

Russian Lastochka drone captured by Ukrainian forces

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A technical and operational breakdown of the recently found “Lastochka” drone, after it was acquired by Ukrainian forces on the 21 July 2022. The next day, the Russian news agency TASS reported that during the special military operation in Ukraine, the Russian military used a latest light UAV from the Lastochka complex [1]. According to TASS, Russian military units caused damage to personnel and destroyed several armoured targets of the Armed Forces of Ukraine [1]. The retired Russian *General Vladimir Popov*, and military experts *Vladislav Shurygin* and *Sergei Belousov* published a few more details about the newest Russian strike drone “Lastochka”

KEYWORDS

drones, OSINT, Ukraina, Russia, Conflict

1 | DRONE CAPTURE

On 21st, Ukrainian forces announced the capture of a Russian UAV “Lastochka” (seen in Figure 1 [2]. According to the Head of the British-based Conflict Armament Research organisation Damien Spleeters, it was a modern Russian “Lastochka-M” drone. According to Damien, this drone, along with other Russian weaponry and communications equipment, will be examined to see if any third party foreign components are being used in their supply chain to produce this equipment.

Abbreviations: UAV, unmanned aerial vehicle; OSINT, open source intelligence; TASS, Information agency of Russia (English).



FIGURE 1 Photo of the captured Lastochka-M

1.1 | Russian Media Response

On the 22nd July 2022 the Russian news agency TASS reported that “During the special military operation in Ukraine, the Russian military used the latest light unmanned aerial vehicle (UAV) from the Lastochka complex [1]. Attack drones inflicted damage on manpower and destroyed several armoured targets of the Armed Forces of Ukraine during the hostilities.”

According to the source, the drones utilised fragmentation and cumulative ammunition. He said that UAVs can drop small-calibre ammunition adapted for use from the air, if required.

“It is likely that, now in the course of action, a Squadron of UAVs was used in attacking the positions of the Armed Forces of Ukraine”, told retired Air Force Major General Vladimir Popov [3].

Military expert and publicist Vladislav Shurygin noted that the “Lastochka” could work in tandem with a larger UAV – “Inohodech”. “If we recall the first appearance of the Lastochka drone during exercises, then it acted there in tandem with the Inohodech strike drone” [4]. Therefore, he postulated assumed that even now in Ukraine they work together, being used for various purposes. Also known as “Orion”, “Inohodech” has great potential in both strike, and reconnaissance roles [3] [4]. It has a higher flight altitude, and it can give target classifications for the “Lastochka” and designate target areas through a control-centre to other UAVs. In the same way, “Lastochka”, having discovered targets that it cannot destroy itself, can direct larger UAVs at them. The bombs used by “Lastochka”, 43 mm grenades for the GM-94 grenade launcher weigh 280-350 grams, which, together with their fastening system, with the help of stabilizers, suspension, and release systems, weigh less than 1.2 kilograms. This type of grenade has a wide range of warheads [3].

Military expert Sergei Belousov said that the small size of the “Lastochka” gives it a stealth advantage but makes it impossible to use heavier weapons. At the same time, the task of this drone in combat is on the front line. These small-sized drones are used in groups and can deliver many different types of grenades on high-value targets. “Lastochka” seems to be one of the first Russian reconnaissance drones refitted for carrying weaponry making it dual-function.

1.2 | Background

The “Lastochka” UAV was publicly first exposed on the 31st of July 2021 in the Alabino training ground, near Moscow. A large military sports festival was held in the honour of the 91st formation anniversary of the Airborne Assault Forces (VDV) [5]. It also showcased the new and promising models of weapons, military, and special equipment [5]. Russian Defence Minister Sergei Shoigu also visited the exhibition which led to press a release from the Ministry of Defence. “In the course of a demo, new and promising models of airborne artillery equipment were presented for the first time. The



FIGURE 2 Drone deployment

demo was opened by a flight of a close combat formation of a five UAV group: Eleron-3 and Orlan-10, as well as the “Lastochka”, which in time was still undergoing its trial operations.”

The first time these drones showed themselves was in September 2021 during the main episode of the Zapad-2021, strategic Russian-Belarusian exercises at the Mulino training ground. The Russian Defence Ministry said in a statement: “As part of the reconnaissance fire complex, unmanned attack aerial vehicles Inohodets, Lastochka, and Orlan-10 were involved.” The drones were able to provide cover for the maneuvers of the defending units using the latest 120-mm Gran laser-guided mines. Attack drones from the Lastochka complex hit the openly located troops of the mock enemy and eliminated armored targets with fragmentation (HE-FRA) and cumulative (HEAT) ammunition. Dedicated to the coverage of “Zapad-2021” on the Zvezda TV channel dated September 19, 2021 shows the launch of a light UAV from a catapult with a rubber cord. Under the fuselage were placed two small-sized ammunition’s with a plastic case – presumably special small-sized aerial bombs.

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| Name (ENG): Lastochka | Name (RU): Ласточка |
| Class: UAS | Type: Strike UAV |
| Modifications: Lastochka-M | Military service: Army |
| Weight: 4 kg | Max weight of the mission payload: 1.2 kg |
| Maximum speed: 120 km/h | Max range: 25 - 45 km |
| Service ceiling: 4600 m | Endurance: 1.5 - 2 hours |
| Launch method: special catapult | Manufacturer: Ltd Design Bureau “Luch” |
| Weapon Options: 43 mm grenades for the GM-94 grenade launcher: VKO-25 HEAT, HE-FRA or VGO-25 thermobaric. | |

TABLE 1 Drone Specifications

1.2.1 | Technical

The technical specifications of the “Lastochka” cannot be found from open sources. The estimations are roughly based upon the similar Israeli Skylark system. The Skylark has a take-off weight of 7.5 kilograms, of which 1.2 kilograms can be

in the payload. The maximum height indicated for Skylark is 4600 meters, the operating time is 40 hours, and the flight range is 40 kilometres.

Retired General Vladimir Popov published some of characteristics of the "Lastochka" on 22. July 2022. The range is up to 25 km, the weight is 4 kg, and the flight time is 1.5 hours. "Lastochka" is a system, which in addition to the drones themselves, includes a command vehicle, which maintains contact with drones and gives them the coordinates of ground targets. As a weapon, "Lastochka" may well use, for example, 43-mm grenades from a GM-94 grenade launcher, which can be used for air strikes. The range of these grenades also includes VKO-25 HEAT ammunition, capable of penetrating 200 mm of armour. In a steep dive, they will easily break through the top of the tower or are guaranteed to destroy the engine compartment. HE-FRAG and thermobaric VOG-25 can be used against infantry.

2 | CONCLUSION

The Russian invasion of Ukraine has been notable in the employment of UAVs by both sides for reconnaissance, targeting and conducting limited attacks. This use is predicted to continue as their utility has been proven and is it expected that there will be ongoing development of their capabilities with refinements to their tactics, techniques and procedures. It is also assessed that in response to this, both Russian and Ukrainian forces will also seek to enhance their counter UAV strategies.

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