



Interagency Aviation SAFETY ALERT



No. IA SA 20-01

Date: July 24, 2020

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Subject: Cargo Rigging Procedures

Area of Concern: Improper Cargo Rigging and Cargo Security

Distribution: All Aviation Users

Discussion: Several SAFECOMs have been submitted concerning cargo rigging and security that have resulted in a total or partial loss of the load. In an effort to prevent further incidents, this Safety Alert provides lessons learned and other information that may be useful for helicopter pilots, crews, and other personnel involved in transporting or rigging of external cargo.

The following SAFECOMs address the issues:

SAFECOM 20-0508, Rigging: Two nets, each containing a swivel, were placed side by side directly into the cargo remote hook. Only one swivel should be placed in the remote hook or it will impede the ability of the load to swivel.

SAFECOM 20-0509, Cargo Security: When the cargo net was lifted from the ground to approximately 15 feet, a small AED fell out of the bottom of the net.

SAFECOM 20-0484, Cargo Security: On the second external load delivery, the crew noticed a box containing lunches was open and missing 6 bagged lunches. The box was not fiber taped and had opened during flight.

SAFECOM 20-0424, Cargo Hook Manual Release: The manual release knob was somewhat sticky and did not fully return to the locked position, allowing the weight of the external load to pull down the cargo hook and drop the bucket into the dip site.

SAFECOM 20-0320, Rigging: While performing a left turn during longline bucket operations, the bucket with longline departed the belly of the aircraft and impacted the ground. There were no indicators of mechanical failure that would result in the lost load. The most likely cause was a small rope line that was tied off from the belly hook upper frame bracket to anchor points under the belly of the helicopter. The tie rope was secured with knots, one on the forward upper anchor bracket of the belly hook, and one on the aft. The forward knot was tied into an anchor on the left underside of the aircraft. The aft knot was tied into an anchor on the right underside of the aircraft. The tie rope was used to restrict the spinning capability of the belly hook. It is assumed that during the left turn, the

belly hook (with longline and bucket attached) swung as far to the right within the hellhole as possible. In doing so, it appears that the knot on the forward-facing bracket had slid up the frame bracket coming into contact with the manual release mechanism, releasing the belly cargo hook and dropping the load.

Recommendations: Fortunately, none of these incidents resulted in any injuries. However, they did result in the loss of some expensive equipment and delayed the mission. Crewmembers and pilots should take the time to review Chapter 11 in the [NWCG Standards for Helicopter Operations \(NSHO\), PMS 510](#). When time permits, conduct mockup drills or hip pocket classes for external cargo operations.

Additionally, the Wildland Fire Lessons Learned Center has a [Rapid Lesson Sharing](#) document regarding backhauling equipment from the fireline that can be used in your local training and reviews.

See also Interagency [Safety Alert 12-01](#), [19-03](#) and [Lessons Learned 18-05](#) for additional safety information and recommendations for external cargo operations.

Rapid Lesson Sharing

Event Type: Helicopter Transport of External Cargo; Backhauling Equipment from the Fireline

EST. 2002

NARRATIVE

While backhauling many miles of hose, pump tanks and other equipment the 750 Fire, chokers were introduced for efficient backhaul of hose. However, because some of the helicopter longline remote hook (HLRH) qualified folk still out on the fireline—a thorough briefing was not provided to all those involved in this operation.

Because some of the hose came in without being secured, the pilots needed very slow. Furthermore, the receiving crew had to spend hours unstrapping hose.

Unfamiliarity with flying hose via chokers and the proper way to fly a port, needed to be briefed. Good examples are not found in the NSHO, but are in many other scattered areas of the Internet and in Safety Alerts. Also, it are not a common piece of equipment in all local District caches or exclusion zones.

There were successful backhaul loads that came in as daily chains, which is more common backhaul (see photo).

LESSONS

When changing operations from firefighting with aircraft to backhaul, it is important to have a tactical pause to provide a briefing and include aviation personnel, qualified HLRHs, and pilots on the best practices for fly backhaul of large quantities of equipment and hose.

We are now into September 2015, firefighting is heavy and the end of this is not near. There will be plenty of backhaul from all of these fires. It is a good reminder when changing operations to stop and brief and ensure that the operations are understood and that qualified HLRHs are available to complete task safely.

