

## UVision Newsletter - Nagorno-Karabach Aftermath | February 2021

### Introduction

In the recent years, and especially in the aftermath of the conflict between Armenia and Azerbaijan in Nagorno-Karabakh, UVision is experiencing a growing interest in its Loitering Munition Systems (LM) portfolio. Due to the reported extensive use and successful utilization of LMs in that conflict, a growing number of inquiries from leading NATO military forces was received in this regard in recent weeks, as well as cooperation offers from several large weapon manufacturing companies in the world.

As a leading world manufacturer of Loitering Munitions, UVision operational experts carefully evaluated many of the reports regarding the operational use of Loitering Munitions in Nagorno-Karabakh. The following article is summarizing the current available data-base, and pointing out the key issues that should be considered as lesson-learned in this battlefield.

### General Overview of the Nagorno-Karabakh 2020 Conflict

The recent war between Armenia and Azerbaijan, which began on September 27 2020 and ended by November 10, lasted six weeks. It offers valuable lessons for militaries worldwide. Azerbaijan has a larger standing army and the larger number of reserves. However, during the recent conflict the armored forces of the two countries were nearly even in terms of main battle tanks. From other arsenal perspective in general and loitering and precise munitions specifically, the Azeri side enjoyed superiority which dominated the battlefield.

The conflict can be divided into four consecutive phases: In the **first phase**, both sides inflicted mutual blows in a relatively balanced fight. In the **second phase**, which followed a successful Azerbaijani **suppression of Armenian front-line air defense** assets, the dominant battle pattern emerged: Armed Azerbaijani UAVs, **loitering munitions** and attack helicopters were able to implement their close-air support (CAS) plan and effectively target Armenian ground forces, while Azerbaijani ground forces made some advances. In the **third phase**, Armenia began launching a barrage of inaccurate ballistic missiles toward major cities in Azerbaijan out of frustration, as the **Azerbaijanis used their armed UAV and loitering munitions** for the **systematic attrition of Armenian forces** while their ground forces continued to make initial gains. In the **fourth and final phase**, high intensity fire was used by both sides. The Armenians fired rockets and missiles at Azerbaijani cities, while the Azerbaijani army continued with its advances from the north (minimal) and the deep penetration in the south of Nagorno-Karabakh, along the border with Iran.

**Loitering munitions** and other precision-guided weapons played a key role in the battlefield. Loitering munitions were used against tanks, artillery and for air-defence suppression. Here, it seems that Azerbaijan managed to secure a qualitative edge, due to its diversified military procurement in the years prior to the conflict. The Azari forces deployed a diversified portfolio of loitering munition. Each loitering munition defers in its range, size and carrying capacity.



UVision Loitering Munitions – Combat Ready



During the second, third and fourth phase of the fighting, the Armenians applied, either directly or via Russian proxies, **modern electronic countermeasure (ECM) equipment which is becoming a major challenge in such battlefields**. The ECM caused significant impact to the UAV/LM operation in the arena. At the aftermath it has become evident that **Loitering Munitions must employ sophisticated ECCM, and require the ability to operate under GPS denial** †(UVision Hero family of loitering munition are equipped with measures that allow them to operate in such environments).

## Loitering Munitions Implementation in the Conflict

The Nagorno-Karabakh conflict is undoubtedly one of the best illustrations of wide scale utilization of Loitering Munitions. Along with several other Precision-guided weapons participated in the fights, several unique features of LM were critical in this conflict, notably Independent Operation, Operational Flexibility, Low Signature and Long Ranges. It may also be noted that the Loitering Munition were also used for additional intelligence gathering for target acquisition purposes, for Battle Damages Assessments (BDA) following the UAV attacks, or as a secondary mean of attack, able to re-engage targets in support of the UAV. The Azerbaijani extensive, and generally successful, use of Loitering Munitions, did however encounter several difficulties. These difficulties did cause some of the Loitering munitions to crash or be shot-down by the defending Armenian forces. Although in some of the cases shooting-down the attacking Loitering Munitions can be accredited to the Armenian air-defenses, one can-not rule-out other reasons for crashed LMs incidents.



