

Not Smart Enough! US Smart Bombs ‘Punctured’ by Russian EW Attacks; Intel Report Says JDAMs Fizzling Out

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The top-secret Pentagon documents leaked last week highlight concerns about the failure of US-made bomb kits being used by the Ukrainian forces to carry out precision strikes against high-value Russian military targets.

The failure of these bomb kits is partly attributed to GPS signal issues, potentially caused by Russian jamming efforts.

The United States has provided Ukrainian Air Force with its Joint Direct Attack Munition Extended Range (JDAM-ER) bombs which could be used to hit large-sized Russian targets, such as bridges and hardened fortifications, from long distances.

Reports of the Ukrainian military using these US-supplied JDAM-ER bombs began emerging in early March. According to Russian [media reports](#), the Ukrainian military seems to have started using the JDAM-ER bombs on Russian-held positions in the Bakhmut region.

Standard JDAMs [rely on a combination](#) of the inertial navigation system (INS) and GPS guidance, coupled with an autopilot, to direct the bomb’s course via steerable tail fins.

The complete JDAM kit comprises a new tail containing a GPS-assisted inertial navigation system (INS) guidance system and strakes fitted elsewhere along the body of the bomb, which offers a limited ability to glide toward its intended target.

Depending on the altitude at which it is released, a JDAM can hit targets at a range of up to 24 kilometers, and the JDAM-ER’s wing kit extends this range up to around 72 kilometers.

A single JDAM kit costs over US\$24,000 and is used for converting unguided bombs weighing between 220 and 907 kilograms, as per [the fact sheet](#) of the US Navy.

When it came to light that the US had provided Ukrainian JDAM-ER bombs, Western military experts suggested that these bombs would pose unprecedented challenges for Russian forces.

The JDAM bombs can provide Ukraine with precision-guided fire-and-forget capability, which should allow the Ukrainian fighter pilots to turn away immediately after firing it, thereby putting a distance between themselves and hostile air defense systems.

However, a cache [of classified US intelligence documents](#) that were leaked recently tell a very different story, according to which the JDAM bomb kits being used by the Ukrainian Air Force may have been rendered useless by Russian electronic warfare.

Russian Jamming Of GPS Signals Causing JDAM-ER Failure?

A document marked 'secret' and titled "Why are JDAM-ERs Failing? BDA From Recent Strike?" examines why JDAM-ER bombs have failed on the Ukraine battlefield. Two factors potentially explain why there have been "duds and/or misses."

One of the factors is that the bomb fuses are not being armed correctly, which the Ukrainian Air Force is said to have fixed, and the second factor is the GPS signal issues, potentially caused by Russian jamming efforts, which have caused some misses.

The document also notes that similar GPS signal issues have hindered the operations of Ukraine's guided multiple-launch rocket systems (GMLRS).

"However, the Director of the Joint Navigation Warfare Center (JNWC) stated that based on their analysis, GPS jamming should not have affected the JDAM-ER strikes based on target location compared to active Russian jammers, but other factors may have prevented the JDAM-ER from acquiring GPS signal," the intelligence document [reportedly](#) said.

The document is said to have been published sometime between late February and early March. As stated earlier, reports of the Ukrainian military using JDAM bombs against Russian positions began emerging in early March.

Huge Explosion!!!

Video of Ukraine allegedly using U.S. donated JDAM High-precision Smart Bombs. [#UkraineRussiaWar](#) [#Ukraine](#) [#Russia](#) [#US](#)
pic.twitter.com/07VvxxzB59

— EurAsian Times (@THEEURASIATIMES) [March 11, 2023](#)

As per reports, by the time the document was published, the Ukrainian Air Force had dropped at least nine JDAM-ER bombs on Russian targets. However, four of them seem to have been missed due to Russian jamming efforts.

The confidence in this intelligence assessment was reportedly 'medium to high,' and the

document recommends neutralizing the Russian jammers before using the JDAM-ERs to realize the best results in precision strikes.

Image: JDAM Smart Bomb (Source: The Eurasian Times)



It is also important to note here that the JDAM kit relies on a GPS-assisted inertial navigation system (INS), which means the INS portion of the bomb must ensure that accuracy is retained up to a significant extent, even if the GPS signal is jammed or otherwise lost.

Russia has some of the most advanced electronic warfare equipment in the world and some very experienced personnel to operate such equipment. As per media reports, the Russian forces have been regularly jamming signals from the US Global Positioning System (GPS) as part of their military campaign in Ukraine.

In June, a Ukrainian Intelligence [official revealed](#) that the Russian jamming of GPS receivers on drones that the Ukrainian forces use to locate the enemy and direct artillery fire is particularly intense in the eastern and southern parts of Ukraine.

There have also been [reported instances](#) of Russian troops having managed to jam the radar communications of Ukrainian drones, keeping them from successfully identifying Russian artillery batteries.

Western experts have touted Russian ability to jam GPS signals [noting that](#) there have been instances where Russia has precisely jammed the GPS signals in northern Norway from locations far across the border without affecting the nearby frequency band from Russia's GLONASS satellite navigation system.

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Featured image: The graphic depicts various JDAM variants and an example of one of the bolt-on tail kit guidance units. (Source: The Eurasian Times)

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