CONDUCTING ANTIBALLISTIC MISSIONS WITHIN THE JOINT FORCE

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Abstract: *The deployment of antiballistic operations within a joint force operational group is necessary for the air defense and the missile device operative elements of this group.*
The units (subunits) of ballistic missile will combat and destroy ballistic missiles launched by the enemy in all their stages, their immediate objective being to defend important targets with the antiballistic means of the operational group joint forces.

Keywords: *Force missile defense of the operational group of joint force; Ballistic and cruise missiles; air defense and ballistic characteristics executed by units (subunits) of antiaircraft missiles; ballistic and cruise missiles.*

Within the operations conducted by multinational joint forces, ballistic missile units (subunits) will destroy ballistic and cruise missiles in all their flight stages if launched against the structures defended by the antiballistic component of the joint force (command and control system, groups of forces, logistic sectors).

Combat characteristics of antiaircraft, antiballistic and cruise missile units[1]:

- Great firing efficiency with antiballistic and cruise missiles directed against ballistic and cruise missiles. This efficiency is caused by the guiding precision at the target (active and semi-active guidance) and the powerful warheads that equip the antiballistic missiles;
- Great ability to counteract and destroy ballistic and cruise missiles of any type, at any height, distance, velocity, both day and night and under any weather conditions;
- Ability to counteract ballistic and cruise missiles even when the adversary uses any type of electronic jamming from all the media (terrestrial, aerial or naval).
- Possibility to fire against ballistic missiles that split in more aerial targets (6-12 ballistic missiles), when they are close to the objectives that will be hit by air power.

Organizing air defense and antiballistic forces

I consider that for the integrated antiballistic defense of a joint force, the antiballistic defense forces should have the following combat formation:

- 1-2 battalions equipped with long-range antiballistic and antiaircraft THAAD missiles;
- 3-4 battalions equipped with long-range antiballistic and antiaircraft PATRIOT and ARROW-2 missiles;
- 4-6 battalions equipped with medium-range antiballistic and antiaircraft EUROSAM,
- MIM 120 NASAMS or HAWK-SL-AMRAAM missiles;
- 6-7 battalions equipped with short-range antiballistic and antiaircraft RAPIER, ROLAND, CHAPRAL or SPADA missiles

Antiballistic and air defense of the joint force as well as other important objectives[2]

For the protection of the joint force and according to the number and technical features of antiballistic and air defense systems of aerial targets (ballistic and cruise missiles), which could

[1] Ion, Puricel, *Combaterea rachetelor balistice cu rachete antiaeriene în operaţii multinaţionale*, Editura Universităţii Naţionale de Apărare „Carol I", 2007, pp. 82-83.

[2] Manualul de tactica apărării antiaeriene a trupelor de uscat, partea a doua, Apărarea antiaeriană a armatei de arme întrunite și a corpului de armată, București – 1977, pp. 41-44.

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be launched towards the adversary, I consider that it is important for the antiballistic defense forces to adopt the following defense systems:

- **Area defense system** I consider that this type of system will be organized when we have sufficient air and antiballistic defense forces and the possibility to have a continuous area where the enemy ballistic and cruise missiles are destroyed. It is necessary that this type of system be adopted when the elements of the operational system of the joint force and other important objectives are arranged at intervals and large distances one towards the other. In this case, I consider that the area defense system should be unfolded on three air defense lines, composed of air defense and antiballistic battalions, that will position themselves parallel to the most probable attack line of the enemy ballistic missiles. The air defense alignments are arranged as follows:
- The first air and antiballistic defense line will be arranged at a distance of 30-40 kilometers off the enemy lines (or seashore) and will be composed of battalions with medium-range antiballistic missiles, organized on batteries and linear combat systems;.
- The second air and antiballistic defense alignment will be arranged at a distance of 80-100 kilometers off the first line of defense and will be composed of battalions with long-range antiballistic missiles, organized on batteries and linear combat systems as well as battalions with short-range antiballistic missiles, which will aligned on batteries, in circular combat systems around the objectives that are protected;
- The third air and antiballistic defense line will be arranged at a distance of 150-250 kilometers off the second defense line and will be composed of battalions with very long-range antiballistic missiles, organized on batteries and linear combat systems;
- **Circular defense system dispozitiv de luptă circular.** I consider that this type of system will be used when we do not have sufficient air and antiballistic defense forces and the possibility to have a continuous area where the enemy ballistic and cruise missiles are destroyed over the whole operational area of the joint force. It is thus necessary that this type of system be adopted when the elements of the operational system of the joint force and other important objectives are arranged at small and medium intervals one towards the other. In this case, I consider that the area defense system should be unfolded on *defense systems and targets* that need to be protected by the antiballistic forces.

