

Hoist Missions Raise Training Requirements

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Law enforcement agencies need standardized helicopter rescue and hoist training so that their aircrews can immediately and effectively respond to law enforcement activities, specialized rescues and disaster relief efforts.

While law enforcement aircrews have become experts in specialized activities such as surveillance, marijuana eradication, border protection, vehicle pursuits and SWAT special missions, now more than ever, crews and helicopters are being called upon and expected to respond to local disaster relief efforts. Aviation units are being called to assist stranded personnel atop vehicles and rooftops during flood conditions, rescue people clinging to trees in swift water incidents, hoist injured hikers from remote mountainous sites and assist in post-hurricane disasters and tornado-ravaged areas.

Law enforcement agencies that have integrated rescue response training into their programs have become successful because they have implemented frequent and proficiency-based training, instilled a strong basis of crew resource management and risk management and provided their aircrews with the training and specialized equipment to allow their personnel to be adaptable, make good decisions and safely respond to rescue situations.

Training, equipment and standardized operating procedures are necessary to effectively respond to law enforcement activities, specialized rescues and disaster relief efforts. And law enforcement agencies need standardized helicopter rescue and hoist training so that their aircrews can immediately and effectively respond to these types of calls.

Crew Interoperability

While most dedicated police aviation units already respond to a diverse variety of incidents, recent manmade and natural events have resulted in more requests for police aviation units to respond to SAR cases and homeland security duties (including ship board operations) involving hoisting operations.

So, is there any additional staffing required other than the pilots and the tactical flight officer to responsibly accomplish rescue and disaster relief efforts? Agencies starting up SAR capabilities often wonder if they can accomplish rescue missions with two members assigned to an aircraft equipped with a hoist. It is not reasonable to expect the typical police aviation unit to maintain a dedicated SAR crew complement for these types of specialized responses, in addition to the standard complement of a pilot and tactical flight officer for performing the majority of the conventional aerial law enforcement duties.

For discussion, Priority 1 Air Rescue offers three options and possible solutions to this common staffing issue encountered by aerial law enforcement managers. The best option is to have a dedicated and assigned ready crew for SAR missions; however, this is not a logical option due to the added expense for most agencies. The second option that is well suited for law enforcement – and the option Priority 1 Air Rescue most commonly promotes – is to combine another available air unit pilot and TFO with the responding aircrew and helicopter. This allows immediate response to SAR incidents in one aircraft with the minimum required staff: one pilot (preferably two pilots), one hoist operator and one rescue specialist. This depends on whether the agency has more than one aircraft on duty, the aircraft type and its performance limitations, but it meets the challenge of performing the mission with existing staffing and resources. The caveats to this option are the training required by the rescue specialist, which can be basic medical training and physical ability, and the agency's level of response capability, training guidelines and recommendations for working with other local agencies.

Cross training allows the rescue team to have greater capability due to the versatility and flexibility of all its members. When the agency decides to go with this option, pilots and TFOs are trained to operate the hoist and become rescue specialists. Further benefits of this interchangeable crew option are found in crew resource management, ease in tracking training proficiencies and increased teamwork required to accomplish hoist missions. Even if agencies do not decide on this option, the pilots should be involved in classroom training and understand all components of the rescue specialist and hoist system operator.

The third staffing option available to law enforcement agencies to perform SAR operations on extremely short notice requires highly specialized teams like SWAT, dive and bomb teams. Members of these teams are routinely on standby, physically capable and may have basic to advanced medical training. Once properly trained and paired up with pilots and aircrews, the local law enforcement agency has a qualified SAR crew to respond to disaster relief efforts. This option could be suitable for agencies with one duty aircraft that integrates the use of other emergency agencies like SAR teams or fire departments with law enforcement aircrews.

The challenge in this option is standardization and crew resource management. Hoist rescues are highly coordinated team efforts that require the pilot, hoist operator and rescue specialist to work as a team, to use standardized hoisting terminology and to respond immediately to voice commands and hand signals to safely execute the rescue. To have a successful program, law enforcement aircrews and emergency agencies must be willing to conduct routine integrated training. Interagency funding for training can often be solicited and obtained through Homeland Security Disaster Relief Grants.

Are You Prepared to Hoist?

Is there any associated rescue hoist training or special operations required for airborne law enforcement crews? To answer this, ask yourself a few questions. If you are accomplishing a law enforcement operation that requires helicopter fast-rope or rappelling, have your aircrews previously been trained to hoist and extricate an injured person out of a confined or high-risk area? If your aircrew is involved in wild land brush fire suppression using Bambi buckets, have your crews obtained helicopter underwater egress and survival training? If your airborne law enforcement crew is called to respond to a downed aircraft, does your aircrew have the proper equipment and prior training for extrication or hoisting equipment and personnel down to the scene?

What if an injured patient is located under a heavy tree canopy, how are you going to get the patient to a hoistable location? What if the victim is stuck on a vertical cliff surface that has overhangs or rotor clearances that are too close to the cliff face? If time is critical, what options are out there if you are the only resource?

