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A Chronicle of Inter-Korean Tensions in the Spring of 2024. Part Three: New Breakthroughs by the DPRK

According to the Kyodo Tsushin News Agency, North Korea is focusing on improving the quality of its missiles and nuclear weapons in 2024. The launch of the Hwasong-18 solid-fueled intercontinental ballistic missile and the Mallygyong-1 military reconnaissance satellite complement the North's nuclear and missile capabilities.

"Hwasongpo-16B"

The first thing to note is the launch on **April 2**, when they tested the hypersonic glider again (the previous launch of such a missile was Jan. 14) by firing a long-range heavy solid-propellant missile with a hypersonic warhead on a shortened trajectory.

Hypersonic missiles fly at speeds of at least Mach 5 – five times the speed of sound – and are designed to be maneuverable on unpredictable flight paths and fly at low altitudes. At Mach 5 and above, such a missile can cover the 195-kilometer distance between Pyongyang and

Seoul in just one to two minutes. This means (at the moment) that it is fundamentally impossible for this weapon to be intercepted by the ROK missile defense forces, even though the glide vehicle could be carrying nuclear weapons. Alas, this is why Seoul is considering the concept of a "Kill Chain" preemptive strike as a countermeasure – hitting the launch site BEFORE the missile takes off.

According to a report by the KCNA, the launch was to "confirm the variability of the glide vehicle's trajectory in hypersonic flight, its lateral maneuverability, taking safety into account by artificially limiting the speed and altitude by setting the range limit to one thousand kilometers, this being done by delaying the second stage engine startup and abruptly changing the trajectory in the active flight section…" The result "clearly confirmed the rapid and superior maneuverability of the newly developed hypersonic glider and warhead, and in the verification under the cruel conditions of the test launch, the crucial military-strategic value of the new medium- and long-range hypersonic missile was assessed as very significant"

As noted by Russian experts, the range of flight was limited for safety reasons, and the speed and altitude were forcibly "throttled" by delaying the start of the second stage engine and abruptly changing the flight trajectory in the boost phase. **This confirmed the ability of the glide vehicle to make "hops" in its flight trajectory, and the horizontal maneuvering capabilities of the hypersonic planned warhead**. After separation from the missile, the hypersonic warhead reached an altitude of 101.1 and 72.3 km (primary and secondary maximums), flew about 1,000 km along the specified trajectory, and then fell into the Sea of Japan.

The South Korean military remained unmoved in its opinion about the missile's range and called the North's statements somewhat "exaggerated" (e.g., it flew 600 km rather than 1,000 km), although it admitted that Pyongyang seems to have made some technological progress in its hypersonic weapons program. *However, there is an opinion that the radars of the ROK and Japan did not fully monitor the missile's flight path because of the maneuvering of its warhead.*

According to South Korean Defense Minister Shin Won-sik, recent tests of North Korea's new Hwasong-16B solid-fueled hypersonic medium-range ballistic missile have been assessed by ROK and US experts as unsuccessful, and the missile itself as "crude". In particular, it is noted that there were problems during the final stage of the test flight, at which the hypersonic missile must maneuver at a speed of at least Mach 5.

At the same time, the minister believes that Pyongyang will one day succeed in this direction, as it has focused considerable efforts on the development of this weapon system aimed at US military facilities in the Asia-Pacific region in the event of a major war, and not for strikes on the territory of South Korea (probably believing that the DPRK has enough means of hitting the facilities of the Republic of Korea Armed Forces without hypersonic weapons). This, **in his opinion**, is indicated by the range of the missile.

Shin Won-sik also noted the change in the shape of the hypersonic warhead from a cone-shaped warhead, which was in place in January, to a planed warhead, which is seen as a definite technological advancement.

The **ROK Joint Chiefs of Staff believes** that the launch of the new missile was intended to test its flight characteristics. The South Korean military believes that the IRBM is in an early stage of development, but progress is being made in the level of relevant technology. Nevertheless, it will take a significant period of time for North Korea to practically adopt hypersonic missile weapons.

Shin Jung-woo, a senior researcher at the Korea Defense and Security Forum, also drew attention to the warhead's shape, pointing out that "planed vehicles are more difficult to control than conical vehicles (making it difficult to maintain speeds above Mach 5), but they have different capabilities for evading missile defense systems," meaning that the DPRK "seems to have made significant progress in developing planed vehicles for the first time."

Other sources noted the new glider's external resemblance to the first hypersonic warhead tested by North Korea during the launch of the liquid-fueled Hwasong-8 IRBM in September 2021, and that the Hwasong-16B reached speeds in excess of Mach 10.

It is assumed that when the missile is finalized, it will have a speed of Mach 15-18 and a range of 4,500 km, followed by a hypersonic IRBM with a range of more than 4,000 km. The range indicates that Guam and military bases in Japan are considered as targets for the Hwasong-16B.

Tactical exercises on conditional nuclear counterstrike and the "Nuclear Weapons Trigger"

As for the reasons for such exercises, the newspaper pointed to the **Korea Flying Training** (KFT), a joint large-scale air force exercise in the ROK with the United States, as well as the air force exercises of the two countries that took place on April 18. It is emphasized that such actions are part of "endless military provocations of hostile forces seeking to destroy the DPRK by force." Thus, the exercises were, on the one hand, a practicing of regulations, on the other hand, a demonstration of strength and readiness.

