

Russia's Only Pump Jet Kilo Class Submarine Is Back To Attack Ukraine
Thomas Newdick - The Drive



via @... /uncredited *Russia's Only Pump-Jet Kilo Class Submarine Is Back To Attack Ukraine*

A unique Russian diesel-electric submarine, the Alrosa, has returned to sea for trials ahead of rejoining the Black Sea Fleet with a new armament of cruise missiles. The one-off submarine, the oldest in the Black Sea Fleet, is likely to join combat operations against Ukraine, where Russia is now waging an intensified campaign of missile bombardment.

Russia's state-owned TASS news agency reported today that the Alrosa, a sub-variant of the Project 877 or Kilo class diesel-electric boats, went to sea to begin post-upgrade trials. This had been disclosed by the Black Sea Fleet's 13th Ship Repair Plant in Sevastopol, Crimea.

<https://twitter.com/MrFrantarelli/status/1541676935306158080?s=20&t=ufGqmOCOWOYCegYKLaj49g>

<https://twitter.com/OSINT88/status/1541747997259845632?s=20&t=ufGqmOCOWOYCegYKLaj49g>

“The submarine has deployed [to the sea from the Sevastopol Bay],” the plant said. “For the first time over eight years, it will be tested in various modes of operation and must prove its ability to operate according to its designation.”

Photos and videos also appeared on social media today, showing the Alrosa leaving the repair facility. It is important to note, however, that it's unclear how long these trials will take and exactly when the submarine will be declared ready for operational service. Furthermore, these are factory trials that are likely to be followed by further trials carried out by the Russian Navy.



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https://twitter.com/RSS_40/status/1541695312758276096?s=20&t=ufGqmOCOWOYCegYKLaj49g

<https://twitter.com/GrangerE04117/status/1539926760070213632?s=20&t=ufGqmOCOWOYCegYKLaj49g>

There are few details of the extent of the upgrade, but it's widely stated to have included the addition of 3M14 Kalibr subsonic cruise missiles, known to NATO as SS-N-30A Sagaris. These weapons have been widely used by Russia since the start of the war in Ukraine, being launched from surface combatants and submarines.

Before that, the weapon was employed by the Russian Navy during Moscow's intervention in the [Syrian Civil War](#). The Kalibr is widely analogous to the RGM-109 Tomahawk and is thought to have a range of between 930 and 1,550 miles, carrying a high-explosive warhead weighing 990 pounds.

The Kalibr missiles can also be exchanged for 3M54 anti-ship missiles, but with the absence of a meaningful Ukrainian surface threat, these are unlikely to be carried at the moment.

Last month, reports in the Russian state media described upgrades to the [Arosa](#) that included "new combat and technical capabilities" that brought it up to a standard comparable to the "six subs that had arrived for the Black Sea Fleet in recent years."

This is a reference to the latest Project 636.3 or Improved Kilo class boats that make up the rest of the fleet's submarine arm and which feature a Kalibr missile capability from the outset. These more modern boats were delivered between 2014 and 2017.

What's unusual about the Alrosa, which was completed to a unique standard also known as the Project 877V, is its propulsion system. While the standard Kilo class diesel-electric boats are driven by a six- or seven-bladed propeller, the Alrosa has a pump-jet propulsor, technology that you can [read about in detail here](#).

Suffice it to say, a pump-jet offers an array of advantages over propellers, above all the ability to reach higher speeds without [noisy cavitation](#) — this means they can transit long distances around much more stealthily. According to Russian accounts, pump-jets boats are [nicknamed](#) “black holes” due to their noise-suppressing features.

Moreover, pump-jets are also more efficient across most of a submarine's performance envelope and have particular advantages in shallow water, as in the Black Sea. At the same time, pump-jets are heavy, costlier, and more complex than a propeller, but they have found recent use on some of the Royal Navy's [Trafalgar class](#) and later the U.S. Navy's [Seawolf class](#) and [Virginia class](#) nuclear attack submarines, and many other subsequent classes.

The Alrosa, in drydock, revealing details of its fairly advanced pump-jet design.

In the case of the Alrosa, it seems the pump-jet was always intended for experimental use only and it has not reappeared on later iterations of the Kilo design. Pump-jets do, however, drive the [Russian Borei class](#) nuclear-powered ballistic missile submarines.

The Alrosa is a significantly older submarine, built at the Krasnoye Sormovo Shipyard in what was then Gorky (now Nizhny Novgorod) and originally launched in September 1989, shortly before the fall of the Soviet Union. With the demise of the Soviet Navy, the Alrosa was left in Crimea, then still part of the newly independent Ukraine.

