

Russia Employing Little Known Aviation Mines

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OE Watch Commentary

Mines are typically thought of as only concerning the land and sea domains, but as the excerpted article from *Voyenno-Promyshlennyy Kuryer*, a Russian weekly newspaper focusing on military and defense issues, explains, mines affecting the air domain are now fielded by the Russian Armed Forces. Russian planners envisage aviation mines being used against enemy helicopters in scenarios including airfield and runway operation interference, landing zone defense, and facility defense.

Aviation mines reportedly function by using an acoustic-infrared sensor to first identify the noise of an aircraft at up to 3.2 kilometers and then launch a projectile at the identified aircraft when it is within 150 meters. Although currently fielded Russian aviation mines can only hit low flying targets at a very short distance, their employment could greatly complicate Russia's adversaries' efforts to protect airfields, drop zones, and any other place where aircraft may fly low.



Anti-helicopter mines.

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Source: Vitaly Orlov, “Мина для «летающего танка»: «Бумеранг» ставит заслон авиации противника (Mine for ‘Flying Tank’: Bumerang Sets Barrier Against Enemy Aviation),” *Voyenno-Promyshlennyy Kuryer* (Russian weekly newspaper focusing on military and defense issues), 27 April 2021. <https://vpk-news.ru/news/62235>

The Russian Federation concerned itself with the need to create such weapons [anti-helicopter mines] only by the end of the 1990s, having launched a large-scale scientific research and experimental design work on this project...The technical tasking issued to the developer envisaged creating a system capable of ensuring effective blocking of airfields and runways, defend landing zones, and security of strategic, military, and civilian facilities. An important role was also assigned to psychologically impacting the helicopter crew, who realize the danger of being detonated and involuntarily elevate the flight altitude of the aircraft, thus making it more vulnerable to [more traditional] means of air defense.

An important characteristic of this development's combat capabilities is its autonomous operation time, depending entirely on the capacity of its power source. The key factors influencing the duration of combat operation are primarily the temperature of the surrounding air and the number of the mine target guidance system activations. Nevertheless, the minimum guaranteed time for its power source autonomous operation is 90 days. In this regard, a reasonable question arises: what happens after that? The anti-helicopter mine is equipped with anti-disturbance and self-destruct systems, which provide for its independent detonation...

Similar to its more traditional “partners in crime,” an anti-helicopter mine is employed via two main methods: remotely, that is, by means of air or ground equipment (mine-laying devices) and manually. It is noteworthy that this process does not take long. Thus, in March 2018, the Western Military District combat engineer troops subunits rehearsing anti-helicopter mining as part of a special tactical exercise, needed less than an hour to carry out this task. In such a short period of time, the sappers covered a defensive line over three kilometers in length. Thus, the actions of the army aviation of the notional enemy in this sector of combat operations were completely paralyzed.

Paradoxical as it may be, laying anti-helicopter mines from aboard helicopters is even faster. In this case, a special “aviation” version of the Bumerang anti-helicopter mine, with six (instead of four in the “ground” version) stabilizing slings, which ensures the accuracy of the installation of anti-helicopter mines in the vertical plane. These mines take stable vertical positions while still in flight, and the NVU is activated when coming into contact with the ground surface.

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Even heavy bombers and military transport aircraft reduce their speed to 280-320 kilometers per hour, and flight altitude -- down to 100-200 meters, when on landing approach. Moreover, the range of their location from the “native” airfield runway is at least 10 or even 15 kilometers. It is obvious that tight “closure” of such a zone is simply impossible. This in turn provides a real opportunity for the sabotage group to make a remote mining operation without entering the zone of operation of the airfield air defense and not fearing unpleasant “surprises” from the ground security...