OAS-35A
(4/18)

Interagency Aviation Lessons Learned

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Subject: Dropped External Load

Area of Concern: Flight Safety

Distribution: All Aviation Activities

Discussion: Recently, an Airbus AS 350 B3 experienced an inadvertent release of an external load while supporting a backcountry project. The project manager and the helicopter manager briefed the helicopter crewmembers and pilot on the Project Aviation Safety Plan (PASP). The project was to fly several external loads to a campsite using a long line and remote cargo hook. During the first flight, after roughly 90 seconds, the pilot felt the load release from the remote hook and then watched it fall approximately 3000 feet, landing in a campground. Fortunately, there were no injuries or property damage.

A review and analysis of this event identified some key lessons learned.

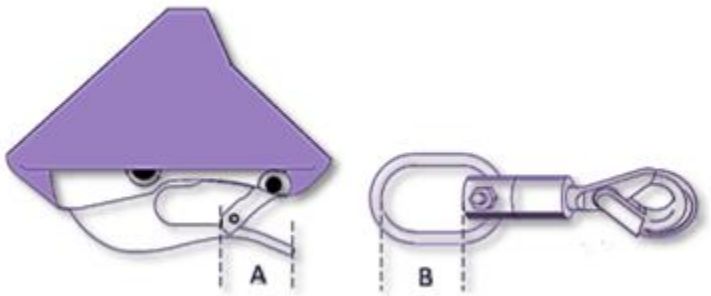
Route of Flight: The project manager failed to include the route of flight in the briefing and the PASP. This was a mission the project manager led for many years and recalled reminding pilots in the past about avoiding the campground that was located within a direct line from helispot to the destination. The pilot and helicopter manager were both new to this project and neither had experience with this mission nor this area of the park.

While the standard format of this parks' PASP for external loads does mention avoiding overflights of visitors on either end of the journey (departure and destination), it does not mention avoiding populated areas along the flight route with external loads. As a result, the PASP briefing failed to include this critical piece of information. It is essential to examine the route of flight for all external load projects and for that information to be shared with all participants, especially the pilot.

Recommendations: Always include critical mission details in the PASP. Relying on memory is a form of complacency, which in this case, resulted in the potential for catastrophe. This park learned a valuable lesson and improved their operation by identifying populated locations and programing the related coordinates into the aircraft GPS to improve situational awareness.

Load Ring/Swivel Size: Another contributing factor identified in this mishap was the large load ring and swivel. The combination of a large load ring/swivel and a remote hook with a keeper has the potential for an uncommanded remote hook release. Sometimes called dynamic rollout in the field, this is a condition where a load ring that is too large can cause an uncommanded release if the ring flips over the end of the load beam, pushes up against the keeper and then falls free. On this project, the standard swivel with a large oval load ring was used. The load ring had been wrapped with fiber tape over the oval section as a means to remove the possibility of side loading and an uncommanded release.

Figure 1. The Load Ring (B) must be smaller than the Snout (A)!



The IHOG[1] and some of the remote hook manufacturers remind us that the size and shape of a load ring is key to preventing remote hooks with a keeper from flipping over the load beam.

Taping a load ring is not an approved practice to prevent an uncommanded release or to ensure the ring rests properly on the remote hook, yet it seems to be a relatively common practice. Using properly sized swivel rings is the only way to remove the possibility of an uncommanded release. The maximum interior length of the ring on the swivel (B) must be less than the length of the cargo hook's snout (A) as shown in Figure 1 above. Keep in mind that standard helicopter kit swivels may not be suitable for all uses, especially when it comes to a remote hook that uses a keeper rather than a keeperless cargo hook. Inspect the equipment from the aircraft cargo hook all the way down to the load.

Recommendation: Review manufacturer and IHOG (Chapter 11) guidance on using swivels and remote hooks. Ensure crews are aware that load rings that are larger than the swivel snout have the potential to flip around and cause an uncommanded release.

We were very fortunate that no one was injured at the campsite. Transporting external cargo requires attention to detail on all facets from inspecting cargo/remote hooks to proper planning for each load.

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[1] National Wildfire Coordinating Group. *Interagency Helicopter Operations Guide*. June 2016, http://www.nwcg.gov/sites/default/files/publications/pms510.pdf, Pages 11-6 through 11-7.