



2010-April : Newsletter

LOSS OF VISUAL REFERENCE

Loss of visual reference continues to be the number one cause of fatalities in law enforcement aviation. I read several accident reports in preparing to write this article. While reading one report, I was reminded of my first experience with loss of visual reference. I had recently obtained my private airplane rating. I decided to take a short night flight in my Cessna 150. I was flying along the coastline of the Pacific Ocean. It was an incredible panorama to see the bright lights of Los Angeles in contrast to the darkness of the ocean. When I decided to return to the airport, I initiated a left 180-degree turn over the ocean. My heart nearly stopped as I looked into the black abyss of the ocean. I could not see anything except the instruments on the panel. I immediately looked back to see the lights of the city and regain visual reference. I realized that night flight over the ocean, a lake, or any unlit environment was not VFR, but IFR.

One of the NTSB accident reports that I read involved a public use EMS flight where the pilot experienced a loss of visual reference and subsequently impacted the water. According to the pilot, she received a call around midnight for a patient pickup on a nearby island off the coast of Florida. After departure, the pilot engaged the autopilot at an altitude of 1,000 feet. The helicopter remained at 1,000 feet to ensure clearance from obstructions. After passing several towers, the pilot descended to 800 feet using the autopilot. At the same time, she was attempting to contact the fire department on the ground at the landing zone. When the helicopter was approximately three minutes from landing, the pilot selected 500 feet using the autopilot and the helicopter descended to that altitude. The pilot continued toward the airport and made a final transmission that she was "one minute out."

The pilot told the medical crew that she could see the fire department moving trucks to the center of the landing zone that was a grass airstrip. She stated that she was not concerned that she was unable to make contact with the fire department, as she was familiar with the obstructions in the landing zone. According to the NTSB accident report, the pilot could not recall the exact sequence of events during the final 500-foot descent. However, at some point she remembered the medical crew commenting they "couldn't see anything." The pilot responded that the flight was usually very dark and there's "never anything to see." The pilot turned on the searchlight, and shortly after they impacted the water. She also stated that she thought she "pulled power and cyclic" when she saw the water; but didn't have time to warn the crew. The pilot also reported that the sight picture was the same as previous flights to the same area. After impacting the water, the helicopter flipped over and submerged within seconds. The pilot and two paramedics egressed the helicopter and swam to the surface.

Loss of visual reference at night over unlit terrain can be catastrophic, no matter how familiar the pilot is with the area. Furthermore, research has shown that workload increases approximately 30 percent at night. There were distractions during the final approach when the pilot attempted to contact fire department ground personnel, and she was also talking with the paramedics about the lack of visibility. Sterile cockpit procedures should apply when approaching to land. Any communications need to occur before beginning final approach to landing, enabling the pilot to make a stabilized approach focused entirely on landing.

The risks of night VFR flight over water or unlit terrain can be mitigated with the proper training and equipment. Night VFR over water or unlit terrain is legal in the U.S., but not in many other parts of the world, and it requires special considerations. First, it's really not VFR, but IFR. Consider using two pilots to mitigate the risks of night VFR over water.

And, NVG's can provide an added measure of safety if the crew is properly trained and proficient. However, equipment such as moving maps, NVGs, radar altimeters, GPS and other tools should be used to support safe flight, and not used to justify making poor decisions. After my encounter with a few seconds of loss of visual reference, I could not get my instrument rating soon enough. And remember, when the risks are too high, deny or abort the mission. That's what professionals do.

Every year people are killed during controlled flight into water or other terrain at night due to the pilot's loss of visual reference while the pilot thinks everything is OK, when it's not. When we become too focused on completing the mission, we tend to overestimate our skills and underestimate the risks of completing the mission. Night flight over unlit terrain requires good flight planning, training, experience and proficiency, and good decision-making. Are you prepared? If not, deny the mission. You may just save your life, the lives of other members of the crew, and the patient.

Comments and questions are always welcome at: safety@alea.org.

Remember – Safety First!

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