WRITTEN PREPARATION

Subject: Artillery Tactics
Guarantor: CPT Jan IVAN, Ph.D.
Lecturer: CPT Jan IVAN, Ph.D.
Topic: T1: Joint military symbology (4p + 2c + 2k)
Objective: Clarify the principles of creating military symbology and components of military symbols and describe the principles of their creation. Describe variants of symbols for artillery and other components of joint fire support.

Table of contents:

1) Joint Military Symbology according to NATO standard APP-6

Military symbology is used to outline units, resources, objects, maneuver and movement, command and control measures and other elements used in the activities of the armed forces. Its purpose is to use graphic symbols to communicate information about the object being drawn. The reason for the use of military symbology is mainly that the drawing using military symbology facilitates and speeds up the understanding of the depicted situation compared to its expression using written text. At the same time, it is the most suitable tool for depicting the situation on a map, photographic or other graphic background. In addition to the written text, it has the advantage that graphic symbolism can be understood even without knowledge of the language of the creator of the drawing. It is for this reason that military symbolism is a key tool in international cooperation.

The basic document determining the character of the outline of military symbology is the alliance publication APP-6. Within the framework of the North Atlantic Alliance, the provisions of this publication must be used in all ways of drawing military symbolism, ie both in automated command and control systems and in normal manual drawing.

The NATO publication APP-6 sets out all the necessary parameters for the outline of military symbolism used in all areas of activity of the armed forces.

The structure of the division of individual areas of military symbolism according to the publication APP-6 edition D is as follows:

- symbolism of ground forces;
- symbolism of the air force;
- symbolism of dismounted individuals;
- maritime symbolism;
- cosmic symbolism;
- symbolism for stabilization operations and civilian support;
- symbolism of management measures;
- meteorological symbolism;
- symbol identification codes.

2) Content of Military Symbol

A military tactical mark is a graphic symbol of various colors, supplemented by alphanumeric characters, expressing specific:

- unit;
- equipment (vehicles, weapons, etc.);
- equipment (buildings, etc.);
- point;
- space;
- activity;
- management measures;
- other important information.

Tactical marks are made up of several basic components. It is about:

1. tactical mark frame;
2. icon;
3. modifiers;
4. amplifiers;
5. additional amplifiers;
6. color representation.

Frame
The tactical mark frame serves as the basis to which other components of the tactical mark are added, with the frame surrounding the tactical mark icon and forming its boundaries. Not all tactical signs are framed, in particular tactical signs of activities and management measures do not have a frame.

The shape of the frame of the tactical mark of the drawn element defines: drawing object;

- standardized identity;
- dimension;
- status.

The frame of a tactical mark can be drawn in black (white in the case of a very dark background) or in the colors of standardized identities.

Object

The object of the drawing means a real part, which is drawn within the tactical drawing using military symbolism. In the drawing, we distinguish mainly the following drawing objects:
- land units;
- land equipment;
- land installation;
- air equipment, means and units (air);
- space equipment, assets and units (space);
- marine surface equipment, devices and clusters (sea surface);
- submarine equipment, resources and clusters;
- activities / events;
- dismounted individuals.

Object Identity

The standardized identity reflects the relationship between the subject of the plot (creator, observer) and the object of the plot, which is drawn, monitored, or otherwise used. It thus expresses the affiliation of the subject of the drawing from the point of view of the person who creates the drawing. The publication APP-6 (D) distinguishes 7 basic types of standardized identity:
- own (friend);
- assumed friend;
- enemy (hostile);
- suspect;
- neutral;
- unknown;
- pending.

Dimension

A dimension expresses the environment in which the plot object normally operates or is located (for example, in the case of devices or activities). The object of the plot can, in terms of dimension, act on the earth's surface (water surface), above and below the earth's surface (water surface) and outside the earth's atmosphere.
APP-6 distinguishes the following dimensions:
- land: the subject of the plot is physically located and acting on or in close proximity to the earth's surface (for example, landmines or shelters);

- sea surface: the subject of the plot is physically located and acts on the water surface. Here it is necessary to distinguish some types of units and equipment, which may use the water surface for their movement, but primarily act on the earth's surface, such as amphibious units, which are drawn as units acting on the earth's surface. In the case of the Czech Republic, the term sea means any water level;
- sea subsurface: for example, submarines or sea mines;
- air: air technology is drawn within the air or space dimension, with air force equipment being drawn as buildings;
- space.

Status

Status expresses the presence of the plot object at a given position, or its status. The status of the subject of the drawing can be:

- present or confirmed: the frame of the tactical mark is formed by a solid line;
- anticipated, planned, suspected: the frame of the tactical mark is formed by a dashed line.

The assumed, planned, or suspected status of a tactical mark is not plotted in the case of standardized identities, assumed friend, suspect, or pending. The reason is that the tactical mark frame for these standardized identities is formed by a dotted line and could be confused.
Tactical brand icon

The icon is a key part of the tactical brand because it specifies in detail the type of unit, resource, etc., drawn. The icon can be further supplemented and specified using modifiers.

