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Russia-Ukraine Conflict: Ukraine Offensive for Getting Decisive Gains by UJ-22 Drones

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An unprecedented number of unmanned aircraft have been observed in the conflict between Russia and Ukraine. As the first major conflict to make substantial use of military and commercial drones, the Russia-Ukraine conflict may be portrayed as a drone war. Ranging from kamikaze loitering weapons and bomb-dropping octocopters to airliner-sized observation aircraft, a variety of drones are in action in this war. So much so that the Turkish Bayraktar TB2 has become a symbol of Ukrainian resistance against the Russians. Drones have been used to not only destroy Russian air defences and fuel convoys in Ukraine but they have also sunk patrol boats and set fire to an oil storage facility in Bryansk, which is across the Russian border. Thus drones are proving to be very effective weapons during war combat.[1]

Deep Penetration by Drone

On May 30, 2023, a large-scale drone attack was launched on Moscow. It was the first of such incident in the conflict that has been going on for the past 15 months. There were more than 30 drones involved in the offensive missions. It is the first time that Moscow has been significantly targeted in a single operation, but Ukraine denies being responsible for the strikes. Russia reportedly used the Pantsir-S surface-to-air missile system to shoot down five drones flying around the Moscow region. [2]

Alexander Khinshtein, a member of the Russian parliament, stated that drones were shot down in five different areas in the Moscow region, including at least two flying over Rublyovka. This wealthy suburb is home to much of Russia's political elite as well as Vladimir Putin's Novo-Ogaryovo state residence. Khinshtein said that at least two of the drones were flying over Rublyovka when they were shot down.[3]

According to speculation from Western analysts, at least one of the drones was most likely a UJ-22 model, a drone made in Ukraine by a company called Ukrjet. The UJ-22 Airborne was discovered in a forest approximately 30km from Moscow and is believed to have been rigged with explosives at its discovery.

According to Tass, a Russian state-owned news agency, two more drones fitted with cameras were discovered near Moscow. Following a complaint by Russian authorities a month ago about the presence of a drone approximately 15km northeast of Moscow, which they suspected originated from Ukraine, these three claimed discoveries of drones follow in their footsteps.[4] Russia has asserted that such drones have been used in several previous failed terrorist plots.[5]

Ukrainian 'UJ-22 Airborne'

Ukrjet is an enterprise that specialises in the construction and production of jets as well as multi-purpose unmanned aircraft systems (UAS). The UJ-22 Airborne is a multi-purpose drone capable of flight at any time of day or season, in both favourable and unfavourable weather conditions, and in the presence of electronic countermeasures. It resembles a miniature version of a light aircraft, like the Cessna 172. The UJ-22 possesses substantial endurance in addition to having an exemplary range. It is a highly competent and flexible piece of aerial hardware designed to carry out a variety of missions. This drone was developed to function in environments with severe weather, making it an excellent choice for tasks that last for extended periods. Because of these capabilities, the UJ-22 Airborne drone is efficient and dependable equipment that can be used for various tasks. The UJ-22 airborne can carry out missions, including intelligence gathering, search and rescue, and other related activities, for the benefit of the Army, the police, and other rescue agencies.[6]

With an inbuilt 64-megapixel camera, the UJ-22 Airborne also provides thermal imaging capabilities. It can offer high-quality battlefield imagery in real-time, making it a valuable tool for acquiring and tracking targets. Because of its capacity to fly autonomously, the UJ-22 Airborne is ideally suited for conducting tests of hostile air defences before deploying drones or missiles that are both more expensive and capable. In addition, it has an effective range of up to 100km. As a result, it can acquire crucial information about the enemy's defences and then relay that information back to ground forces, giving them accurate and timely information.[7]

The UJ-22's vital technical specifications are included in the following table:[8]

Weapons available	Free-fall bombs, four 82-mm mortar mines, or six PG-7VM munitions via an RPG-7 rocket launcher.
Wing Span	5 metres
Flight range	800km (500 miles)
Max speed	160kph (100mph)
Max service ceiling	6,000m (20,000ft)
Max payload	up to 20kg (44lbs)
Cruise speed	120kph (75mph)

Max flight time	7 hours
Min service altitude	50m (164ft)
External crew	4
Operating temperature Limits	-40 to +50°C
Average UAS set-up time (without flight mission input)	About 10 min. Launching an unmanned aerial vehicle takes an average of three minutes of preparation time.

Use in the Russia-Ukraine conflict

The Ukrainian Army officially adopted the UJ-22 Airborne in 2020. Notwithstanding this, Ukraine began using this drone between 2022 and 2023. The UJ-22 can attack static targets with ease. As a result of the drone's ability to drop its payload at predetermined coordinates, it is beneficial for engaging in combat against targets that remain in one place. This function enables precise targeting, resulting in the most significant possible impact on the intended target. The UJ-22 Airborne drone also features several control modes, each of which helps ensure the highest possible level of operating performance. Automatic, semi-automatic, or manual control of the drone and its payload are all viable options, depending on the needs of the operations.[9]

On March 30, 2022, a Pantsir-S missile and gun system was responsible for destroying a UJ-22 Airborne in Ukraine. The video footage of this was provided by the Russian Ministry of Defence. According to reports from the defence department, the UAS was transporting an aerial bomb and 82mm calibre mines under its wings. The crew of the Pantsir-S fighting vehicle quickly recognised the drone that was being operated by the Ukrainian armed forces and successfully shot it down with a single missile.[10]

Conclusion

The UJ-22 Airborne is a multi-purpose drone that was developed primarily for use in the military. This reduced-size aircraft can function independently or be remotely controlled from a command centre. The UJ-22 Airborne is equipped with highly developed sensors, cameras, and communication systems, enabling it to perform various missions. These operations can range from

neutral to offensive, including reconnaissance, surveillance, and target acquisition. In addition, this drone can carry out intelligence operations, search and rescue missions, and support the armed forces, police, and other emergency response services.

There have been few missions by manned aircraft due to air defences, such as long-range radar-guided systems and portable shoulder-launched weaponry. Drones have mostly substituted jets for gathering intelligence and carrying out airstrikes, particularly against armoured vehicles. Drones are familiar, simple to fly, and inexpensive; some are even operated directly by ground unit squads and even individual foot soldiers, who utilise them as weapons or to scan the battlefield. Conventional wars may be significantly configured by drones and UASs.

NOTES:

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[5] Peter Beaumont, "Who was behind Moscow drone attacks and what do they mean for Ukraine war?", *The Guardian*, May 30, 2023, https://www.theguardian.com/world/2023/may/30/who-was-behind-the-drone-attacks-on-moscow-and-what-do-strikes-mean-for-ukraine-war#:~:text=What%20drones%20were%20 involved%3F,at%20 least%20 one%20previous%20attack. Accessed on May 30, 2023.

[6] "Unmanned Aircraft Systems Solutions," *Spe Ukarjet*, 2023, https://ukrjet.ua/eng. Accessed on May 30, 2023.

[7] Ibid.

[8] Ibid.

[9] Eric Sof, "UKRJET UJ-22 Airborne: Ukraine's Versatile Drone for Military Operations", *Spec Ops Magazine*,

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[10] Ibid.