



## Russia's New 'Dragonfly' UAV

**OE Watch Commentary:** Recent developments in military technologies have largely favored asymmetric warfare capabilities rather than traditional developments. In particular, unmanned aerial vehicles (UAVs) play an increasing role in militaries all over the world. The Russian military continues to develop UAV capabilities, and according to the recent article in the pro-government source *Izvestia*, it has successfully tested a new category of reconnaissance UAV in Syria.

The article reports that the new drones detect mines and other explosives without significantly endangering personnel. The engineers remain in a nearby armored vehicle, controlling and monitoring the drone throughout the search. The UAV, called the Strekoza (Dragonfly), detects mines more consistently and more quickly (flying 20 kilometers/hour) than engineers, and can operate successfully both in populated and unpopulated areas. According to the author, it will be most useful in open wastelands, where limited cover greatly endangers the lives of personnel with traditional mine detection devices, but is also helpful in population centers, where accuracy and speed are critical to the prevention of civilian casualties.

The drones, “designed for use by mobile engineering reconnaissance teams,” can be transported easily in the Russian Tigr armored vehicles. The Strekoza weighs 12 kilograms, can carry a payload of an additional 2 kilograms and “can stay aloft for up to 40 minutes” using its eight electronic motors. It is designed to detect semiconductor components. While this leads to the detection of both mines and other explosives, the drones also check for “caches of weapons and ammunition, communication devices, and hardware.” The Strekoza can then determine the type of weapon detected and transmit the information to nearby engineers, who are then deployed to disarm the detected explosives. The UAV is also fitted with a video camera to allow for visual inspection of targets prior to deploying engineers.

The nonlinear radar of the Strekoza allows for detection of the unsystematic planting patterns. The ability of the drone to detect explosives in cities and through buildings ensures fewer civilian casualties and an effective handling of urban explosives. According to the author, these features in particular will ensure successful removal of explosives with limited casualties in Syria and other similar zones. **End OE Watch Commentary (Johnson)**

*“The Strekoza is designed to replace the military engineer with a mine detector, especially when under fire in open country.”*

**Source:** Nikolay Surkov, “Мины найдет робот-«стрекоза» Российские саперы испытали в боевых условиях уникальный комплекс инженерной разведки (‘Dragonfly’ Robot Will Locate Mines; Russian Military Engineers Tested Unique Engineering Reconnaissance System in Combat Conditions),” *Izvestia Online*, 27 November 2017. <https://iz.ru/657812/nikolai-surkov/miny-naidet-robot-strekoza>

*Russian military engineers have received the Strekoza unique robotic engineering reconnaissance system. It is an unmanned aerial vehicle (UAV) equipped with a non-linear radar, camera, and GPS module. It is designed for remote search for mines and improvised explosive devices. The drone is able to quickly survey a large area and identify sources of danger. The Strekoza has already been tested in Syria. According to experts, the use of such UAVs significantly reduces the risk to life of military engineers and speeds up demining activities....*

*...The drone was especially in demand when checking large open spaces around population centers and also wasteland.*

*The Strekoza is designed is to replace the military engineer with a mine detector, especially when under fire in open country. The UAV is deployed from an armored vehicle, in which the operator remains, and systematically combs the area in automatic mode. When detecting an explosive the Strekoza determines its coordinates and transmits them in real time to a control panel.*

*The Strekoza UAV is designed for use by mobile engineering reconnaissance teams. With a mass of about 12 kilograms, it can be transported by a Tigr armored vehicle. It can stay aloft for up to 40 minutes and can carry up to two kilograms payload.*

*The Strekoza carries the nonlinear NR-900K Korshun underneath its body. It is designed to search for controlled mines and explosive devices and other equipment containing semiconductor components — whether on or off. When a probe signal from a transmitting antenna interacts with semiconductors it is re-emitted and returns to the radar receiving antenna.*

*In this way it checks roads and buildings for the presence of radio controlled bombs, mines, and any munitions containing semiconductors. It can also look for caches of weapons and ammunition, communication devices, and hardware....*

*...The drone is lifted into the air by eight miniature electric motors, which make it look like a big black spider. Flight speed when performing engineer reconnaissance, up to 20 kilometers per hour, provides a quick scan of the area. The UAV is also fitted with a video camera for visual inspection of suspicious objects. Detected explosive devices are neutralized or destroyed by military engineers.*

*Military expert Oleg Zheltonozhko told Izvestia that the widespread introduction of robotic systems in Syria helped reduce risks for engineering troops personnel....*

*...According to reports by Russian military engineers, the use of nonlinear radar became one of the main methods of searching for explosive devices in Syria. This was due to the unsystematic mining of areas by the militants and the use of a large number of improvised explosive devices in urban areas, which ruled out demining using the classical method.*