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## ARTILLERY INTELLIGENCE IN THE ARMY OF THE XXI CENTURY

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### ABSTRACT

*The experience of modern military conflicts shows that artillery intelligence plays an important role in the reliable and effective destruction of enemy targets. To do this, a number of requirements are placed on artillery intelligence. Therefore, this article presents the modern means of artillery intelligence, the requirements for them and relevant suggestions for its improvement in the interests of casualties. Modern military conflicts are characterized by speed, rapid change of the situation and the need to make non-standard decisions. By meeting such requirements, the battle can be won. This will require the correct application of the methods and techniques of effective use of means of loss transmission.*

**KEYWORDS:** *Intelligence, Artillery intelligence, Radar station, Unmanned aerial vehicles, Casualties, Data area, Automated fire control system.*

### INTRODUCTION

In modern military conflicts in recent decades, artillery has evolved to the point where it has the ability to inflict casualties on the enemy from a long distance in a short period of time. As a result, new concepts such as "Long-range firefight", "Long-distance casualties" have emerged[1].

Direct artillery intelligence plays a key role in the acquisition of such a feature of artillery.

The experience of armed conflict and the analysis of the capabilities of artillery intelligence tools place a number of demands on artillery intelligence in modern combat, in particular:

Reconnaissance capabilities currently cannot detect 35-40% of enemy objects that are primarily to be destroyed at long distances, can not correct firing, so it is necessary to increase the reconnaissance distance;

Increase the accuracy of finding the coordinates of targets in order to reduce the amount of ammunition used to inflict casualties on the enemy. In this case, the error should not exceed 10-30 m for mortar and barrel artillery, 50-60 m for jet artillery;

It is necessary to reduce the transmission time of detected intelligence by 2-3 times [2].

The average range of artillery damage to the enemy is 10-25 km. At such depths, unmanned aerial vehicles can detect enemy objects, obtain reliable information about them and transmit them in a short time (Figure 1).

During the hostilities in the Syrian Arab Republic, the parties made extensive use of unmanned aerial vehicles to obtain information about the location and nature of the target. Unmanned aerial vehicles performed a number of tasks [3].

In particular, it performed tasks such as searching for and identifying enemy objects on the routes of movement, in the area of concentration, in combat mode, determining their coordinates in familiar and high accuracy, transmitting intelligence to state and supporting artillery casualties.

We can also see in the example of Nagorno-Karabakh the use of unmanned aerial vehicles in the interests of casualties. From the videos posted by the parties on the Internet, we can see that the means that led to a radical turn in the tactics of combat were unmanned aerial vehicles.

One of the most effective means of conducting intelligence in the interests of inflicting casualties on the enemy is radar reconnaissance. In recent years, a number of developed countries have been arming their armies with modern radar reconnaissance [1, 4].

The army of the Russian Federation currently has radar systems 1L261, 1L271 and 1L277 (Figures 2,3,4), which have a number of capabilities for reconnaissance of enemy objects, in particular:

Detection and tracking of flying tactical missiles, jet and artillery shells;

High-precision marking of projectile take-off and landing points;

Determine the caliber and category of artillery in the enemy firing position;



**Figure 1. Modern artillery reconnaissance vehicle, unmanned aerial vehicle (UAV)**



**Figure 2. Modern artillery reconnaissance vehicle, 1L261 radar station (RS)**

Simultaneous intelligence and surveillance;

To operate even in the conditions of passive exposure of enemy radios;

Capable of detecting, locating and performing other tasks against radar missiles;



**Figure 3. Modern artillery reconnaissance vehicle, 1L271 radar station (RS)**

The station detects the enemy's firing position in "Intelligence" mode, and in "service" mode determines the point of landing of the shells fired by our artillery vehicles [5].

Equipped with special software, these radar stations were able to operate in an automatic system. These radar stations can monitor twelve to thirty-six targets at a time.

Another advantage of this type of radar stations is that they are light and convenient to carry. For example, the 1L271, 1L277 radar stations have the ability to reconnoiter the firing positions of enemy mortars and other artillery weapons, even immobile targets. Radar stations of this type are currently the only ones.



**Figure 4. Modern artillery reconnaissance vehicle, 1L277 radar station (RS)**

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It is a complex process to transfer the found intelligence to the relevant authorities, and the decision of the commanders (chiefs) to inflict casualties on the received intelligence is a complex process.

During this time, in most cases, the identified signs have time to change their location. The only way to solve this problem is to have a program that performs

the tasks of creating a data field and deciding on the loss.

Based on the generalization of the above information, the analysis of the experience of organizing and conducting artillery intelligence in armed conflicts, the following can be concluded:

1. Artillery reconnaissance vehicles must be able to detect enemy objects at the depth of impact of the means of destruction.
2. It is necessary to use a complex of types of artillery intelligence (air, optical, radar, sound), as they complement each other.
3. It is necessary to create a software program that offers options for the collection, processing and decision-making of intelligence.
4. Through this proposed program it is possible to gain the advantage of intelligence and firing on the enemy.

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