APP-6 (D) distinguishes three types of icons - the main sector icon, the full frame icon and the full octagon icon.

Modifiers

Icon modifiers provide additional information about the icon and are drawn in designated spaces within a virtual octagon located inside the tactical marker frame. Modifiers are drawn above or (a) below the tactical marker icon. As part of the drawing, the tactical marks of missiles (both guided and uncontrolled) can be drawn on the sides of the icon. Modifiers are drawn in the form of alphanumeric or graphic characters.

Amplifiers

Amplifiers provide additional refinement information about the tactical mark as a whole and are plotted outside the tactical mark frame. Amplifiers are drawn with alphanumeric or graphic symbols in precisely defined fields

Additional Amplifiers

Additional amplifiers are graphical symbols designed to represent the location (position), direction of movement, and speed of the plot object.

Location of the symbol

The location of the subject of the plot expressed by the tactical mark is by default relative to the center of the frame of the tactical mark. In the event that the drawn tactical marker overlaps important data or key elements of the map plot, the tactical marker may be indented outside the area in which the subject of the plot is located. The offset of the tactical mark from its real position is done by a straight line.

Headquarters

The tactical mark of the headquarters is created by adding a straight line vertical line coming from the lower left corner (own units), or the left edge (other) of the frame of the tactical mark of units.

Another addition to the tactical mark of the headquarters may be the insertion of an abbreviation defining the type of headquarters (command post) as an amplifier located under the frame of the tactical mark.

Color

Color representation plays an important role in the creation of tactical markers, because it is another tool for indicating the standardized identity of the subject of the drawing (the first is the shape of the frame). Especially in the case of a drawing without unframed symbols, this is a key aspect of the drawing. For each standardized identity, the standard color of the drawing is determined according to the additive color model RGB - Red, Green, Blue.

The color representation must be made in such a way that its color does not disturb the base, especially the map on which the drawing is made. The drawing must be made in such a way that it has sufficient contrast. For this reason, the publication of APP-6 allows various variants of the color scheme of tactical markers.

Within the drawing of tactical marks of units, equipment and objects, the drawing can be made in various ways using colors. The standard method is a drawing in the form of a black representation of the frame of a tactical mark, which has a color filling according to the colors of individual standardized identities. The icon is also drawn in black. This method is used mainly in the framework of computer drawing, because in manual drawing this form is complicated to implement and time consuming.

The second variant of the drawing is the drawing of the frame and the icon using the color of the standardized identity, while the filling of the frame is transparent (the frame is without filling). This method may be suitable for manually drawing tactical marks.

The third variant is a drawing using only black, which is applied to both the frame and the icon. This is the simplest variant for manual drawing. In this variant of the drawing, the standardized identity is defined by the shape of the tactical mark frame.

The drawing of boundaries (interfaces between units), lines and lines, spaces, points and control measures is done in a different way as the drawing of units, equipment and objects. In the case of the drawing of own and enemy elements, the colors of standardized identities or black color are used. In the case of the drawing of own borders, lines, spaces, points and control measures, the drawing can be made in blue or black. In the case of a drawing of enemy elements made in black, the inscription "ENY" must appear in at least two places, the lines are usually endpoints. The inscription "ENY" is an abbreviation of the English word enemy - enemy.

However, the difference compared to the drawing of units, equipment and objects lies in the use of green and yellow, which within the standardized identities belong to neutral, respectively unknown (undecided) objects of the drawing. In the case of the drawing of boundaries, lines, spaces, points and control measures, the color green is used for the drawing of obstacles, regardless of jurisdiction (creator). If the green color is not available, the drawing can be made in black.

Yellow color is used for the layout of areas and areas contaminated with weapons of mass destruction, also without distinction of affiliation (creator). Contaminated areas are drawn with diagonal hatching going from the lower left to the upper right corner. Contaminated spaces can also be drawn in black, the distinguishing element is then precisely this diagonal hatching.

The use of green and yellow is at odds with the colors of standardized identities.

**3)	Creation of Military Symbol**

The alliance publication APP-6 provides extensive options for drawing drawing objects. However, the basic premise is knowledge of all principles and components of creating tactical brands. Merely knowing the main or most commonly used brands is not enough. When creating tactical brands, it is essential that the tactical brand creator follows the main principles of tactical brand creation. The main principles in creating tactical brands:

- compliance with the correct composition of the individual components of the tactical mark;
- the plot must be as small as possible while respecting the optimal information value;
- the drawing must be sufficiently contrasting with the background in terms of the color composition used;
- the individual components of the tactical mark must be of the correct size.

In terms of compliance with the correct composition of the individual components of the tactical brand, it is essential that the creator is familiar with the assembly of the tactical brand and its possible variants. Knowledge of the characteristics and use of individual components thus represents a basic starting point for drawing tactical marks.