The set of activities included:

- "practical exercises to practice the procedure and process of transitioning units to nuclear counterstrike readiness in the event of activation of the '**volcano alert**' system used in a nuclear crisis threat." This is clearly not a code designation, but something more, and the author's analogies to the Soviet "dead hand" arise. Given the enemy's fixation on the "decapitation" concept, it is reasonable to think of countermeasures.
- "exercises to engage the nuclear counterstrike command system, practicing the process and order of task execution by the unit tasked with the nuclear counterstrike mission," KCNA's passage that "the reliability of the command, control and control system of all nuclear armed forces has been multilaterally re-tested, and the order of operations and methods of combat have been practiced for the urgent transition of ultra-large jet gun batteries to a nuclear counterstrike…" refers to this.
- The actual "firing of shells of an ultra-large jet gun with a simulated nuclear warhead." As Russian military expert Vladimir Khrustalev notes, this is the first time the DPRK has openly announced that the KN-25 MLRS can carry a nuclear warhead. The fact that it has a nuclear charge became known in March 2023, but the official statement is important here.
- As for the term "nuclear trigger," this is referred to as the **state system of comprehensive control over nuclear weapons**. The author suggests that this is precisely the designation of a set of measures of command, control and management of the DPRK's nuclear forces.

Lee Sung-joon, a spokesperson for the ROK's Joint Chiefs of Staff, assessed North Korea's statement about the possibility of a nuclear strike as exaggerated: first, "North Korea has not yet completed its experiments with small tactical nuclear weapons," and second, the South Korean military is ready to detect and shoot down its ballistic missiles.

"Meteors (Pölcsi)" and "Arrows of Fire (Hwasal)."

Kwon Young-soo, a professor at the ROK National Defense Institute, interprets the launch of a new surface-to-air missile, the Pyolchi-1-type 2 (별찌-1-2형, translated as "Shooting Star"), as Pyongyang's effort to compensate for and make up for the weakness of its air defense system. The disclosure of the name indicates that the system is being adopted or is in the early stages of deployment to the military.

It is assumed that the combat and technical characteristics of the new air defense system are close to the Russian S-400; further, the possibility of Russian assistance in its development is

not ruled out by the professor. At the moment, the DPRK capital is protected from the air by Pongae-5 and Pongae-6 surface-to-air missile systems (번개-5 6호, translated as "Lightning"), which are analogues of the outdated Russian S-300.

The technological level of strategic cruise missiles of the Hwasal-1 and Hwasal-2 (translated as "Fire Arrow") type is estimated to be significant. These types of weapons are designed to strike US forces on the Korean Peninsula, aircraft carriers and possible reinforcements, similar to the USA's Tomahawks. Following the American example, the North Koreans are trying to diversify their own platform of cruise missiles (as well as their warheads) depending on the range and target for strike – Hwasal-1 (1,500 kilometers), Hwasal-2 (2,000 kilometers), Pulhwasal-3-type 31 (version for underwater launch). The disclosure of their code names also indicates their imminent adoption.

MLRS of 240 mm caliber and new missiles for it

As Vladimir Khrustalev points out, back in August 2023, Kim Jong-un inspected the enterprise, where the official publications about the trip mentioned new guided missiles for MLRS – both 122-mm and 240-mm.

Earlier in February 2024, the DPRK reported that the National Defense Academy had developed a new guided projectile specifically for MLRS of 240 mm caliber. And now, apparently, the time has come for "test firing."

Kim Jong-un noted, not coincidentally, that "**the 240-millimeter caliber rocket launcher system, in which new technology has been introduced, will contribute to a strategic change in strengthening the artillery forces of our army**." This is because going from guided missiles to MLRS represents a significant step forward in the development of military capabilities, making it possible, among other things, to expend ammunition more accurately.

In addition, "**a comprehensive automatic fire control system has been introduced into the updated MLRS with high maneuverability and massive strike capability, and it will go into service with KPA units between 2024 and 2026.**" Testing of this particular capability was evident from the nature of the firing – one missile each from eight launchers.

Military expert Yuri Lyamin in his **blog** parses the photo and points out that in order to modernize the old systems, they used a variant of installing a new fuse on the old shells, which has a built-in navigation and control system that corrects the flight of the rocket to the target with the help of small aerodynamic rudders.

This is essentially the same "course-corrected fuse" that looks and has the layout of a number of other foreign solutions. Based on its apparent proportions, it is screwed into the nose of the

projectile in the same manner as conventional fuses. In addition to the fuse function, it provides trajectory control with special control planes to correct the flight of the rocket.

This is a simple, obvious and logical solution, especially for an army that already has a large stockpile of powerful and long-range but unguided 240mm missiles.

So, we can agree with Kim's rejoinder that "if the military production plan drawn up by the CPEC TPC as a forward-looking goal to be achieved by 2025 is implemented, our nuclear armed forces will meet a very important change and assume an unusually elevated strategic posture."

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