

CALLBACK

From NASA's Aviation Safety Reporting System



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Risk Management and Mitigation



A Safety Management System (SMS) is required by 14 CFR Part 5 for Part 121 operators,¹ and one is recommended by NTSB in the 2021-2022 Most Wanted List of Transportation Safety Improvements for “all revenue passenger-carrying aviation operations.”² Risk management and mitigation are essential components of any SMS and must exist and flow inclusively from top to bottom in an aviation organization.

Crewmembers and technical professionals involved in aviation operations frequently encounter hazards of all kinds. Hazards are described as “conditions that could foreseeably cause or contribute to an aircraft accident as defined in 49 CFR Part 830.”³ Each hazard creates risk, which is similarly defined as “the composite of predicted severity and likelihood of the potential effect of a hazard.”³

Crewmembers and supporting technical professionals must be well-versed in identifying hazards and proficient in analyzing, assessing, and controlling or mitigating the associated risk. To maximize flight safety, aviators must actively manage, control, and mitigate all observed, anticipated, and perceivable risks. These and other SMS concepts are further discussed in Advisory Circular 120-92B, Safety Management Systems for Aviation, 8 January 2015.³

This month, *CALLBACK* offers reports of incidents where crewmembers encountered hazards and had opportunity to mitigate associated risks. Note judgments, actions, and suggestions, and assess effectiveness for future prevention.

Assessing New Risk

This proactive small aircraft pilot took action to mitigate risk following an incident during a local evaluation flight.

■ *I was conducting a right base to a new private airport level at approximately 500 feet AGL in order to evaluate appropriate traffic flow for the landing site. ZZZ is awaiting final activation in the Airport Data and Information Portal (ADIP)...system. While in my right turn, a local property owner was conducting legal drone operations. There was not a collision hazard, but the potential for such an event was identified by the drone operator. After engagement with the operator, I agreed to adjust the pattern corridor to avoid overflight of the area of concern at low altitude. Prior to further low altitude flight...in the immediate vicinity of*

ZZZ, I will await final FAA activation of the landing site. I will also engage the immediate community to inform them of flight operations and solicit any additional safety concerns. It was a good learning experience on community engagement and...proactive...risk identification/mitigation.

Seeing the Obvious

A flight attendant reported a cabin equipment violation that could conceivably contribute to life-threatening situations.

■ *During preflight checks, [I] discovered at least four out of five O₂ walk-around bottles of incorrect type provisioned on this aircraft. The aircraft was mistakenly fitted with four 66N O₂ 4.25 cu ft bottles instead of the required 4.2 cu ft bottles, which supply either only 4L (high flow) of O₂ per minute, or 4.2 cu ft bottles which supply both 4L (high flow) and 2L (low flow) [per minute]. The 66N bottles found onboard only supply 2L (low flow) [per minute], insufficient to appropriately mitigate a medical or decompression emergency. The aircraft [had been] operated...multiple cycles with incorrect...FAR required emergency equipment while not under MEL. [I] advised the Captain, and technicians refitted the aircraft with correct types of bottles. The aircraft departed without further incident.*

This identical issue has been...documented in prior reports. However, never have I discovered such a large error. ... How could such an egregious breach of...provisioning... cabin safety equipment occur? Further, this event exposes FA's lack of knowledge and understanding of specifications and correct operation of the various types of O₂ equipment found onboard Company aircraft. [I am] astonished to find such egregious insufficient attention to detail. ... I have no suggestions to mitigate this risk except a complete audit of provisioning...aircraft cabin emergency equipment. Where is the necessary oversight to prevent such a significant error?

A Split-Second Decision

This Captain received a clearance that was issued during a critical phase of flight. An alternative suggestion and rationale are given as a lesser threat and as mitigation for the risk that the original clearance could have created.

■ *It was a busy day at ZZZ, as was expected, with one runway and low ceilings and visibility. We were number one*