In this case, air and antiballistic defense will be composed of air defense, antiballistic and anti-cruise missile battalions, which will be disposed in a belt-shaped formation around the targets/groups of targets.

- **Circular systems on groups of targets** I consider that this circular defense system on groups of targets will form a circular, continuous, and efficient zone to counteract enemy's ballistic and cruise missiles around and above the area covered by friendly troops.

Air and antiballistic defense will be performed by using the circular effective position of the antiballistic defense battalions on the following two defense concentric circles:

- The first circle will contain the long and medium-range antiballistic missile battalions. It is necessary that the circular defense systems of long and medium-range antiballistic missile battalions be arranged in a circular manner on batteries at a distance of 30-40 km. away from the enemy lines (or sea shore).
- The second circle will contain the long-range antiballistic missile battalions as well as short-range antiballistic missile battalions. It is important that the circular defense systems of long-range antiballistic missile battalions be arranged in a circular manner on batteries at a distance of 60-80 km. away from the first defense circle. Short-range antiballistic missile battalions will be arranged on batteries in a linear manner so that they will cover a larger area to be protected against ballistic missiles.

- **Circular target-based defense system** I consider that this circular target-based defense system on groups of targets will form a circular, continuous, and efficient zone to counteract enemy's ballistic and cruise missiles around and above the main elements of the operative system of joint forces and above the most important objectives of joint forces. Air and antiballistic defense will be performed by using the circular effective position of the antiballistic defense battalions on the following two air defense concentric circles:

- The first circle will contain the long and medium-range antiballistic missile battalions. It is necessary that the circular defense systems of long

and medium-range antiballistic missile battalions be arranged in a circular manner on batteries at a distance of 30-120 km. away from the enemy lines (or sea shore).

- The second circle will contain the long-range antiballistic missile battalions as well as short-range antiballistic missile battalions. For their efficient use, it is necessary that the circular defense systems of long-range antiballistic missile battalions be arranged in a circular manner on batteries at a distance of 5-10 km. away from these objectives. For each air defense and antiballistic missiles sub-unit, it is necessary to establish a main launching installation and 2-3 secondary installations. The site of the additional installations will be decided upon by the commanders of antiaircraft and antiballistic missiles units, at a sufficient distance towards the main launch pad so that they will not be hit and damaged by the enemy from air, ground, or sea.

The largest interval between the launching positions of two neighboring antiballistic missile subunits should ensure that the firing link between them should be of 1-2 maximum firing parameters, respectively 10-25 km, for the short-range antiballistic missiles, 25-34 km for the medium-range antiballistic missile, 40-60 km for the long-range antiballistic missiles, and 350-450 km for the very long-range antiballistic missiles. In certain cases, the interval between the antiballistic missiles units can be smaller (maximum 1/3 of the firing distance).

I consider that the minimal distance between antiballistic missiles units is determined by the following situations:

- The need to exclude the possibility to hit organic antiballistic units by the jet engine of the first stage (cruise engine);
- The need to exclude the possibility to jam neighboring antiballistic units in using the radar stations;
- The need to exclude the possibility to simultaneously destroy two antiballistic units through the strikes of air, land, sea enemy;
- The need to concentrate the effort of antiballistic units on a more important direction of attack.

It is also necessary that all the combat systems of antiballistic units be placed as far as possible from the enemy line or the sea shore so that they will be beyond the firing range of the enemy's artillery or ground to ground/ship to ground missiles and avoid being neutralized, annihilated or captured by the enemy forces.

When the commanders of antiballistic missiles choose the combat systems, they should take into account the following:

- Possibility to obtain optimal concealment with natural means against aerial, terrestrial or naval reconnaissance of the adversary;
- Possibility to obtain more precise launch of antiballistic missiles within their technical limitations;
- Possibility to easily occupy and evacuate these combat systems;
- Possibility to supply them in an effective manner with antiballistic and cruise missiles as well as to ensure their handling and storage in safe conditions;
- Possibility to create communication and information connections;
- Possibility to obtain optimal function of automated radar and command technology;
- Possibility to conduct topographical and tactical reconnaissance;
- Possibility to replenish with materials as part of logistic support;
- Possibility to park and conceal means of transport;
- Possibility to install and conceal the camp for the military personnel.

