Top Gun for Drones: The Pentagon Organizes an Exercise. T-REX Guide

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The United States Army is stepping up its commitment to integrating drones into modern combat, with a Top Gun-style training program designed for **FPV (First-Person View) drone operators**. Scheduled for August 2025, the Pentagon's **Technology Readiness Experimentation (T-REX)** exercise will offer a dynamic and high-speed training session designed to elevate drone mastery.

The Rise of FPV Drones in Combat

In recent years, FPV drones, originally designed for recreational racing, have become a revolutionary asset on the battlefield. These drones, equipped with virtual reality goggles for first-person navigation, allow operators to control the drones as if they were piloting them personally. Their use as low-cost precision missiles has proven incredibly effective, especially in Ukraine, where these drones have contributed to a significant portion of battlefield casualties.

However, piloting these drones is no easy feat. While they offer enormous tactical advantages, the success of FPV drones depends on highly skilled operators with quick reflexes and specialized training. To meet this need, the United States Army is now establishing specialized schools for FPV drones.

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T-REX Exercise: A Top Gun School for Drone Operators

The T-REX exercise scheduled will be an opportunity to push the limits of FPV drone capabilities. Alex Lovett, director of prototyping and experimentation at the Pentagon, stated that, for the first time, the Pentagon will host a "TOPGUN school" for FPV drone pilots as part of this semi-annual exercise. The exercise will include "Red versus Blue" simulations, with elite drone operators testing their skills against cutting-edge anti-drone defenses.

In addition to focusing on FPV drones, T-REX 25-2 will place significant emphasis on counter-drone systems (counter-UAS) and short-range air defense in various environments, including urban settings and military bases. The Pentagon intends to integrate a combination of human operators and AI-driven systems, further refining the coordination of drones' defensive and offensive capabilities.

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Accelerating Innovation

Defense Secretary Pete Hegseth emphasized that the United States is in a critical race in drone development. “Our adversaries collectively produce millions of low-cost drones every year,” he stated, highlighting the urgency for the United States to accelerate drone technology and deployment. The Pentagon is focusing on "low-cost and replaceable" drone systems, which can be easily replaced if lost, making them highly effective in modern combat.

The T-REX exercise is not just about drone experimentation but also about evaluating the infrastructure that supports them. The concept of a "passive and multi-spectrum aerial surveillance kill chain" will be tested, involving the use of a combination of sensors, such as infrared, radar, and acoustic, integrated into a software system that provides a coherent operational picture. This technology will be crucial for detecting drones in challenging combat environments.

Lieutenant Colonel Matt Limeberry, who oversees the T-REX experiments, emphasized the importance of low-cost short-range air defense solutions, noting that these will be a focal point during the exercises. The rapid prototyping and experimentation model will allow the army to quickly test new technologies and provide invaluable feedback to developers.

Partnership with Industry and Real-World Testing:

The Pentagon's testing process also involves collaborations with a wide range of commercial partners. From small companies like Berry Aviation to tech giants like Amazon, the Pentagon is opening the doors to innovation from all sectors. Emil Michael, Under Secretary of Defense for Research and Engineering, emphasized that the T-REX program allows for testing technologies in realistic operational environments, helping to refine systems before they are deployed.

One of the most notable successes of this program has been the Kratos XQ-58 Valkyrie drone, which has already moved from experimentation to acquisition by the United States Marine Corps. The Valkyrie, along with other systems tested in T-REX, exemplifies the speed at which promising technologies can be refined and integrated into the United States military arsenal.

With the increasing dominance of drones on the modern battlefield, the Pentagon's T-REX exercises will be crucial in shaping the next generation of drone combat strategies. By integrating Top Gun-style training, real-world experimentation, and rapid prototyping, the United States Army aims to ensure it maintains a technological edge over its adversaries, preparing for a future where drones are central to both offensive and defensive operations.

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