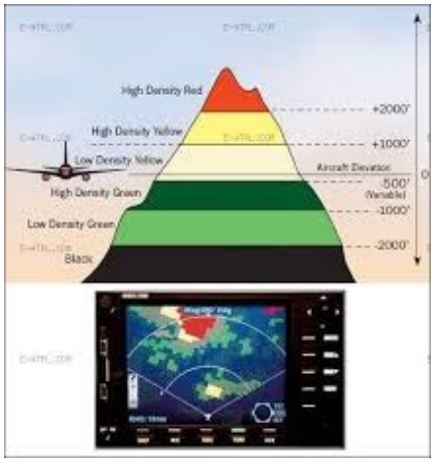
Scott said this will reduce the number of ATC hear-back errors. The crew may still make an error reading back, but by asking ATC to repeat the clearance, ATC will realize the clearance was not understood or well received in some way. This will naturally make ATC pay closer attention to your read-back. In some locations, ATC may ask the crew to not read back and just listen. Scott said this is unacceptable. ICAO requires that if the clearance is safety related, it must be read back.

6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111
+1 513.852.5110
+1 800.361.2216
argus.sales@argus.aero

Scott also suggested paying close attention to the individual country's aeronautical information publication or airfield requirements as to setting QNH on the descent. In the case of the UK and Ireland, that procedure differs from the standard ICAO requirement of changing when descending through the transition level as the transition levels are so low and very close to the approach altitudes.

They want operators to change to QNH after receiving the clearance to an altitude for an approach. In one case an operator waited to switch until they arrived at the cleared altitude with QNE set. When they switched to QNH they were immediately 400 feet low and earned a level bust.

"Probably the No. 1 issue in Irish airspace and the UK is when to set the altimeter on descent because transition altitudes levels are very low," said Scott.



Transition altitudes in the UK and Europe can be as low as 5,000 feet, and with the transition levels published to only provide a transition layer of 1,000 feet or so, that may be problematic if the crew is behind the situation.

Pilots can also use their aircraft Ground Proximity Warning System or Terrain Avoidance Warning System Class A with simple terrain mapping displayed to maintain better situational awareness or program the flight management system to the correct transponder setting.

SNN presents a bit of a perfect storm, with lower than typical transition altitudes, a change in altitude unit of measurement and even its place in the flight sequence: at the end of a long trans-Atlantic flight.

Fatigue Guidance and Software Upgrades

Pilot fatigue is also often associated with level busts. To mitigate the risk of a fatigue-related deviation, pilots and operators should work together to implement science-based fatigue risk management strategies, including limitations on duty time, required rest periods that account for time zone crossings and even strategic inflight use of caffeine.

In addition to pilots properly implementing SOPs, air traffic control is doing its part to mitigate the impact of a level bust. Byrne explained SNN will undergo a software upgrade in 2025, which will alert ATC that an aircraft has an incorrect pressure setting.

6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111

+1 513.852.5110
+1 800.361.2216

argus.sales@argus.aero

“This software upgrade will greatly enhance our ability to prevent level busts and more importantly [controlled flight into terrain] CFITs on approach. But it is important to state, this is a mitigation that we will implement to reduce the severity of the consequences of pilot error; it will not stop pilot error, it just gives us greater ability to protect the aircraft after the error,” said Byrne. “The true solution to the problem is to stop the error to begin with.”

“While Shannon is a hot spot for level busts on approach, pilots should be particularly on guard at airports with low transition altitudes. Ireland and the UK are unusual with low transition altitudes. We don’t see that a lot of places,” said Scott.

Overall, Byrne said, the “ultimate ability and responsibility to stop these errors from occurring in the first place remains with the flight crew, through crew education and development of functional SOPs specific to oceanic travel.

6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111

+1 513.852.5110
+1 800.361.2216

argus.sales@argus.aero

SAFETY MANAGER'S CORNER

ERP Drills

Emergency response: Something no one ever wants to do but nevertheless must be prepared for. We can all understand the importance and value of a solid emergency response plan if the unfortunate circumstance of an aircraft accident occurs. If the emergency response plan (ERP) has any chance of working effectively it must be well thought out and just as importantly, well rehearsed. That means conducting a drill exercise periodically, generally with a recommended annual frequency.

When it comes to emergency response preparation, the same notion should apply to drills. Set up is crucial for the drill to achieve its objectives. Here are a few things to think about when setting up a drill:

- What kind of drill will be executed? There are three general categories drills fall into: table top, preannounced, and unannounced. A table top drill is the easiest to set up and control, and is performed by gathering the response team into a conference room type environment with materials in hand to talk through the actions and documentation in a discussion style atmosphere. A pre-announced drill will involve several other employees in the flight operation and should simulate, as closely as possible, the exact actions they would take in the event an aircraft accident occurred. As its name indicates, this type of drill will be approved by upper management and be announced via company communications as scheduled for a specific date and time. This allows all employees to prepare themselves for the exercise and avoids that sudden jolt when hearing a company aircraft has been involved in an accident. An unannounced drill is considered the most realistic and also most shocking type of exercise, for obvious reasons. Before conducting this type of drill you should be confident your ERP team is well tuned.
- What type of scenario will be used? A realistic situation is always best. If your flight operation has never flown to Africa then constructing a scenario based on a crash there doesn't make much sense.
- Will other parts of the company participate? If there is a corporation serviced by your flight operation or a parent company, what will their role be in the drill? Often parent companies or corporations have resources that prove valuable if used correctly during an emergency response. Also don't forget about your insurance company; they often have resources set up for exactly this situation.
- Who will be documenting the actions and events during the drill? One clear purpose is flushing out any errors in the ERP so documenting problems needing to be fixed is very important. Also, from a training perspective performance feedback should be provided to participating employees and response team members.