Moving the elements of antiballistic unit's combat systems for the purpose of ensuring the continuity air and antiballistic defense of the joint force will be conducted *successively or simultaneously*[3].

Movement (regrouping) in successive (alternate bounds) waves will be conducted when the antiballistic units will take action independently for antiballistic air protection forces (targets) which conduct offensive or defensive actions.

This successive movement (regrouping) should be conducted in a timely manner in accordance with the mobility of the antiballistic systems.

I consider that the most effective process of successive (alternate bounds) movement is represented by the antiballistic units moving half of its troops, followed by the other half after the first has already occupied its new firing positions.

[3] Manualul de tactica apărării antiaeriene a trupelor de uscat, partea a doua, Apărarea antiaeriană a armatei de arme întrunite și a corpului de armată, București – 1977, pp. 45-46.

Similarly, the command and control system of antiballistic units will conduct successive movement when the technical possibilities of automated command devices are about to be outpaced because of the distance to the first half of the antiballistic unit. All logistic units will execute the successive movement in accordance with the antiballistic units.

Simultaneous movement will be totally conducted by the antiballistic units in the following situations:

- When antiballistic defense is performed for important objectives that change their place further from their initial positions;
- When the antiballistic units are about to move to another line or from one line of defense to another.

Force maneuver[4] will be performed both along the line of contact with the enemy (along the sea shore), at a safe distance, and in the depth of the joint force formation so that the effect of antiballistic defense will be changed. I consider that force maneuver should be according to the changes that appear in the in the importance of the protected targets for the interdiction of possible direction of attacks and for re-supplying the antiballistic units in case of losses caused by the air, land (sea) enemy.

Following the decision of the joint force commander related to the importance of certain objectives, the commander of the air component commander will order the force maneuver for strengthening their air and antiballistic defense component.

Antiballistic units which are about to execute force maneuver will be decided upon by the air component commander based on the suggestions made by his joint staff after the analysis of the new tactical situation.

Maneuver of fire[5] will be performed by the concentration, repartition and transportation of antiballistic missiles conducted by antiballistic units against enemy ballistic missiles, which will allow the supply with the necessary number of antiballistic missiles that correspond to the desired annihilation effect.

Maneuver of fire will be executed at the order of antiballistic unit commanders that perform the antiballistic missile defense of the important targets within the perimeter.

Requirements of antiballistic missile systems:

- Using the full power of the technical combat means at disposal in order to counteract and destroy most of the enemy's ballistic missiles;
- Using the possibility to counteract and destroy enemy ballistic missiles at all heights and directions, according to the established missions;
- Obtaining minimal vulnerability of combat systems of antiballistic systems when confronted with strikes coming from the air, land/sea adversary;
- Getting protection against electronic jamming of antiballistic systems;
- Executing maneuvers under the fire of the air, land/sea enemy; efficiently executing the maneuver of fire and the troop maneuver.

Launching antiballistic missiles[6] will be conducted taking into account the procedures of the air enemy, the number of ballistic missiles launched by the enemy, the directions, the altitude, the time between the flights, as well as the enemy's use of jamming and anti-radar missiles.

The commander of antiballistic units will make decisions regarding the number of antiballistic missiles that will be launched while the missile launch control officers within the antiballistic unit will decide upon the application of procedures to counteract and destroy enemy ballistic missiles.

Conclusions

The main military conflicts after WWII and especially the Golf War have stressed the importance of air attack, conducted with the aviation or ballistic missiles, as well as the crucial role of air and antiballistic defense without which no air, land or sea operation could be conducted nowadays.

As a consequence of the important role played by antiballistic defense systems, their number and quality have continuously increased. They are

[4] Manualul de tactica apărării antiaeriene a trupelor de uscat, partea a doua, Apărarea antiaeriană a armatei de arme întrunite și a corpului de armată, București, 1977, pp. 16-17; 37-39.

[5] Manualul de tactica apărării antiaeriene a trupelor de uscat, partea a doua, Apărarea antiaeriană a armatei de arme întrunite și a corpului de armată, București, 1977, p. 17.

[6] Ion, Puricel, *Combaterea rachetelor balistice cu rachete antiaeriene în operații multinaționale*, Editura Universității Naționale de Apărare „Carol I", București, 2007, pp. 224-226.

characterized by increased fire power, high combat efficiency, long time for exploitation, superior technical parameters (speed, range, altitude, protection against jamming, and multiple guiding options), features that enable them to fulfill air and antiballistic defense missions.

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