When your standard hoist rescue “set plays” are not enough to accomplish the mission, the incident demands immediate flexibility and versatility. Ground technical rescue offers the capability to deal safely with these challenges and accomplish these types of situations encountered on many rescues. On scene, crews hovering over the area must make instantaneous assessments with the resources they have while integrating each crewmember’s expertise and experience. It is also important to recognize that initiative and problem solving on scene is not possible without the proper equipment and applicable training for these SAR crews.

Rescue specialists manage to adapt to and overcome difficult and challenging rescue situations and affect the rescue by relying on standardized training and garnered rescue skills coupled with their keen ability to solve outside-the-box hoist extractions. Many law enforcement agencies are using tactical fast rope operations and rappelling as a means to expeditiously insert law enforcement teams to underway vessels or high risk areas when exposure times for the helicopter crew and law enforcement team is a concern. Law enforcement agencies that routinely accomplish fast rope and rappel insertions often have a helicopter rescue hoist/short haul as their emergency contingency should the need exist to extricate or rescue hoist an injured person from a confined area.

Several law enforcement agencies are also trained and called upon to extinguish wild land brush fires with the use of external Bambi buckets. Often, the pilots are observed hovering out of ground effect over a lake or river while filling the Bambi buckets with water. This flight evolution is often a demanding and critical phase of the flight operation; however, it can become mundane after numerous repetitive cycles. Should an engine fail or if the pilot inadvertently drags the Bambi bucket in the water while lifting off, disaster could occur.

Agencies also work hand in hand with other federal, state and local agencies during marijuana eradication exercises. Law enforcement agencies must ensure their eradication teams recognize dangerous situations and locate specific associated hazards.

Weak Link

Another more commonly asked question refers to safety issues surrounding hoist rescues, tagline placement, utilization and weak links.

The most common purpose of the tagline (also referred to as trial lines or high lines) is to prevent spinning of the basket stretcher during hoist extraction. These spins may be induced by rotor wash on the basket stretcher, environmental winds, improper balancing/loading of the basket stretcher or improper placement or tension of the tagline by the operator.

Tagline placement is another area of varied opinion; a commonly asked question placed on Priority 1 Air Rescue's webpage is, "Which is better: single point or dual point connection?" Accepted practice is to have a 45-degree angle of departure from the ground tagline operator to the aircraft. However, in our evaluations, just as critical was method of attachment of the tagline to the basket stretcher. We could still generate a spin with single attachment point even with a 45-degree angle, especially in canyons or situations of elevated rotor wash levels. The dual point, or "Y," lanyard offers more stability, as it restrains the basket from two separate points of attachment and offers greater range of control. We also recommend having a quick release mechanism on the "Y" lanyard to reduce hover time and allow for easy release of the tagline at the skid or cabin door.

The tagline weak link is a breakaway component between the load basket stretcher and the tagline that offers a level of protection in the event the aircraft has to fly away. It was originally designed to break in the event the tagline gets entangled on the ground, ship's rigging or deck. It was not considered a requirement to be broken by the ground personnel in the event of an emergency.

What are your options if you run out of tagline rope during a hoist operation or if the aircraft had to fly away during a hoist mission without a weak link? Most weak links commonly use paracord, which was designed for parachutes with a minimum breaking strength of 550 pounds. Weak links are generally designed to break away at 310 to 550 pounds, and if no weak link is placed in the system, the weak link becomes the person. A 310- to 500-pound weak link would pull most people right off the side of a mountain before they would be able to break it, or more likely, it would scream through their hands, and the aircraft would have a tagline hanging behind its tail rotor.

Harness Fit & Function

Another commonly asked question is, "what is the appropriate rescue harness for hoist operations?" Harnesses and tactical gear are a common point of contention; there are always the big three desires: function, fit and believe it or not, fashion.

Several law enforcement agencies, as well as the U.S. Coast Guard, rely on a full-body harness with integrated flotation such as the Triton harnesses for the rescue specialist/swimmer. This type of rescue harness would be recommended to those law enforcement agencies that routinely fly over coastal areas, beaches, lakes and rivers, and may be useful in a water-type search and rescue mission (e.g., over water search, swift water rescues, flood disaster relief operations), but this is not suited if you employ helicopter rappelling. That type of rescue harness provides the law enforcement pilots and aircrew with storage pockets to place survival equipment, personal radio and personal flotation in the event the aircraft ditches in the water. These harnesses integrate well with locking or traditional hoist hook configurations and are easily worn by surface water rescue personnel while swimming or inland hoisting.

If flotation is not required, then the full body technical rescue harness offers heavy-duty hardware for use in hoisting and short haul and is well suited for rappel situations. Other law enforcement agencies may have a more tactical requirement and thus require a full body rescue harness that integrates magazine, survival equipment storage pockets, weapons storage and a rescue hoist lifting ring.

Most tactical law enforcement organizations hold to the traditional light seat harness rig, such as a rappel belt or a seat assault rappel harness. These harnesses are lightweight and can integrate with body armor or tactical vests. These options offer lightweight capability but involve risks such as inadvertent inversion or back injury if not used properly. Harnesses such as a lightweight tactical assault harness can be fitted with full body chest support and can be worn with body armor. They are ideal for applications employing fast-rope deployments. A full body harness offers a much safer, versatile option over light seat harnesses no matter what the operating environment.