MEDEVAC

Clarification on Usage of the D-Lok Hoist Utility Eye

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Recently, the Lifesaving Systems Corp. placed a note recommending that no more than 25 kilograms of weight be placed in the utility eye of the D-Lok hoist hook during hoist operations. This recommendation stands in a direct contradiction with the U.S. Army Aviation Rescue Hoist Standard Operating Procedures hoist rider attachment and safety requirements, as stated in H-60-17-SOF-03, and warrants further explanation and is the subject of this discussion.

Over the last few years, a rash of hoist incidents occurred in the United States Army Aeromedical Evacuation community resulting in Class A accidents. One of these incidents occurred in 2016 where a dynamic roll out of a rescue-seat (the rescue seat rolled out of a legacy slide lock hoist hook) resulted in the injury of a servicemember and the issuance of safety of flight messages. The most recent update, H-60-17-SOF-03, attempted to prevent similar incidents from occurring while using existing equipment. However, the necessity to update the hoist hook was answered in a form of the Auto-Lock and D-Lok hoist hooks. As the update continues, the D-Lok hoist hook is becoming more prevalent among MEDEVAC units, to include National Guard Assault, CAC, and S&S units utilizing the hook on internal and external hoists during domestic operations. The D-Lok hoist hook use is dictated by the gate locking features in the main body design making unintentional dynamic roll out impossible or inadvertent activation of the gate locks improbable.

The recommendation placed by Lifesaving Systems Corp was based on preventing damage to the hoist cable when utilizing the utility eye as a primary attachment point for solo extraction of hoist rider, patient, or personnel. As a disclaimer, while the utility eye is the proper nomenclature of the auxiliary eyelet on the hoist hook from the manufacturer, the common name utilized for the utility eye in the Army Aviation community is the hook eyelet and shall be referred to as thus in the remainder of this article. H-60-17-SOF-03, published on February 6, 2017, authorized the usage of the hook eyelet as an attachment point and eliminated the requirement for using multiple lockable carabiners since it eliminated the potential of a roll out with the weight restriction of 300 pounds or less using a single carabiner. In 2019, an article was published in the Utility Helicopter Newsletter, issue 71 dated January – February 2019, which discussed H-60-17-SOF-03 and the use of the hook eyelet as an approved primary securing point. The subsequent main problem, which occurred when utilizing the hook eyelet as a primary attachment point, was a creation of an offset angle as much as 20° from the threaded shaft of the hook. Such offset unevenly loaded the swivel bearing on the hook, which prohibited adequate relief in rotational forces on the cable. Further, this condition led to the cable unraveling and loosening throughout the last three feet. The cable damage, which consisted of deformation, unraveling, and loosening, is identifiable through pre and post operational hoist checks, as outlined in the aircraft technical manual checklist.

Slide Lock Hoist Hook

D-Lok Hoist Hook

Test results from a static load test of the hook eyelet confirms that the hook eyelet may still be utilized as a secondary attachment point. The hook eyelet was tested with a static load weight checking strength requirements and did not show any signs of damage at weights up to 6,500 lbs. During the ultimate strength test, the hook eyelet was loaded at the initial weight of 6,500 lbs with a weight load added in increments of 500 lbs. until signs of failure occurred. At 7,015 lbs., the hook eyelet remained intact, however, caused enough deformation on the hook main body allowing the gate to open, resulting in a failure. Units utilizing the D-Lok hook can rely on the data provided and conduct hoist operations with confidence even in a situation where a primary attachment point failure occurs then the hook eyelet will serve as the safety and prevent an unnecessary death.

In conclusion, the Lifesaving Systems Corp. recommendation does not warrant a change to how Army Aviation conducts hoist operations with utilization of the hook eyelet as a secondary attachment point. The Army Aviation Rescue Hoist Standard Operating Procedure (SOP) specifically dictates the use of the hook main body as the primary attachment point with the Personal Survival Gear Carrier (PSGC) extension tether (short) connected to the hook eyelet when conducting hoist operations. The procedure of utilizing the hook eyelet does not conflict with previous safety of flight messages that discuss hoist operations. The utility eye weight restriction recommendation is not based on a complication of a weight attached but rather it is based on issues previously addressed by PD MEDEVAC, which is mitigated by the US Army Rescue Hoist SOP's hoist rider attachment procedures, and proper conduct of pre/post operational hoist checks per the aircraft operator technical manual checklist.

UH-60V MEDEVAC Mission Equipment Package (MEP)

The UH-60V MEDEVAC aircraft is scheduled to begin fielding in FY24. The plan is to field the aircraft from Corpus Christ Army Depot (CCAD) in the full MEDEVAC configuration including B-kits, and that plan is predicated on the availability of MEP components (hoist, Talon turret, IMMSS patient handling system) in sufficient quantities to support aircraft production line installation at CCAD.

The MEP support for the UH-60V MEDEVAC is dependent upon the recovery and reutilization of mission equipment currently in the field. To date, mission equipment recovery has been the result of HH-60M fieldings and recovery of equipment from divesture or induction of UH-60A/L aircraft; however, recovered equipment quantities are far short of the total UH-60V MEDEVAC MEP requirement.