Image Source: DRDO; Aaj Tak

Glide Bombs: A Stealthy Scourge

The ongoing Ukraine- Russia conflict is driving a rapid evolution in weapons and tactics, with new developments emerging at an astonishing pace. Every day, the media reports on innovative strategies being employed by both sides, with a focus on maximizing destruction while minimizing detection. This relentless pursuit of military advantage is not only spurring the invention of novel weapons but also prompting researchers to revisit the past, seeking inspiration from historical combat methods and amalgamating them with cutting-edge technologies to create more lethal tools for modern warfare.

As the conflict unfolds, the boundaries between traditional and modern warfare are becoming increasingly blurred. The fusion of old and new approaches is yielding unprecedented capabilities, from the adaptation of century-old artillery tactics to the integration of artificial intelligence and cyber warfare. This dynamic landscape is redefining the nature of modern combat, with each side racing to outmanoeuvre and out- innovate the other.

One such innovative tactics being very effectively used by the Russians is the glide bomb. Although conceived during World War II, its true potential as a game-changing weapon has only recently been recognized by modern militaries, courtesy of Russia's innovative approach. The fundamental principle remains unchanged - equipping large bombs with wings and fins, allowing them to glide rather than simply drop, and potentially strike targets with precision. However, the modern iteration boasts significant advancements. Today's glide bombs are larger, dropped from aircraft soaring over 20,000 feet higher than their World War II counterparts, and empowered by cutting-edge precision guidance systems, including GPS, laser guidance, inertial navigation, and remote control. As a result, these stealthy munitions can travel astonishing distances, with some gliding up to 150 kilometres, making them a formidable force on the battlefield.

The real advantage of these bombs is of course their stealthy nature. Unlike cruise missiles, they don’t have internal propulsion, which eliminates heat signatures and reduces their radar profile. This makes them exceptionally difficult to detect and intercept. The lack of a heat signature and their small size render them nearly impervious to surface-to-air missiles, which typically rely on heat-seeking technology. The most effective countermeasure is to target the aircraft releasing them, but that’s no easy task. With a range of nearly 150 kilometres, these bombs allow the launching aircraft to stay within their own country’s airspace, out of reach of enemy defences.

The true strength of Glide Bombs lies in their cost-effectiveness, ease of production (cheap gliding kits need to be attached to the bombs) and immense destructive power. Unlike cruise missiles, which devote about 70% of their mass to propulsion, glide bombs allocate over 98% of their weight to explosives. Weighing in at nearly 3 tons, the Russian variants have a kill radius in excess of 1,000 meters, making them a devastating weapon.

The simplicity and stealth of glide bombs are a pressing concern, as their potential for widespread destruction grows. The threat is escalating as various combinations are being explored, including equipping glide kits with thermo-baric capabilities and even tactical nuclear weapons. The danger is further amplified by the glide bombs' stealthy nature and extremely low manufacturing cost, making them a potentially game-changing yet devastating weapon. This alarming development poses a significant risk to both military targets and civilian areas, exacerbated by the relatively low cost of these weapons. Military experts are racing to find effective countermeasures against these insidious threats, which not only imperil military personnel but also endanger civilian populations.