CALLBACK

From NASA's Aviation Safety Reporting System

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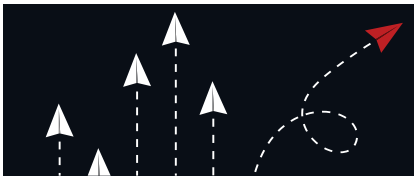

Risk Management and Mitigation

Managing risk in aviation goes hand in hand with evaluating hazards, threats and errors. Excellence in performing these tasks is a prime characteristic exhibited by any robust Safety Management System (SMS). Hazards can be thought of as existing conditions, objects, or activities with potential to cause harm. Threats are dynamic events or errors that increase vulnerability to hazards, while risk is a composite assessment of the likelihood of an event's occurrence and the severity of its consequences. Risk and these related concepts will always require management and most often mitigation as well.

Pilots play a crucial role in managing both present and future risk and by mitigating their consequences in order to ensure flight safety. Arguably, the pilot's job could be described, in part, as continuously evaluating, managing, and mitigating all risk on every flight.

This month, *CALLBACK* presents reported incidents in which pilot responses to risk were critical. Consider each narrative. Search for the hazards, threats, and errors; then evaluate risk, the mitigating actions, and outcomes. You will, no doubt, recognize some timeless examples of risk that was managed well or may have been managed better.

Part 91 – There I Was…

Risks from multiple sources were processed by this RV10 solo pilot and Flight Instructor during an IFR flight.

■ *I was on an IFR flight plan with ZZZ Center and came across an icing situation. There was a system moving west to east moving over ZZZ, and [I] was currently what I thought far enough east of the system while flying my route. While in the zone, I was monitoring my wings for collection of ice, but no collection. I was ready to ask for lower while looking at Foreflight flight planning, but I saw no ice accumulate on the wings. One thing I failed to do was to turn on pitot heat, which caused an issue…. The pitot accumulated icing conditions and dropped the autopilot out, which started the airplane in an aggressive descent. The airplane probably lost up to 600' and I immediately notified ATC [that] I accumulated icing and was correcting for altitude loss. If I remember correctly, they gave me a lower altitude to get out of the icing, which it did. At this time, I started to incur moderate turbulence from the system moving west to east, which made [it difficult] controlling the aircraft straight and level. ATC gave me a heading to fly to get out of the turbulence, but I still had to deal with the weather system. Airplane was difficult to hand-fly, as I was being tossed around losing/gaining altitude and speed. I discussed with ATC what was going on and just tried to maintain heading and altitude as best as I could. They asked if I needed assistance, and I told them no, I just needed to concentrate on flying the airplane. I was asked a couple times what heading to my destination and told them unable to give them the answer due to maintaining the airplane. ATC was awesome, working with me giving me heading and altitude changes, which eventually led me out of harm's way, which made me happy. I did…my research for the flight and continued to monitor weather progress during the flight. It was moving faster than expected, which changed [the] course of my flight plan…. Bottom line: I did lose altitude more than is given for an IFR flight plan and lateral deviation, but was in contact with ATC during this portion of the flight. I'm not saying I was 100% perfect in my execution, but I did get out of the mess and hopefully didn't cause too many issues for ATC.*

Part 135 – Risky Business

This Challenger 300 air taxi Captain faced unlikely and unexpected risk from inside the flight deck.

■ *[We were] departing…with the First Officer (FO) as pilot flying…. Takeoff roll and initial climbout through gear and flap retraction were normal. Shortly thereafter, the FO reduced pitch attitude and began to accelerate. I became uncomfortable with the rising terrain and my PFD's terrain display being predominantly red. "We need to climb," I stated. The FO continued as before with no response to my concern. Again, I advised the FO that we "need to climb at a faster rate," to which he responded, "I'm accelerating to 250 knots." As I was then preparing to take control of the aircraft…Tower…advised us of a low altitude alert, and only then did the FO increase his pitch attitude and climb rate. The remainder of the climbout was uneventful.*

Part 121 – The Departure Decision

A B777 Captain related the events that transpired and the mistakes that were made during a night weather departure.

