

## AK IN THE MODERN RUSSIAN-UKRAINIAN WAR

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### *Анотація*

*У тезах розглянуто роль автоматів сімейства Калашникова (АК, АКМ, АК-74) у сучасній російсько-українській війні. Проаналізовано основні технічні характеристики та історію створення автомата АК-74, особливості його використання у бойових умовах, а також переваги та недоліки цієї зброї. Особливу увагу приділено простоті конструкції, надійності та можливості ремонту в польових умовах, що забезпечує широке використання цієї моделі у Збройних Силах України. Разом з тим визначено проблеми ергономіки, зношування деталей та складність заміни ствола. Підкреслено важливість модернізації існуючих зразків стрілецької зброї та належного технічного обслуговування для підвищення ефективності їх застосування в умовах сучасної війни.*

**Ключові слова:** автомат Калашникова, АК-74, стрілецька зброя, модернізація озброєння, технічне обслуговування зброї, російсько-українська війна.

### *Abstract*

*The theses analyze the role of Kalashnikov assault rifles (AK, AKM, AK-74) in the modern Russian-Ukrainian war. The technical characteristics and development history of the AK-74 rifle are examined, along with the specifics of its use in combat conditions, including its advantages and disadvantages. Particular attention is paid to the simplicity of the design, reliability, and the possibility of field repair, which explains its continued use in the Armed Forces of Ukraine. At the same time, issues such as poor ergonomics, wear of components, and the difficulty of barrel replacement are highlighted. The study emphasizes the importance of modernization of existing small arms and proper maintenance to improve their effectiveness in modern warfare.*

**Keywords:** Kalashnikov assault rifle, AK-74, small arms, weapon modernization, weapon maintenance, Russian-Ukrainian war.

### **Introduction**

The modern Armed Forces of Ukraine still use Soviet weapons, the legendary family of Kalashnikov AK, AKM and AK-74 assault rifles. This type of weapon is designed to withstand ground warfare in the worst conditions, is simple in its design, which allows you to quickly teach a serviceman how to properly care for the assault rifle. But time does not stand still, and in the 21st century, the legendary AK is already a morally obsolete weapon that no longer meets the conditions of modern combat. However, replacing this type of weapon requires a lot of money, which is currently not available. That is, now it is worth taking care to maximize the service life of AK stocks and improve their effectiveness.

### **Research results**

The AK-74 assault rifle, developed by small arms designer Mikhail Kalashnikov in 1974. It was created under the 5.45×39 mm cartridge, which replaced the 7.62×39 mm cartridge of the previous Kalashnikov automatic carbine for the Soviet armed forces. It is a further development of the AKM.

The carbine was first used by Soviet troops during the conflict in Afghanistan in 1979. As of 2021, this carbine is used by most countries of the former Soviet Union. Licensed copies were produced in Bulgaria (AK-74, AKS-74 and AKS-74U), as well as in the former East Germany (MPi-AK-74N, MPi-AKS-74N, MPi-AKS-74NK).

The AK-74 assault rifle chambered for 5.45×39 mm was developed in 1970. It was adopted by the USSR Army in 1974. It is a modernized version of the AKM, which in 1959 replaced the AK-47 model. Adopted in 1976. The main difference is a smaller caliber and a new massive muzzle compensator, which increased the accuracy and accuracy of the weapon, especially during rapid fire. The simplicity of the AK-74 design allows for some repair work in the field. When issuing a machine gun to a soldier, it also comes with a tool case, thanks to this set you can completely disassemble the weapon and replace damaged parts. However, there is one rather significant drawback, which is its unsatisfactory ergonomics. That is, not all shooters will be comfortable using the AK. Like most products of the Soviet industry, the AK was made according to the principle: simple, plentiful, cheap. The appropriate dimensions of the AK are adapted for a person of average height with normal arm length. It will be more

difficult and inconvenient for soldiers with other anatomical features to shoot from the AK. However, currently, improvements and modernization kits are being released for the AK, which eliminate its characteristic ergonomic shortcomings. For example, you can install new buttstocks in the standard places that allow you to adjust the length, pistol grips, replace the receiver cover, which allows you to install collimators and other types of sights, lightweight magazines, etc. External factors that affect the wear of AK parts in field conditions, first of all, these conditions are not just rain, swamp, wind, etc. These are conditions in which you need to survive and protect yourself, when there is shooting with the enemy, no one will look at whether the machine is overheated or not, and servicemen in such conditions are not able to clean it, especially when the shooting is prolonged and in addition to this, enemy artillery is working. Mechanical factors also play a big role, according to Senior Sergeant - Head of the Artillery Weapons Workshop of the Boguslavsky Repair Platoon Yuri Romanovich, most AKs brought from combat zones were simply destroyed by explosions, damaged by shrapnel, bent and with internal defects such as a torn barrel and a jammed piston. Also, the biggest problem with the AK is its barrel, since in most foreign rifles the barrel can be replaced in the field, while in the AK the barrel is replaced only in the factory using machine tools. This is the most serious problem in the line of legendary AKs.

### Conclusion

The war between Russia and Ukraine shows that an important role is played by the modernization and improvement of various types of weapons and the creation of new ones. It is also important to properly care for the condition of weapons both in peacetime and during a military conflict, since without proper maintenance it will wear out quickly and at an important moment may fail. As experience shows, one should not forget about the simplicity of the design when creating new models of assault rifles. So, as experience shows, the AK line is already outdated for this war, but due to its simplicity and ease of care, the AK allows you to quickly train servicemen to work with it, and the modernizations that are released for these assault rifles make them more comfortable to use. So, AK, AKM, AK-74 are assault rifles that were an excellent example at one time, but now need modernization.

### REFERENCES

1. What does our army shoot, or thoughts about the assault rifle: Analytics. Anti-crisis media center. URL: <https://acmc.ua/chim-strilyaye-nashe-viysko-abo-rozdumi-pro-avtomat/>
2. How did the small arms of the Armed Forces of Ukraine change? Zbroya.info. URL: [https://zbroya.info/uk/blog/22893\\_iak-minialasia-striletska-zbroia-zsu/](https://zbroya.info/uk/blog/22893_iak-minialasia-striletska-zbroia-zsu/)
3. Modern small arms, their classification, combat properties, structure // Yahistory.co (2023). URL: <https://uahistory.co/pidruchniki/fyka-defense-of-ukraine-10-class-2023-standard-level/19.php>

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