BATTLEFIELD MAINTENANCE REGULATIONS
IN THE ALLIED COMBAT OPERATIONS
Tomasz SMAL

Abstract: The paper presents battlefield maintenance system during allied combat operations. The mentioned processes are described on the basis of allied policies, doctrines and regulations. A great importance of The Combat Service Support Working Group of NATO Standardization Agency was underlined as a board which contribute to the effectiveness of NATO forces through standardization in the combat service support field. There was a special emphasis on The Maintenance Panel described as well, which is established to develop standardization of maintenance organizations, operations and repair parts systems at the tactical and technical levels in order to improve the effectiveness of NATO forces.

Keywords: Logistics. Allied operations. Combat service support. Battlefield maintenance.

1 INTRODUCTION

To follow future combat operations requirements logistics units should aim at the same level of mobility and ability like supported by them fighting units [1]. An efficient and effective combat service support system of military units conducting any combat operations is the principal determinant of the success. This fact is confirmed by both the historical and conducted recently armed operations [2][3][4][5][6][7][8]. Ensuring for fighting units appropriate level of materials supply and logistics service is a crucial to effectively perform combat operations and requires to implement a number of coordinated with each other processes, which include: management, material supply, maintenance, medical support, movement&transportation and military infrastructure.

To face the mentioned challenges, there was an organizational solution introduced by NATO countries which is creation and implementation of common standards and regulations. One of them is The Military Committee Land Standardization Board (MCLSB), which established Combat Service Support Working Group (CSS WG). The CSS WG was found to contribute to the effectiveness of NATO forces through standardization in the combat service support field as it supports joint and combined operations on land. To improve NATO interoperability, the CSS WG advises the MCLSB and through the MCLSB the Military Committee on combat service support topics and issues. The WG primarily focuses on developing Combat Service Support Doctrine and Procedures and to direct and co-ordinate the work of the subordinate Panels. The WG reviews and recommends combat service support concepts, and develops doctrine and tactics covering all of these areas from the tactical to the strategic levels, which are essential for current and future NATO operations [9].

2 THE MAINTENANCE PANEL

The Maintenance Panel (MP) is established by MC CSS WG upon the MC LSB approval to develop standardization of maintenance organizations, operations, and repair parts systems at the tactical and technical levels (division level and below) in order to improve the effectiveness of NATO forces.

The main task of MP is to initiate and develop standardization proposals and prepare STANAGs and Allied Procedures (APs) as forwarded by Panel members, that is [9]:

- maintenance doctrine for military equipment and weapon systems, to effect their repair as far forward as possible and to ensure their rapid return to combat;
- improvement casualty evacuation procedures to remove from the immediate battle area those equipment and weapon systems requiring more extensive repair, but which may be returned to combat effectiveness in a short period of time;
- maintenance organizations in order to enable and enhance mutual assistance of equipment maintenance in multinational forces;
- maintenance operations in order to maximize the potential for mutual assistance in multinational forces;
- requirements for common maintenance standards for generic equipment.

It is worth to add that each STANAG and AP is produced in one of the official NATO languages and must include an implementation paragraph, which clearly defines how and when the STANAG is implemented by the ratifying nations. All recommended draft of them must be ratified by the MC LSB, through the MC CSS WG. MP, MP is obliged to review the promulgated documents, which have been attributed to it, at least once every three years to determine their continued validity and recommend amendment (Fig. 1) [9]. Apart from, MP is responsible among other things for:

- provide input and support to the planning and conduct of interoperability and standardization exercises;
- evaluate lessons identified from recent operations and exercises with a view to
producing new or amended standardization proposals;
- exchange information and equipment with Panel participants;
- develop and review terminology related to the Panel and make recommendations as appropriate, through the MC CSS WG;
- consider the adoption of any suitable civilian standard;
- carry out, or co-ordinate, such tasks as may be directed by the MC CSS WG;
- foster joint research and test programs in order to achieve economies through the best use of resources;
- ensure, that standardization documents are consistent with the NATO Policy for Standardization and Military Committee Policy;
- review STANAGs and APs of other working groups/panels, which are of interest to the Panel and submit comments or proposals as necessary;
- initiate, develop and process proposals to establish common procedures for co-operation with multinational forces, including the declassification of NATO publications whenever possible;
- recommend to the MC LSB, through the MC CSS WG, projects that might be appropriately handled by another NATO body.

![Fig. 1 Maintenance Panel Documents Hierarchy](personal preparation)

3 BATTLEFIELD MAINTENANCE OF WEAPON SYSTEMS

According to doctrinal documents, technical support means maintenance of weapon systems to keep them ready to use and recovery of their ability to use in case of damage as well as supply military units in military equipment, spare parts and technical materials, which are crucial to conduct service and repair [10]. Maintenance processes of weapon systems are presented on the Fig. 2.

An essence of technical support is maintenance of weapon systems at appropriate level of readiness to use. The mentioned processes are conducted within the confines of combat service support of military units during peace, crisis and wartime by logistics units. During peace maintenance includes numerous of tasks connected with keeping military equipment ready to use like servicing, repairing and maintaining during long-term storage. Apart from that, there are modernization, retrofit or purchasing of new weapon systems executed in connection to needs. However, combat operations are very dynamic process varying with time and space. The combat and tactics situation is changing rapidly on the battlespace instantly and random. Meanwhile all combat service support processes are determined and require precise planning, organization and supervising. That point of view considering, combat service support system slows down dynamic and pace of combat. Therefore, maintenance actions will be often limited to recovery of weapon systems, that
is: quick assessment of situation, evacuation, quick expedient repairs and sometimes cannibalization or destruction of equipment which cannot be evacuated or repaired [12]. It should be underlined that weapon systems belong to group of technical object using in random mode [13] and, like agricultural, city or rescue service equipment, they require specific maintenance system, which is determined to perform tasks just on time and place.