■ *Upon taking the runway, Tower asked if we could maintain SID profile to ZZZZZ on departure. We observed the radar and said we would request right of course, as there was a cell over ZZZZZ. Tower said unable. She then asked again if we could maintain SID to ZZZZZ. We accepted the clearance with the intent to request vectors prior to ZZZZZ. Two aircraft departed prior to our departure on the same path with no PIREPs reported. Approaching ZZZZZ, and entering the cell, airspeed began increasing slowly. After 30 seconds, the airspeed decreased rapidly and we received a LOW AIRSPEED EICAS, followed by a momentary stick shaker. First Officer maintained control. We then requested multiple vectors to avoid further buildups. ATC insisted we take a turn north prior to what we had requested due to ZZZZ airspace. Cause: weather and ATC suggestions; ZZZZ Departure would not allow any deviation from the SID, which caused us to fly into the weather that resulted in AIRSPEED LOW caution with momentary stick shaker. In hindsight, we should have requested priority handling and deviated from the SID to go around the weather. Do not let ATC drive you into a dangerous situation.*

Part 121 – SOP Discipline Once More

This ERJ175 crew had conducted a stable night approach until short final when risk required mitigating action.

From the Captain's report:

■ *I was PM, FO was PF. The weather was CAVOK and calm. Upon initial call-up with Approach, I requested from the Approach Controller vectors to final for the ILS XXR and was told to expect that. PF maintained level 3 automation until approximately 200 feet above minimums while established and stabilized on the approach. After disconnecting the autopilot, the PF announced, "I'm going to go 3 red, 1 white," which was something not briefed during the approach briefing. The runway has a long, displaced threshold; I looked at the approach plate notes to see if there was any guidance about the height above the threshold in reference to the visual glideslope and did not find any. I thought that I would have to debrief with the FO about this decision after we landed and parked. Very soon afterwards, I realized that we were 4 red on the visual glideslope; we were approximately 200 feet above the field and our screen height was close to the end of the runway. I called, "Glideslope, glideslope" whilst simultaneously the EGPWS sounded an audible alarm, "GLIDESLOPE, GLIDESLOPE" as the vertical track depicted flashing yellow. The FO replied, "Clear my flight director." I immediately replied, "My controls." I advanced the thrust levers to TO/GA, and flew the airplane at approximately an 8 degree pitch up attitude. I told the FO to advise ATC of our go-around, and called, "Flaps 2, gear up." I called for heading, but the FO did not give me heading on the guidance panel. Tower asked for the reason for the go-around; I said, "Unstable." The FO replied on radio, "Unstable." Reaching 2000 feet I called out, "Climb sequence, After Takeoff Checklist," and "1000 to go." We returned to 3,000. I commanded the FO to rebuild the approach, get new landing numbers based on our new fuel amount, briefed the approach a second time, called for After Takeoff Checklist, Descent Checklist, and then flew the aircraft on localizer, on glideslope, all the way to the touchdown markers, landing approximately 1,200 feet past the threshold, and vacated the runway at taxiway F. Upon the debrief, I allowed the FO to debrief the flight as to what he saw…and he said that I took the controls before he could do the go-around himself. I replied that both I and the airplane were calling for you to correct the deviation and you did not say 'correcting,' or 'going around,' but instead said, 'clear my flight director.' I reminded the FO that night EGPWS aural warnings cannot be disregarded and that…he did not take immediate action to correct the unstabilized approach, but rather indicated that he chose to continue by stating, "Clear my flight director." I reminded the FO we cannot cross the threshold at less than 50 feet screen height and that dipping below the visual glideslope to shorten the runway landing distance reduces our margins of safety and is unacceptable, and that the displaced threshold on the runway is there for a reason. Cause: The FO's poor judgment to not correct the deviation before it got worse. The FO decided to deviate from the standard operating procedures and violated the stabilized approach criteria, did not recognize the risk of flight, and failed to execute a go-around on his own. Suggestions: We need to continue stressing to the pilots the importance of maintaining vertical approach guidance all the way to the touchdown markers. As this event proves, the normalization of deviance when it comes to flying lower than the glideslope is a serious risk of safety amongst the fleet, and it needs to be stopped immediately.*

From the First Officer's report:

■ *…Suggestions: To avoid this or similar issues like this in the future, I will place special emphasis on maintaining the aircraft on the indicated glideslope until closer to the runway and ensure a safer approach.*

The reports featured in CALLBACK are offered in the spirit of stimulating thought and discussion. While NASA ASRS does not verify or validate reports, we encourage you, our readers, to explore them and draw your own conclusions.

ASRS Alerts Issued in December 2025	
Subject of Alert	**No. of Alerts**
Aircraft or Aircraft Equipment	4
Airport Facility or Procedure	19
ATC Equipment or Procedure	15
Hazard to Flight	4
Other	7
TOTAL	**49**

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December 2025 Report Intake	
Air Carrier/Air Taxi Pilots	5,753
Flight Attendants	1,651
General Aviation Pilots	1,347
Military/Other	661
Controllers	323
Dispatchers	239
Mechanics	233
TOTAL	**10,207**