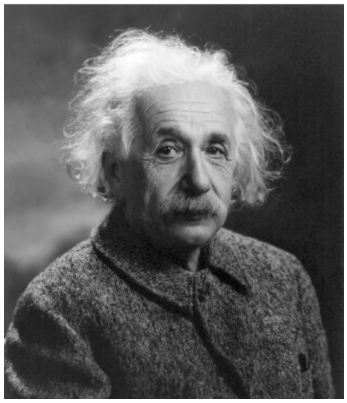
The PRISM website contains a library of ERP drill tutorials for your use; they are found under the Safety Materials drop down menu. Certainly an ERP drill is a big commitment but it's unquestionably worth the time and effort involved.

6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111
+1 513.852.5110
+1 800.361.2216
argus.sales@argus.aero

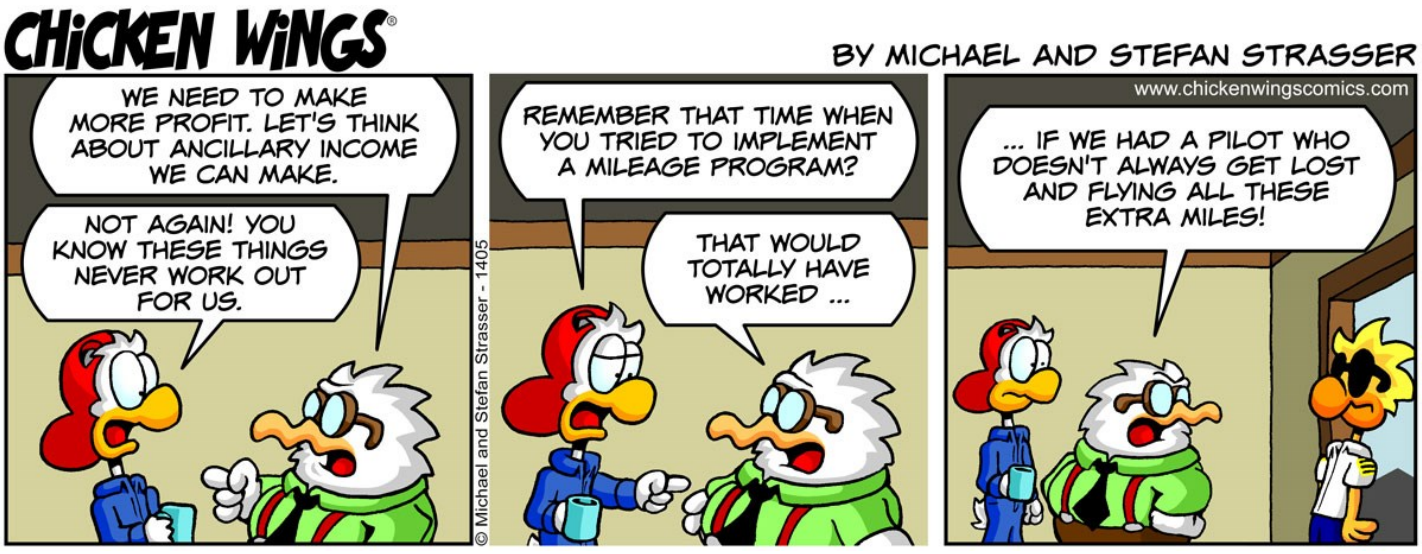
Quote of the Month

“If you can’t explain it to a six year old, you don’t understand it yourself.”

— Albert Einstein



Fundamentals never lose importance. You must understand the core concepts of how and why things work and must realize they are often not as simple as seems on the surface. From a safety perspective, this applies to all of those “why” layers of questions underneath procedures and policies. Children often ask why, sometimes in a seemingly endless string. Interestingly enough, an interrogative line such as that makes perfect sense when applied to aviation. A thorough understanding of policies and procedures foments high levels of awareness and facilitates knowledge application into quandaries, or “gray area” scenarios. If you have a true understanding of how and why something works or exists you can apply that knowledge in unforeseen situations. Thinking with a child’s line of inquiry also creates opportunity for improvement. The question “Why do we do things this way?” can spark needed change. Knowing intimately how and why things work is an explanation unto itself.



6021 South Syracuse Way
Suite 301
Greenwood Village, CO 80111

+1 513.852.5110
+1 800.361.2216

argus.sales@argus.aero

CONTACT LIST

Susan Cadwallader
susan.cadwallader@prism.aero
VP,SMS Services

Jenna Albrecht
Jenna.albrecht@prism.aero
Program Manager, SMS Services

Wayne Ehlke
Wayne.Ehlke@prism.aero
Safety Analyst, SMS Services

ARGUS PRISM
A member of the SGS Group

6021 S. Syracuse Way, Ste 302
Greenwood Village, CO 80111
www.argus.aero

UPCOMING COURSES

May 13 to May 17, 2024—PROS Course
ALAT Training
Denver, CO

August 26 to August 30, 2024—PROS Course
ALAT Training
Denver, CO

September 24 to September 26, 2024—PRISM Course
Safety Management System (SMS)
Denver, CO

November 11 to November 15, 2024—PROS Course
ALAT Training
Denver, CO

Go to Upcoming Training Classes to register.