As the history and experiences of last wars show, modern and nonconventional means of fire will caused increasing losses in weapon systems [7][14][15]. That is why, the crucial processes of Battlefield Maintenance are evacuation and repair of weapon systems used to perform combat operations. Efficiency of that process will determine success on the current battlespace, which is connected with logistics forces and means supporting recovery tasks during operation [14][16][17].

An proper assessment of technical problem, which occurs during combat operation is very important as a the first step when a crew member recognizes battle damage. An assessment determines the extent of damage, the level (location) of repair to be conducted, and the risk involved and also estimates the personnel, time and materials required to perform recovery tasks. It should be executed by appropriately qualified specialists, who carries out fault diagnosis and damage analysis straight after the damage has occurred at or in the immediate vicinity of the location of breakdown. If an assessment not handled correctly, time, man-hours, parts and resources can be wasted and opportunities to get back in the fight will be missed. The correctly asset battle damage, crews and maintenance personnel should use right procedures, therefore some armies introduced them by special instructions (manual) [18].

According to STANAG 2399 „Battle Field Recovery/Evacuation Operation”, recovery and evacuation of weapon system should be executed very close to fighting units with use of the newest technology, which allow to quickly recover of damaged equipment and accomplish a task [19]. Recovery means the extrication of an equipment casualty and, if necessary, its removal to a place, where it can be repaired. It is usually the first step in returning disabled or damaged equipment to the battle. Although it is possible to repair damage object without recovery. In general, initial recovery is an owning unit responsibility. Based on a tactical situation, recovery operations may be limited to just moving equipment from the direct line of an enemy fire. Evacuation means the movement of equipment casualties within the logistics system to a place where repairs can be conducted. Evacuation should be executed only as far to the rear as is necessary for repair.

As far as weapon systems concerned, most of damaged parts can be recovered on the battlefield and reused. It is very often basic source of supplying military units during combat operations [11][20]. The Logistics Doctrine of NATO Land Forces is basic doctrinal document, which unambiguously regulate recovery of military equipment problems [10]. It describes conditions and criteria of providing logistic support during allied operations. According to mentioned doctrine, repair includes all activities in order to recovery weapon systems as soon as possible. The special role of repair, executed in the field conditions, is underlined which can be improvise, temporary and conduct without standard methods. At the same time, there is claimed in the document, that efficient field repair depends on systematic and flexible applying of following undertakings:

- determining of repair priorities and urgent repair needs;
- assessment of damage range and necessary repair means;
- specifying the level and place of repair;
- determining and obeying procedures of repair;
- providing supply of spare parts and repair materials;
- organizing of evacuation and repair process.

There is also stated in the mentioned doctrine that the expedient (temporary) repairs, conducted on the fighting area, are crucial tasks of battlefield maintenance system. It should be improvised and executed as close a broken equipment as possible in order to quickly restore damaged weapon systems. The expedient repair is taken if:

- there is not enough time or lack of spare parts to provide standard repairs;
- the operational situation forces to quickly restore damaged weapon systems;
- after expedient repair and accomplishing task restored object must be repaired using standard methods.

Fig. 2 Maintenance processes of weapon systems [11]
The latest NATO document that refers to battle damage repair of weapon systems is STANAG 2418, which introduce idea of expedient repair. This kind of activity was defined as repair, which can be temporary and executed with use of nonconventional (improvised) methods in barracks or in the field conditions. The expedient repair can be conducted only in accordance with the accepted procedures and instructions [21]. According to the quoted document, expedient repair includes also battle damage repair. It is also permissible to restore working order of object only partially with using of improvise and temporary methods and technologies.

All NATO regulations underlined that specialized recovery equipment and personnel are limited. Therefore, not only logistics personnel but also weapon systems operators, drivers and crews are to be properly trained in a way permitting them to accomplishing basic recovery (self-recovery) tasks.

Finally, it is worth to add that some armies of NATO are developing state-of-the-art technologies and solutions which could be used to support maintenance personnel in executing their tasks during combat operations. The developed expedient/battle damage repair systems and telemaintenance system belong to the most promising of them [22][23] (Fig. 3).

![Fig. 3 The concept of telemaintenance system in German Land Forces to support maintenance personnel during combat operations [22]](image)

4 CONCLUSIONS

The weapon systems belong to group of technical objects use in random mode and they require special maintenance system, which is determine to accomplish task on time in specific place regardless of circumstances. Efficiently operating maintenance system can determine success in combat operation if it is organized on the strength of mobile and well trained and equipped maintenance units. As the history of last conducted wars show, that the system can even create advantage over an enemy by quickly recovering and restoring all damaged objects with the exception of heavy combat failures. That is why, the new and diverse solutions should be searched for in order to support fighting units in capable weapon systems without necessity of evacuation to stationary workshops.

The crucial role of efficient and effective maintenance system in the field conditions is underlined in the allied doctrines and rules. The Maintenance Panel of Combat Service Support Working Group is a place where new regulations are being created and improved. To properly provide its task, Maintenance Panel must includes all NATO and partners participants. Only full cooperation and allied regulations implementation in separate NATO armies will lead to effective cooperation on the future allied combat operations.

The appropriate documents admit execution of battlefield maintenance in order to fast recover of damaged weapon systems to battle area. As far as the battlefield maintenance of weapon systems at the appropriate level of task efficiency concerned it is very profitable to the all military equipment and armament would characterized by high level of survivability, vulnerability and maintainability in case of any damage.
References


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