

UAVOS introduces tropicalised UVH-170E VTOL UAV

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UAVOS has developed a tropicalised version of its UVH-170E vertical take-off and landing (VTOL) unmanned aerial vehicle (UAV) optimised for operations in hot and humid environments.

Jane's understands from UAVOS officials that development and modification work had been completed at the end of December 2018. The company is currently performing operational testing with a modified example.



The updated UVH-170E is designed to offer improved reliability and performance in tropical conditions. Seen here is the baseline air vehicle. (UAVOS)

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The baseline UVH-170E UAV has a maximum take-off weight (MTOW) of 41 kg and measures 3.28 m long and 0.85 m tall, with a main rotor diameter of 2.6 m. It is powered by a 4-stroke gasoline direct injection engine rated at 7 kW that enables it to attain cruising and maximum speeds of 60 km/h and 120 km/h respectively, with an operational ceiling of 8,200 ft (2,500 m). UAVOS claims that the air vehicle can perform VTOL manoeuvres in wind conditions of up to 14 m/s.

A 13 litre fuel tank supports up to five hours of flight when carrying a 4 kg payload, which includes a newly developed, gyro-stabilised, two-axis gimbal equipped with an integrated full HD (1080/60p) daylight camera with $\times 30$ optical zoom, a longwave infrared (LWIR) camera with 1,024 \times 768 pixel resolution, a laser rangefinder with a range of 2,500 m, and an onboard graphics processing unit (GPU).

A complete system comprises a UVH-170E UAV with its ground control station.

“The unmanned helicopter is adapted for flying in a tropical climate and is equipped with a modified payload for operations outside of direct radio coverage,” Aliaksei Stratsilatau, UAVOS co-founder and lead developer, told *Jane's* .

“The main advantage of the [air vehicle] is that it possesses unique characteristics to work in high [mountainous] conditions [and] in hot and tropical climates, with sudden temperature changes,” he added, noting that possible applications include law enforcement; counter terrorism; intelligence, surveillance, and reconnaissance (ISR); and search and rescue (SAR).

According to Stratsilatau, the updated UVH-170E incorporates several enhancements centred around heat management, including a modified forced-air cooling system that features a new air impeller configuration with twice the surface area for increased airflow, as well as a newly installed fan and an improved processor heat sink for the electro-optical payload.

The air vehicle has also benefited from an overhaul of its electrical wiring and a new anti-corrosion coating.

“[These] modifications increase the service life of the UAV in tropical conditions since it takes into account the increased humidity and operating temperatures,” he noted.

However, *Jane's* understands that the company does not intend to offer an option to retrofit tropicalisation features into existing UVH-170E platforms.

“As a rule, UAVs that are designed for specific operating conditions have specialised parts and technologies,” Stratsilatau noted. “For example, operation of an arctic-optimised helicopter in the tropics would be unreasonable.”

“It is expensive and impractical to convert already manufactured UAVs for other climatic zones,” he added. “[Such UAVs] cannot achieve maximum efficiency due to those limitations.”

Comment

The tropicalised UVH-170E VTOL UAV could gain traction with countries in Central America and parts of South America, the central regions of the African continent, as well as Southeast Asia where equipment service life – and in some instances performance – tends to be adversely affected by constant exposure to heat and high levels of humidity. It is generally accepted that baked-in anti-corrosion features are more effective and reliable than retrofitted packages, and the UVH-170E appears to be ideally positioned to meet emerging requirements from these regions.