

CALLBACK

From NASA's Aviation Safety Reporting System



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A CASUAL LOOK AT HELICOPTER OPERATIONS



Helicopters, composing a large portion of all rotorcraft, exhibit marked similarities and significant differences from fixed wing aircraft in both design and operations. High level similarities include being subject to the general principles of flight, regulatory oversight, pilot vulnerabilities, and system failures. Differences exist in specific designs and methods to achieve flight, regulations peculiar to helicopters, piloting skills, mechanism complexity, and numerous operations better suited for helicopters. Among other uses, helicopters are particularly well-suited for air taxi operations, emergency transportation, sightseeing tours, private charters, and other special purposes.

This month, *CALLBACK* shares reports revealing threats, hazards, and lessons learned from helicopter operations. Enjoy the narratives, but also notice their many similarities and occasional subtle differences from fixed wing wisdom.

Part 91 – A Documentation Detail

This A109 corporate helicopter Captain was dedicated, competent, and thorough, if not fully compliant on this day.

■ *I was the day pilot on duty [at] ZZZI. I was asked to stay in service and fly to ZZZ to complete a maintenance flight Rotorcraft Operational Check (ROC) on Aircraft X. The aircraft needed the ROC for main rotor rpm in autorotation. The aircraft was supposed to be 100% finished with all maintenance and ready for me to fly upon arrival. ... I arrived at ZZZ and first briefed with the mechanics on the work that had been done and what we needed to do. I did a preflight of the aircraft. After the preflight, I went over the logbook with the mechanic. The aircraft had all the maintenance completed. The last thing it needed was the ROC. I used [software] on the [tablet] for weight and balance and a flight release. We flew the aircraft, completed the flight, documented that the ROC was within limits, and I left.*

Yesterday I was informed...that the aircraft had been weighed and that the weight and balance was not correct and did not match what was documented in [the tablet software]. I had made the assumption that the aircraft was in compliance and did not verify the weight and balance in the Rotorcraft Flight Manual. I was on duty and it had been

a busy day. In the future, it would probably be better to have a pilot dedicated to the maintenance tasks. ... For myself, I need to go over all documents to verify compliance.

Part 91 – Game On

A JetRanger 206 law enforcement pilot faced more than an airborne conflict during this routine night at the office.

■ *I was the pilot [flying] and Officer A was the Tactical Flight Officer. We were engaged with a priority call... assisting patrol officers with a foot pursuit. At [3,600 feet] and approximately XA:09 hours, I observed...a set of aircraft position lights in front of the aircraft at the same altitude coming straight at us from the east. ...The lights indicated a small craft, more likely a drone type. I had to abruptly maneuver our aircraft to avoid the drone colliding with the front of our aircraft. It narrowly missed us by 25 feet. I advised Officer A, and...we both began to scan the area to relocate the drone, causing us to depart the area and [abandon] the priority call that we were assisting. ... I climbed to...4,000 feet and reacquired the drone to our south. The drone was again heading toward us and was at an altitude higher than ours, descending toward us. I again had to maneuver to avoid the drone colliding with us. I continued to fly the aircraft...to...observe...the drone with the hope that it would land...or run out of energy, leading us back to its operator. ... Officer A advised patrol units of our in-air incident...requesting them to respond to the area [where] we were following the drone. I also advised Air Traffic Control of the near collision, so they could warn other aircraft in the area. The drone, after continually tracking/targeting our aircraft, began to descend. ... It landed on a business rooftop and appeared to attempt to hide its location under a parapet wall. We maintained visual with the drone, and directed responding patrol officers to its location. We also requested the fire department respond with a ladder to enable officers to access the rooftop. The drone was secured and the battery removed with the intent to prevent the owner/operator from erasing any recordings or ownership details from the unit. The drone was placed into evidence. Public officials were notified of the incident for follow-up investigation.*

Part 135 – A Familiar Foe

This Helicopter Air Ambulance (HAA) Captain narrates a weather incident germane to the operation and its location.