In 1992, most of the Black Sea Fleet came under Ukrainian control, and attempts were made to establish an independent Ukrainian Navy. Russian reports state that in March of that year Ukraine attempted to seize the boat for its own use although a lack of spare parts and batteries at the time meant the submarine saw only limited operations.

Regardless, the situation quickly led to tensions with Moscow and an agreement for a joint fleet under bilateral command, although in practice this was dominated by the Russian Navy, which retained its foothold in Crimea. The Ukrainian Navy continued to exist, too, as a separate entity.

Finally, in 1997, a treaty was signed that divided assets of the former Soviet Black Sea Fleet between Ukraine and Russia, with Moscow paying Kyiv for the privilege of using Crimean naval facilities under a lease agreement.

*At this point, the Alrosa became the sole active submarine in the Russian Black Sea Fleet, the strategic importance of which had diminished immediately after the end of the Cold War. The Project 877V submarine Alrosa at Sevastopol in August 2005.
[Vyacheslav Argenberg/Wikimedia Commons](#)*

With the Russian annexation of the Crimean peninsula in 2014, the Ukrainian Navy was evicted, and the Russian Black Sea Fleet came to control additional former Ukrainian Navy vessels.

In the years since the annexation, the Alrosa has languished in port in Sevastopol. While its upgrade and reactivation began well in advance of the current war in Ukraine, it seems that the decision to return the submarine to the Black Sea Fleet may very well have been driven by the demands of the conflict, and especially the need for [cruise missile platforms](#).

Until earlier this month, it had been expected that the Alrosa would transfer to the Baltic Fleet, once it was back in service, and would then be used as a training submarine for crews destined for the newer Project 636.3 boats. Originally, this transfer was planned for 2020 but was reportedly held up by delays in the repair work.

Then, on June 17 this year, it [was announced](#) that, after all, the Alrosa would stay with the Black Sea Fleet, joining the 4th Independent Submarine Brigade in Sevastopol.

The decision to keep the Alrosa in the Black Sea Fleet may well also have been influenced by the availability of the local fleet's other six submarines. Unconfirmed accounts suggest that, as of mid-June 2022, the fleet had only two submarines fully active and operational in the Black Sea, with another two underway in the Mediterranean.

Of the remainder, one was in drydock, one had been last noted underway in May, and another was moored at Sevastopol. With that in mind, what looks like a relatively large force on paper can quickly be reduced by other operational and maintenance requirements.

Even without stepping up the tempo of its cruise missile attacks the current situation leaves the Black Sea Fleet notably short of submarines. The viability of returning the two submarines in the Mediterranean to the Black Sea is also somewhat unclear, due to the terms of the [Montreux Convention](#).

The convention puts restrictions on non-Turkish warships transiting between the Black Sea and the Mediterranean and extends to Russian submarines. An exception can be made if the submarine is moving to or from its Black Sea home-port for repairs, which is an argument that Moscow has used in the past. This has notably been the case for combat operations by Black Sea Fleet submarines in Syria.

However, even with all six of the fleet's Improved Kilo class boats in the Black Sea, the demands of routine maintenance, crew training, and replenishment of fuel, weapons, and supplies means that the force is under pressure.

Speaking yesterday to his British counterpart Admiral David Radakin, the commander-in-chief of the Ukrainian Armed Forces, Valery Zaluzhny, provided [figures](#) for the numbers of cruise missiles launched by Russia against Ukraine.

Four days ago, 53 cruise missiles were fired “from various base platforms,” three days ago 26 were fired, two days ago the number was close to 40, and in the previous 24 hours, 12 had been fired. These missile strikes accounted, among others, for the attack on the shopping center in [Kremenchuk](#) in central Ukraine that killed and injured dozens of civilians.

The “various base platforms” include Tu-22M3 bombers launching their missiles over Belarus, as well as Tu-95MS and Tu-160 strategic bombers launching cruise missiles from over Russia. However, naval vessels, including frigates, corvettes, and submarines of the Black Sea Fleet have long played a key role in delivering these strikes.

The Kilo class is relatively compact, and each of the Project 636.3 boats reportedly carries only four Kalibr missiles. Although unconfirmed, it’s likely the updated Alrosa has a similar capacity.

The improved performance offered by the pump-jet propulsion unit is of no consequence in a conflict without any anti-submarine warfare opposition. The fact that the Alrosa had previously been earmarked for a training role suggests that any advantage conferred by the unique propulsor was likely not judged sufficient to keep it in service in a front-line role.

Russian Navy submariners launch Kalibr missiles during naval exercises earlier this year:

Furthermore, the Alrosa has in the past suffered from problems with its power-plant. In 2009, during drills in the Black Sea, the submarine [reportedly](#) had an engine malfunction and needed to be towed back to port in Crimea. Not only is the Alrosa an aging boat, but the unique pump-jet propulsion likely poses unique maintenance challenges.

