



Russia Developing Top-Attack Tank Mine

OE Watch Commentary: In general, Russia still believes mines are a key capability for restricting maneuver and shaping the modern battlefield. While other countries have for the most part have abandoned mine use, the Russians have made no such commitment. The accompanying excerpted article from *Izvestiya* discusses Russian efforts to develop a top-attack tank mine. A top-attack tank mine has several advantages over its less technologically advanced cousins. The primary advantage is that a top-attack tank mine can avoid the tanks thick side and frontal armor, instead hitting the tank on its less armored top, thereby increasing the chances of a critical hit. Since the top-attack tank mine has a range of approximately 100m, far fewer top-attack tank mines are required to defend a given area versus the use of conventional proximity mines. Perhaps the most insidious advantage of the mine is the difficulty in removing it. Mine plows and other such systems would be ineffective as the mines would likely have to be found and removed by dismounted personnel, a time consuming activity in high-speed maneuver warfare.

The Russian Armed Forces not only use engineers to deploy mines, but they also have developed other, more novel approaches. Mines may be deployed by conventional (tube) artillery, multiple rocket launch systems, or as the accompanying article from the *Russian Federation Ministry of Defense* describes, by helicopter. These developments show that commanders and staffs still believe in the importance of mines to restrict enemy maneuver, and make it clear that Russia will likely use mines in the event of any type of maneuver warfare. **End OE Watch Commentary (Bartles)**

“A mine like this controls a fairly large sector of ground to a radius of up to 100 meters, which means that blanket minelaying is not necessary...A small group of servicemen with a couple of dozen of these mines can rapidly cover a decent area of a front. Also, flails and plows do not work against a ‘smart’ minefield like this because vehicles are hit from a distance...In future it will be possible to link Russian ‘smart’ mines into a network run from a single control panel. The munitions’ sensors will transmit to the panel data about objects detected -- type, number, speed, and direction of travel. The operator will be able to select which mines to activate to destroy targets and which to keep in reserve.”

Source: Nikolay Surkov, Sergey Valchenko, and Aleksey Ramm, “«Противотанковый часовой» ударит сверху: Для российской армии разработаны «умные» противокрышевые мины [The ‘Antitank Sentry’ Will Strike From Above: ‘Smart’ Top Attack Mines Are Being Developed for the Russian Army]” *Izvestiya Online*, 15 January 2018. <https://iz.ru/677597/nikolai-surkov-sergei-valchenko-aleksei-ramm/protivotankovyi-chasovoi-udarit-sverkh>

The Russian military are to receive an “antitank sentry” -- the PTKM-IR [ИТКМ-ИР], the first top attack mine. Thanks to sensitive electronic sensors and “smart” innards, it can autonomously track a hostile tank and destroy it by firing a special submunition from the least protected direction -- above. In the expert’s opinion, these new engineering munitions will remove the need to densely sow mines in a locality, and on armor approach routes will make it possible to quickly create minefields that are impassable without specialized equipment.

*Development of the first domestic top attack mine, the PTKM-IR, is nearing completion for the military, *Izvestiya* was told at the Defense Ministry. Prototypes are already in testing. The design concept is for a fundamentally new and high-tech engineering munition that will significantly increase sapper subunits’ capabilities against tanks and other modern armor.*

The PTKM-IR mine is a green cylinder the size of an ordinary fire extinguisher and weighs about 20 kg. After being planted and activated it opens up like a flower, its petals unfurling from the casing to hold it in a vertical position. The mine is planted upright (it just needs to be taken from the back of a vehicle and placed on the ground) and can remain armed for up to 10 days at temperatures from minus 40 to plus 30 degrees Celsius. After that time it can self-destruct so as not to endanger civilians. A combined sensor (seismic and thermal) can detect a target at a range of 150-250 meters. When a tank or armored vehicle is detected the mine leans slightly in the required direction. When the target is within the kill zone, the submunition is launched. It climbs to an altitude of a few dozen meters, locates the target with a thermal imager (which reacts to heat from the engine), and shoots an explosively formed slug of molten metal into the roof of the turret...

*By creating top attack mines Russian developers are following global trends in advances in weaponry, military expert Aleksey Leonkov told *Izvestiya*...“A mine like this controls a fairly large sector of ground to a radius of up to 100 meters, which means that blanket minelaying is not necessary,” he explained. “A small group of servicemen with a couple of dozen of these mines can rapidly cover a decent area of a front. Also, flails and plows do not work against a ‘smart’ minefield like this because vehicles are hit from a distance.”*

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Source: “Вертолётчики ЗВО на учении в Ленинградской области заминировали танкоопасные направления с воздуха [Western Military District Helicopter Crews Mine Tank Approach Routes from the Air in an Exercise in the Leningrad Oblast],” *Russian Federation Ministry of Defense*, 26 January 2018. https://function.mil.ru/news_page/country/more.htm?id=12159658@egNews

The crews of Mi-8 helicopters of a separate transport mixed aviation regiment of the Western Military District carried out aerial mining of tank approach routes during an exercise in Leningradskaya Oblast... Flying from Levashovo airfield, they used VMR-2 Dozhd mine dispensers installed in the Mi-8s’ fuselages, from a minimum altitude of 10 meters. During the process the aircraft held a speed of not more than 20 kph as they maintained the intervals for sowing the antitank mines, which were concealed in deep snow. The pilots received coordinates from reconnaissance groups on the ground. The aerial mining made it possible to halt the progress of notional enemy armor. More than 10 square kilometers of terrain were sown with several hundred antitank mines. Twenty Mi-8 helicopter crews took part in the exercise...