## Bottom Line

Utilization of loitering Munitions by Azerbaijan in the Nagorno-Karabakh 2020 Conflict is no-doubt considered a successful one. The Azeri LMs, which were used in significant numbers, provided significant contribution to suppressing the Armenian air-defenses, managed to destroy large amounts of operationally important targets (including large numbers of tanks and armored vehicles), and played an important part in the Azeri extensive open media campaign. Lesson-learned from this conflict, and particularly with regards to the LMs shortcomings, will undoubtedly prove valuable to modern military forces and defense agencies in the coming years.

## Loitering Munition Utilization in the Nagorno-Karabakh 2020 Conflict Major Lesson-Learning

- Loitering munitions **proved highly effective** against high-value targets, air-defenses, command posts, communication centers.
- **Large quantities** of LMs were used, dozens while hundreds were required. Use rate of dozens a day was observed.
- **Significant and multi-purpose war-head** (Anti-Tank + Anti-Personnel) is an important factor - UVision HERO systems are equipped with significant warheads and flexible lethality-packages
- **Steep attack angles** were required, to overcome active-protection systems of tanks, and obstacles on route to the targets such as topography, buildings or trees - UVision HERO systems are built with Cruciform wings design, allowing steep attack angles
- **Weather conditions durability** was an important factor (winds, low temperatures, low visibility) - UVision HERO systems proved high durability in harsh weather conditions
- **Resilience against communication interference & GPS denial** were required - UVision HERO systems are designed to cope with most of the jamming and interference technologies used
- Loitering Munitions are required to be **easy to operate** by soldiers under demanding battlefield scenarios - UVision HERO systems are designed by combat-expert-operators for simple use, and for short training time
- **Low noise** level at the final approach to the target proves an important advantage - UVision systems are designed with unique features allowing low acoustic signature
- **Low signature** for RF and IR sensors proves to be an important feature - UVision systems are designed with unique low signature, to cope with advanced detection systems

## UVision HERO Series of Loitering Munitions – General Advantages

- **Ease of Operations** – The system is designed by combat-expert-operators for simplicity. High level of proficiency is achieved after the short basic training course allowing soldiers from all level to effectively use the Hero systems.
- **High Maneuverability and Accuracy** – The Hero loitering munition employs a cruciform wing which allows top-attack together with extremely short loitering radiuses which not only accelerate the attack but also extend its preciseness to a pin-point strike level.
- **Lethality** – The LMs' small footprint does not jeopardize the efficiency of the systems' warhead. The Systems' advanced lethality package enable sophisticated detonation control capabilities.
- **All Targets** – The Hero family allows efficient attacking of multiple, stationary and on-the-move, targets at the area-of-interest.
- **Design to Cost** – All Hero Family members are very cost-effective when compared to any other Loitering Munition System which is available in the market, or with other alternative weapons like Ant-tank-guided-missiles, mortars or artillery.
- **High level of autonomous operation, at extended ranges** - Provides independent capability to the unit in the field, allowing it to operate and engage most distant targets with pinpoint accuracy, and reduce dependency on support from other units or echelons.
- **Common Infrastructure** – All Hero Family share the same design concept and training infrastructure that allows the operator to train and expedite the time-to-battlefield; meaning that once an operator is trained to fly any of the Hero family LM systems, he will be able to easily operate any other member of the Hero family. This reduce dramatically the overall life-cycle-cost (LCC).
- **Advanced ISR** – The Hero family of loitering munition employ a 3-axis gimbaled dual-channel Electro Optical – Infra Red [EO/IR] payload. The 3-axis payload enables the operator to 'jump' between multiple targets in the area of interest and to efficiently track target-on-the-move.
- **Low Signature** – Very low acoustic and visual signature, pneumatic launching which make the entire family ideal for covert operation by the tactical units.
- **Advanced Communication** – High-end communications provide immunity to extreme communication interference and jamming scenarios.
- **GPS Immunity** – The Hero family employs proven EO/IR based algorithms, and inertial navigation systems that allows it to maintain operability in GPS-denied environments.
- **Platform Agnostic / Simple Platform Integration** – The system allows for easy integration into all AFVs, MBTs, Humvees and even commercial pickups or Naval Vessels.
- **Safety** - Dual safety fuse + Pneumatic Launch.