There is also the recurring question of exactly how many advanced cruise missiles Russia has left in its stockpiles. Since early on in the current campaign, there have been estimates that these stocks have become severely depleted, with the [effects of sanctions](#) making it even harder to replenish them. This factor, too, is one that has to be taken into account when looking at the numbers of potential launch platforms and what they can actually offer in terms of firepower.

While the Alrosa is unlikely to be a long-term solution to providing additional firepower to the Black Sea Fleet submarine service, the chances of it being involved in the ongoing war against Ukraine are high, especially as the Kremlin embarks on what appears to be a new campaign of extensive cruise missile strikes across the country.

Ukrainian forces were befuddled at the sight of a Russian tank driving through a minefield before it suddenly blows up. Two Russian tanks make their way across a plowed field, shown in images released by Ukrainian military officials.

Although there is a road running parallel just next to them, it appears to be blocked by wreckage of an earlier incident and as a result, the tanks head over the field in single file.

Suddenly, the first tank apparently hits a mine, causing a large explosion. The vehicle comes to a stop, with the second tank stopping a safe distance behind it. A third tank can be seen having joined the convoy a short distance behind the second tank.

The footage then cuts to what appears to be a Russian military vehicle having made its way close to where the tank at the head of the convoy blew up, perhaps in a bid to rescue any soldiers still alive inside it.

The images were obtained Monday from the Land Forces of the Armed Forces of Ukraine, along with a short statement: "An offensive or an annoying suicide? Sometimes it is difficult to work out what the Russian troops are doing."

The 93rd Mechanized Brigade of the Armed Forces of Ukraine, which also relayed the images, added: "We are starting the week with optimistic videos. May more Russian tanks burn on our land!"

While the Strategic Communications Department (StratCom) of the Armed Forces of Ukraine said: "We will win the war together, 93rd Mechanized Brigade!"

Zenger News contacted the Armed Forces of Ukraine for further comment, as well as the Russian Ministry of Defense, but had not received a reply at the time of writing. Russia invaded Ukraine on February 24 in what the Kremlin is still calling a "special military operation." Monday marks the 124th day of the invasion.

The General Staff of the Armed Forces of Ukraine reported that between February 24 and June 27, Russia had lost about 35,000 personnel, 1,552 tanks, 3,687 armored combat vehicles, 771 artillery units, 243 multiple launch rocket systems, 101 air defense systems, 217 warplanes, 184 helicopters, 636 drones, 137 cruise missiles, 14 warships, 2,575 motor vehicles and fuel tankers, and 60 units of special equipment.

The [Russian missile strike on a shopping mall](#) in the central Ukrainian city of Kremenchuk has been described by Ukrainian President [Volodymyr Zelensky](#) as one of the "most brazen terrorist acts in European history." More than 1,000 people are said to have been inside the building when it was hit by missiles, with 18 reported killed as of Tuesday morning.

At least 14 missiles hit the Ukrainian capital of Kyiv as G7 leaders met in Germany at the beginning of a three-day summit. Military support for Ukraine is at the top of the agenda. The [G7 is made up](#) of Germany, France, Italy, Japan, Canada, the United Kingdom, and the United States. G7 leaders described the shopping mall missile strike as "[abominable](#)."

Zelensky addressed the G7 leaders and said that he wanted the war to end before the end of the year. He repeated his request for anti-aircraft defense systems, as well as further sanctions on Russia. He also repeated his request for help to export grain from Ukraine.

NATO is [planning to boost its quick reaction forces](#) from 40,000 troops to over 300,000 troops. World leaders are set to approve plans to increase the number of [NATO troops on high alert](#) at a summit in Madrid.

Turkish President Recep Tayyip Erdogan is meeting Finland's Sauli Niinisto and Magdalena Andersson of Sweden at the NATO summit in Madrid to try to resolve their issues.

Russian missiles have also hit the central city of Cherkasy, as well as the strategically vital port city of Odesa.

The eastern Ukrainian city of Severodonetsk is [now in Russian hands](#) after Ukrainian troops were ordered to retreat following weeks of siege warfare.

The U.K. and the U.S., as well as Japan and Canada, are banning imports of Russian gold. British Prime Minister [Boris Johnson](#) said that the ban will "strike at the heart of Putin's war machine."

Russian troops have been accused of pillaging vast quantities of grain from farmers in occupied areas of Ukraine, as well as other crops such as sunflower seeds. They have also been accused of stealing fertilizer and agricultural equipment.

More than 345 million people around the world are facing "acute levels of food insecurity" as the war in Ukraine heads into the fifth month, says the World Food Program (WFP).

Johnson said the Russian invasion of Ukraine has had a direct effect on the cost of living around the world.