When implementing the drawing, the tactical mark must be created so that it has the required information value, but using the simplest possible variant (especially in the case of writing / drawing amplifiers). A typical example is the use of an amplifier V, in which the type of technique can be stated. For example, in the case of a plot within units in which the users of the plot are familiar with the equipment of the individual components, it is unnecessary to list this amplifier. However, in the case of a plot in which there are a large number of units of the same type, the indication of the type of technique may be an essential part of the tactical mark.

When creating tactical signs, it is essential that the character of the color expression is sufficiently contrasting to the background on which it is performed. The aim is to create such an outline in which the identification of tactical marks will be fast enough, while maintaining the information value of the background, especially the map.

The individual components of the tactical mark must be drawn in the correct size in order to preserve their informational value. This applies in particular to the sizes of the individual sides of the frames of tactical markers and icons with modifiers. The Alliance's publication APP-6 makes it clear how big each party should be. It uses a simple size ratio rule to do this.

Creation of unit, headquarters and equipment symbols
Creating tactical marks for units, headquarters and equipment involves the use of a large number of icons, modifiers and amplifiers so that it is possible to create tactical marks for various types of units. The alliance publication APP-6 provides enough information on how to create tactical brands of standard and non-standard units. Despite its scope, however, it does not cover all possible combinations of individual components of the tactical brand. As part of the creation of tactical signs, especially for non-standard units, the creator of the plan must use the principles of creation set out in this alliance publication. However, the final form of the tactical brand of non-standard units is up to the individual assessment of the creator himself.

The tactical mark of the unit consists of a frame, a color representation (fill), an icon, a modifier (s) and an amplifier (s).

Creation of equipment symbols
The term Equipment in APP-6 refers to any non-consumable material with which an individual or unit is equipped. These are therefore vehicles, weapons, engineering and medical devices (equipment) and other material.

The tactical equipment symbol standardly consists of a frame, a color representation (fill), an icon, one to two modifiers and one or more text or graphic amplifiers.

Creating the symbolism of management measures
This chapter describes how to create Control Measure Symbols. The symbolism of the control measures makes it possible to draw the following elements of combat activity:
- boundaries;
- areas of operation;

- command and control measures;
- maneuver (maneuver);
- airspace details;
- details of maritime space;
- deception;
- fire support;
- targets;
- target acquisition;
- force protection;
- measures to maintain susceptibility;
- intelligence;
- space debris.

Standardized types of symbols are used to plot the symbolism of control measures. These are the following symbols:
- boundaries;
- points;
- lines;
- areas;
- command and control measure symbols.

The symbolism of management measures comprehensively complements the spectrum of military symbolism so that it is possible to draw all aspects of the conduct of military operations. From the point of view of the outline, the symbolism of the control measures is supplemented by tactical marks of the units so that a comprehensive picture of the situation in the area of conducting military operations can be created.

Color

The symbolism of control measures is drawn with a different use of colors compared to tactical brands of units and equipment. The difference lies in the use of green and yellow. Colors are used in the symbolism of control measures as follows:
-   the actual symbolism of management measures is drawn in blue or black;
-   the enemy symbolism of the control measures is drawn in red. It can also be drawn in black, but if it is drawn in black, the inscription "ENY" must be placed in at least two places in the drawing, which is an abbreviation of the English word enemy - enemy. In this way, membership is distinguished when using black.
-   Obstacles, regardless of jurisdiction, are drawn in green as standard. If the sketch creator does not have the option to sketch in green, he can use black.
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The yellow color is reserved for the representation of areas infested with weapons of mass destruction, regardless of the affiliation of the infectious agent.

Status
The symbology of control measures can have the same statuses as the tactical marks of units and equipment. The drawing is also made in the same form.

Amplifiers
Within the outline of the symbolism of the control measures, the amplifiers perform the same function as within the outline of the tactical marks of the units and equipment - they provide additional information about the symbol as a whole. As with the tactical markings of units and equipment, the amplifiers of the symbolism of the control measures are written (drawn) in fields with a precisely defined purpose. In addition, the text amplifiers of the control symbolism have, in APP-6 publications, a clearly defined maximum range (number of alphanumeric characters) that can be entered in the individual fields.

4)   Joint Military Symbology

Individual variants of symbols are given in Chapter 4 of the study text Situation Marks and Abbreviations for Artillery (S3083).

5)   Recommended Literature

IVAN, Jan. *Situační značky a zkratky pro dělostřelectvo: (vojenská symbolika a taktické značky pro dělostřelectvo dle APP-6) : studijní text*. Brno: Univerzita obrany v Brně, 2019. ISBN 978-80-7582-122-5. (S3083)
APP-6, 2017. *NATO Joint Military Symbology*. NATO Standardization office (NSO). Dostupné také z: https://nso.nato.int/nso/nsdd/APdetails.html?APNo=1912&LA=EN. Edition D Version 1.