External Cargo Equipment is still being provided to helibases that should be out of service. This includes saws, lead lines, and cargo nets delivered to helibases from the caches that are located on local Forests and units. These need to be tagged and removed from service. Please see the REVISED Helicopter Cargo Hauling Equipment Safety Alert from June 18, 2012.

http://www.fs.fed.us/rm/ry/safety/operations/safety_alerts/0401_03_Rev12_2012/helicopter_cargo_hauling_equipment.pdf

Interagency Aviation Safety Alert

No. IA SA 12-01
Revised 1
June 18, 2012
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Subject: REVISED Helicopter Cargo Hauling Equipment
This replaces the previous version of IA SA 12-01 Helicopter Operations
All Aviation Operations and Incident Support Caches

Area of Concern: Safety of General Personnel
Distribution: All Aviation Operations and Incident Support Caches

ISSUE: Some helicopter cargo hauling equipment may fail to meet strength standards, compromising safety. During an external cargo operation, an empty net and snivel displaced during flight resulting in an uncommanded dropped load (IAFECON 11-0522). It was discovered that the keeper gate of the leadline was bent and completely open, which ultimately led to the loss of the net and snivel.

The second issue involves conflicting load limits on leadline components (SAFECON 11-0660 and SAFECON 11-1000). In example 1 (below), the gear link is marked with a limit of 2000 lbs, the leadline tag shows 2000 lbs, and the hook shows 1 1/2 ton (3000 lbs). In example 2, the leadline identification tag shows 3000 lbs, the gear link shows 4200, and the hook has no identification. This condition may exist since equipment was procured with commercially available components. However, it is important to remember that new leadline components should never indicate a value less than what's stated on the leadline identification tag. Unfortunately, this situation may exist on older components until they are replaced as explained in the following page. Limit then, the lower of the two limits should govern their use.

The third issue is related to the SWL (Safe Working Load) and WLL (Working Load Limit) stamps on the leadline components. The Rigging Industry introduced WLL as a replacement for SWL a number of years ago. Both terms are generally interchangeable and both terms continue to be used, although WLL is becoming more common. The change from using SWL within industry is associated with the implied liability in using the word "safe".

Keeper Gate / Snap-back Spring Gate

Keeper-Ins Gate / Spare Lock Hook

Figure 1 - Helicopter View of Non-Commercial Choker Equipment

Interagency Aviation SAFETY ALERT

No. IA SA 19-03
Date: August 27, 2019
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Subject: External Load Rigging Failure
Area of Concern: Safety of General Personnel
Distribution: All Aviation Operations

Discussion: In July 2019, there were two incidents in the USFS Pacific Northwest Region of lost external loads while transporting materials via helicopter. These events had similar circumstances and outcomes which are captured in IAFECON #19-0022 and IAFECON #19-0131. The project flights occurred within one day of each other and personnel for both projects chose to use non-commercial, non-certified, in-house made rigging equipment to "choker" or "cinch" bundled equipment. During the transportation of materials, rigging material failed in flight resulting in lost loads. These failures were attributed to either slicing of webbing material or friction burns from improperly rigged loads shifting while in flight. Both projects were overseen by experienced helicopter managers and helicopter crewmembers and the load rigging practices were accepted by the pilots.

The NWCG Standards for Helicopter Operations (NSHO) asserts that equipment used as chokers should be rated appropriately and designed for lift work. This implies that equipment used for these activities should have manufacturer's data that verify load ratings, design purpose, and proper use as well as provide guidelines for inspection and care, and evidence of equipment age and origin.

Personal conducting one of the projects were unable to determine the manufacturer and age of their equipment. To eliminate further risk for dropped loads, similar soft webbing rigging equipment was removed from service from both units due to uncertainty in its provenance and load rating.

The NSHO does provide some guidance regarding choker use. Chapter 09, Equipment Requirements and Maintenance, states:

1. Chokers are rated at different strengths. Ensure that equipment is rated appropriately and designed for lift work. Two cables like chokers, but are not designed for external load work. Chokers are not to be used as leadlines.
2. Leadlines are not designed to be used as chokers.

Interagency Aviation Lessons Learned

No. IA LL 18-05
Date: July 30, 2018
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Subject: Dropped External Load
Area of Concern: Flight Safety
Distribution: All Aviation Activities

Discussion: Recently, an Airbus AS 300B 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 concern; the project manager led the survey team and recalled remaining pilots in the past about avoiding the campground that was located within a direct line from heliport 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 plan, PASP for external loads does mention avoiding overflight 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 ensure 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 past lesson is valuable because it improved their operations by identifying populated locations and programming the related coordinates into the aircraft GPS to improve intentional avoidance.

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