■ *The weather report at the base/sending hospital was 10 miles and clear. Weather at the receiving hospital was 6 miles and clear. Although cameras showed haze down the mountain, I was confident with the visibility reported and knew that the sunset made it look worse. Descending down the mountain, the layer of haze did look...denser than forecasted, but I arrived at the receiving hospital without issues. I checked all weather before returning back to base, and all were still reported the same. Now it was fully dark, and cameras gave a clear view of the basin. I chose the return leg through ZZZ, as this gives a good indication of visibility due to the lights up the mountain and [along the route]. Due to 0% moon, there was no reference [other] than the lights on the ground. I climbed to 8,000 feet, which provided proper clearance along that flight path. From ZZZ, I could see the lights at the airport from about 10 miles. When I got to ZZZ1 Valley, the visibility rapidly decreased, and within seconds, we were IMC. I started my climb to about 9,000 feet, and because my crew did a fantastic job immediately giving me reports on visibility left and right, I made a left turn, which got us out of the clouds fairly quickly. My crew kept on briefing me their view and visibility on both sides, which got us back on track on the north side of the lake. Here, we could see the haze, fog, and clouds spilling through and over the south mountain range. From that position, we had a clear path to the airport and landed without further incident.*

Weather reporting in our area is spotty. We have weather reporting up...the mountain at the airport and down the mountain at two other locations. The 'out-of-control' weather factor here is the mountain ranges. There are several tools like cameras that supply information. You make your best judgment, but if the weather is very dynamic, you can be caught by surprise like we were [during] this incident. ... No moon illumination added to the fact that we did not see the forecasted clouds rolling in. The 'in-control' weather factor here was that I could have been severely cautious and declined the flight on [grounds of] the haze shown on the cameras. Although I kept positive control over the aircraft when initiating Inadvertent IMC (IIMC) protocol, ...an autopilot would be a great tool in circumstances like these. ... In the simulator, I am spoiled with the situational awareness and added 'second pilot' of the autopilot. ... We...deal with mountain obscuration and often weather that is not reported and can only be identified with visual cues. We should be first in line for a helicopter with these capabilities.

Part 91 – A Great Escape

An R22 helicopter instructor effectively countered a sudden airborne conflict with a fast, creative, unorthodox solution.

■ *[I was] flying the standard left downwind pattern for Runway 16 for helicopters from ZZZ and spotted a Gulfstream crossing the final approach path at a low altitude...turning south, directly into and against the left downwind. The jet was flying at 400 feet AGL at a high rate of speed directly at the helicopter. The helicopter entered an autorotation to descend quickly enough to avoid the jet. The Gulfstream did not climb, turn, or make any evasive actions to prevent the possible collision. The Gulfstream called a go-around, but did not indicate a deviation from the flight path into the helicopter pattern. A potential lack of airport familiarity...may have allowed the Gulfstream to believe the east side of the airport did not have a helicopter pattern associated with it. Additionally, the [nonexistent] climbout placed the Gulfstream directly in the helicopter pattern.*

Part 91 – Tunnel Vision

A government A139 Captain was unaware of the hazard present while conducting a complex landing maneuver.

■ *I was conducting a landing on Runway XX at ZZZ while using night vision goggles (NVG). We made a radio call while on a 2.5 mile final and on a 1 mile final with no response from any aircraft at the airport. I was conducting a shallow approach with a run-on landing. Our helicopter touched down about halfway down the runway and came to a stop. After we had landed, an aircraft identified themselves as a Saratoga and stated...that they had been holding on the XX numbers, and our helicopter had overflown their plane. We asked why they had not made any radio calls while we were on final, and their response was, "Does that make it OK to over-fly me?" We advised him that we had not seen him or heard any calls to advise of his location on the runway. [Neither] the Second in Command [nor] I had...noticed the aircraft. There were also no TCAS warnings observed or targets detected on our [tablet]. I observed the threshold of the runway during my initial scan and did not notice any aircraft. I then became focused on performing a run-on landing further down the runway. I believe that the aircraft's lights blended in with runway lights. Additionally, with NVG goggles on, the color contrast of the aircraft lights with the runway lights all looked the same, perhaps contributing to my failure to notice the aircraft. During...our approach, the aircraft's position on the runway never changed, which also made it harder to identify.*

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ASRS Alerts Issued in June 2023	
Subject of Alert	No. of Alerts
Aircraft or Aircraft Equipment	2
Airport Facility or Procedure	4
ATC Equipment or Procedure	10
Other	1
TOTAL	17

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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>

June 2023 Report Intake	
Air Carrier/Air Taxi Pilots	5,141
General Aviation Pilots	1,499
Flight Attendants	753
Controllers	482
Military/Other	302
Mechanics	245
Dispatchers	219
TOTAL	8,641