

## STUDY ON THE SHAPE AND STRUCTURE OF A POUCH FOR BATTLE DRESS UNIFORM FOR MAPS AND NAVIGATION DEVICES

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**Abstract:** *A pouch is a small flexible bag, typically carried in a pocket or attached to a belt in which the soldiers can store various items necessary to carry out military operations in different time, season and weather conditions. Its high storage capacity, strength and ergonomics are some of the absolutely essential features for these simple, but necessary equipment.*

**Keywords:** maps, pouche, utility port, navigation instruments, GPS receiver.

### 1. Introduction

It is well known that a modern army, member of the most powerful and influential political-military alliance of the Molder World, must be equipped and equipped with the most modern and competitive equipment, weaponry and the latest generation. The best-trained armies in the world benefit from the most advanced systems and technologies that, in the complex and dynamic situations in the military operations theaters around the globe, can cope with complex demands and determine the fulfillment of the missions and the achievement of the imposed objectives and assumed without sacrifices amongst their own forces and allies, reaching that desirable goal, namely "zero losses". An important element in its realization is the individual endowment of each military participant in these activities generating risks for his integrity, ensuring for each military the conditions appropriate to the mission, even a relative comfort that will determine the concentration of the individual efforts to achieve the objectives of the mission. It is known and even enlivened the good individual endowment

of the special forces forces, who use a series of equipments, utility ports and accessories during their actions to help them carry out their tasks. Most of these accessories are a consequence of the personal needs identified during previous missions (some kind of personal lessons learned), individual or group conclusions about the content and position of these accessories. It is advisable that these small material aids be generalized at the level of the majority of the military, and there is the possibility that each individually will choose whether or not to use these equipment supplements.

### 2. Internal structure

Such a good material adjacent to the tactical vest of the COMBAT uniform that is required (and even compulsory for a certain category of soldiers) is the pocket for transporting and preserving topographic maps and terrestrial navigation instruments. Any commander officer or sub-officer has on it such a larger or smaller map as needed, and at least one GPS compass or receiver together with other written or measuring instruments required in the

tactical field (rulers, roulettes, curbimeters). All of these materials must be safely transported and kept secure but also easily accessible by the military at any time and in any position. Until a few years ago, these documents (military topographic maps) and instruments were kept in the band, in bags made of thick leather (especially by officers) generically named map case. Although spacious and resilient, these bags were awkward both during marching and carriage journeys, and their ergonomics leaves much to be desired, being obviously used morally as a concept.



*Figure 1: Possibility to hold the utility port*

With the abandonment of this type of accessory, Romanian soldiers are faced with a situation that has led to the adoption of compromise solutions through the use of such atypical pouches purchased from various sources not approved and unapproved by the Romanian army. Many of these bags are purchased online from different websites that sell airsoft amateur products that copy original products very well but do not have the strength and reliability of original and real products for

use in the real world. It is necessary, even mandatory, to develop and approve such a special accessory for these terrestrial navigation objects for the Romanian military.

First of all, the exact destination of this accessory should be discussed, which objects, instruments and devices can be transported so that a certain shape and position can be established on the body so as to meet the needs for which it was created. It goes without saying that this pouch must necessarily allow the transport and use on the ground of a standard NATO military topographic map with the maximum size of  $57 \times 75$  cm (provision in STANAG 3666 (Edition 4) – Maximum sizes for maps, aeronautical charts and other geospatial products (excluding nautical charts), AgeoP – 18, Edition A Version 1"), as well as some instruments necessary for terrestrial navigation (compass and / or GPS receiver). In addition to these elements, the pouch should allow for the keeping of writing tools (at least two) and a tactical ruler absolutely necessary to work on the field on the map or sketch. It is also common for soldiers to use the land book, the very useful accessory for writing various orders, dispositions, sketches and annotations, a book missing (for the moment) from the elementary endowment of the Romanian military.



*Figure 2: The organization of the interior*

### 3. Materials

As a result of these requirements, the dimensions required for this accessory should allow the map sheet and the orientation tool to be accessed simultaneously, and their layout may be joined or overlapped (GPS compass / receiver above the map). This condition requires that the size of this pouch be approximately  $26 \times 16 \times 3$  cm, that is, almost the entire surface of the user's chest. Relatively low thickness will not create user weights because there are no attachments other than ID patches and rank insignia in this area. Inside, you should find a map cover protector made by transparent plastic on both sides whose size should be about  $30 \times 40$  cm so the map is folded halfway and can be read entirely by simply turning the protective cover.



*Figure 3: Velcro patch for addition of multiple patches*

For the closure, a heavy duty zipper attached to three sides of the pouch can be used and opened to provide a 90 degree aperture to facilitate the use of the accessory just like a portable writing table. Opening is limited by the use of a cord made of a very durable material and the length can be easily adjusted.

For attaching this pouch to the tactical vest, a Molle system with 4-6 bands can be used at the back to provide good stability under all conditions of use. At the front for the addition of multiple ID patches and rank insignia can be used a larger Velcro patch.



*Figure 4: Molle system with bands*

A problem that needs to be carefully analyzed is the color pattern and the material from which these utility vans are made to cope with the masking / camouflage requirements as well as the weather resistance under the harsh conditions of field use. As far as the color model is concerned, things are simpler because the color shades and the pixelization of this accessory must coincide with the battle uniform uniform color model and the tactical vest / helmet vest used by the military. Using another color pattern can make the camouflage difficult by giving your opponent unstable indexes. The material from which this utility port is made is important in view of the fact that it must be sufficiently resistant to the various adverse factors in the field in which it is used. The thickness of the material should be higher than the uniform uniform battle battle to ensure a firmer support while on the go, probably using a polyester-containing material to a certain percentage to provide the impermeability feature with considering that there is a map, a GPS receiver and a field card inside. The stitches must be doubled and made with a special worsted, special, special, for leather or shoemaking items and that guarantee good durability over time.



*Figure 5: Map cover protector*

The paper protective case material is another challenge because it, besides the clear and unobstructed viewing properties on the surface of the paper and the waterproof of the map sheet, should also provide a possible option he could make marker pencils with various military and temporary information. This option is questionable because in the tactical field these writings can disclose classified information to the enemy in the unwanted

situation of the loss of such an accessory and for this reason it is recommended / prohibits in certain situations the making of such documents. This option to write on the surface of the paper protector can only be applied during tactical exercises in peacetime applications / exercises.

#### **4. Conclusions**

The creation of a utility port for ground navigation and positioning equipment is a necessary step under the current conditions of military operations areas where the level of training of the forces and their endowment is vital for the success of the missions and for the protection of the military. Although it seems to be an equipment of no vital importance to the survival of the military, this utility port is designed to provide enhanced comfort in carrying out mission with specific tasks, it offers the wearer of this accessory an easy and ergonomic design for writing work and focuses on a whole unitary tools, documents and utensils needed for field orientation.

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