at the hold short [line] for [Runway] XXL on our side, with one GA aircraft on the other side and three aircraft on final. The Tower Controller seemed very hesitant to let aircraft takeoff in between arrivals. The GA aircraft was cleared into position and took off after the first arrival.... After the [third] aircraft landed, we were cleared into position and hold. I taxied into position and noted that the next arrival was at 1,500 feet on the TCAS, signaling to me that we had plenty of time. As the previous arrival cleared the runway, we were cleared for takeoff.... We advanced power and began the takeoff roll expeditiously. At around 100 knots, I heard the aircraft on approach say that they were going around because they were too fast on the approach. We continued our roll, and Tower said, "Aircraft X, cancel takeoff clearance." By this time, we were at 115 knots, with a VI of 124. Dispatch had planned the flight with a braking action of 3 because of the wet runway. By the time the FO and I confirmed what was said, we were a few knots shy of VI.... I elected to continue the takeoff. We...climbed out, during which time Tower gave the aircraft behind us a climb and turn. When we were passing about 300 feet on the climbout, Tower told an aircraft (I'm not sure if it was us or the aircraft on the go-around) to level at 1,500 feet.... I asked the FO to confirm the call sign, but due to frequency congestion, we could not verify who the call was for, and we continued on the departure. We did not receive any TCAS advisories or warnings...and continued...uneventfully.... Tower did not say anything else to us and switched us to Departure as if nothing unusual had happened. Tower Controllers need to understand the high threat risk of rejecting a takeoff at high speeds, particularly on a wet runway. There was no need for us to reject the takeoff with plenty of spacing and a simple turn from the aircraft going around.

A New Lease on Life

An experienced pilot's guard and discipline were relaxed during a flight. Results could have been much worse.

■ I was flying home from work, low level over pasture, and failed to see power lines. I did not see the lines until I hit them. There was minor damage to the aircraft, damage to the power lines, and a fire was started from the downed lines. I have no injuries of any kind. I fly this route almost daily, and I think that because it was so familiar, I became complacent in my awareness of power lines when flying low. It was a beautiful, clear day, and I was distracted by the scenery. In the future, maintaining a higher altitude and being more alert of obstacles could eliminate the risk of this happening again.

ASRS Alerts Issued in September 2022	
Subject of Alert	No. of Alerts
Aircraft or Aircraft Equipment	4
Airport Facility or Procedure	8
ATC Equipment or Procedure	8
Maintenance Procedure	1
Other	1
TOTAL	22

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 A Monthly Safety
 Newsletter from
The NASA
 Aviation Safety
 Reporting System
 P.O. Box 189
 Moffett Field, CA
 94035-0189
<https://asrs.arc.nasa.gov>

Braking Bad

Routine hazards culminated in a ground conflict that ended worse than this B737 Captain expected. Self-assessment, contributing factors, and mitigating actions are provided.

■ We were cleared to taxi from [gate] 1 to [Runway] XXL via [taxiways] 2, 3 and 4. As we were joining 4, I noticed an aircraft facing the terminal at [gate] 2, which appeared to be just inside of the movement area line. I mistakenly assumed it was an aircraft that had just pushed and that he was waiting to taxi. My expectation bias was that he would not have been pushed deep enough to interfere with Taxiway 4. As we were NE bound on [Taxiway] 4, I steered the aircraft left of the taxiway centerline to give more clearance around the other aircraft. I asked the FO how we looked on wingtip clearance. The FO stated, "We are clear by 5 to 10 feet." As we were passing behind the aircraft, I felt that a main tire hit a pothole. As I asked what that was, I felt another bump. The FO stated, "Stop. Stop." I brought the aircraft to a stop, and the FO told me we struck the other aircraft. I would estimate we were at a speed of 7 to 8 knots when the contact occurred. We had begun our taxi on Number 2 Engine. I believe the second engine start was complete prior to contact. There was a typical level of chatter on Ground frequency, which was busy. After the contact, I stopped the aircraft on Taxiway 4 and set the parking brake. We reported the incident to Ground Control. While I made a PA to the cabin to remain seated, the FO notified Operations to coordinate a gate return and contact Maintenance. We returned to Gate 3 without further incident.

Task Loading - I did a poor job of managing task loading. ZZZ is very busy and congested on the ground. With multiple aircraft moving in a densely packed area, I should not have opted for a single engine taxi. This would have reduced the workload on both crew members and perhaps allowed for better situational awareness as we were moving toward the departure runway.

Risk Management - I did not properly balance the risk of aircraft contact with continuing on the taxiway. Had I stopped and waited on the other aircraft to move well clear of the taxiway, I would not have assumed that unnecessary risk. This also relates to rushing and trying not to clog up a taxiway. I should have set the brakes and not moved forward until the aircraft in question was well clear.

1. <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-A/part-5>
2. <https://www.nts.gov/Advocacy/mwl/Pages/default.aspx>
3. https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_120-92B.pdf

September 2022 Report Intake	
Air Carrier/Air Taxi Pilots	4,746
General Aviation Pilots	1,597
Flight Attendants	882
Controllers	382
Military/Other	242
Mechanics	204
Dispatchers	139
TOTAL	8,192