NATO STANDARD

AMedP-1.14

MEDICAL DESIGN REQUIREMENTS FOR MILITARY MOTOR AMBULANCES

Edition A Version 1
AUGUST 2015

NORTH ATLANTIC TREATY ORGANIZATION

ALLIED MEDICAL PUBLICATION

Published by the
NATO STANDARDIZATION OFFICE (NSO)

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

NATO STANDARDIZATION OFFICE (NSO)

NATO LETTER OF PROMULGATION

25 August 2015

1. The enclosed Allied Medical Publication AMedP-1.14, Edition A, Version 1, MEDICAL DESIGN REQUIREMENTS FOR MILITARY MOTOR AMBULANCES, which has been approved by the nations in the Military Committee Medical Standardization Board, is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 2872.

2. AMedP-1.14, Edition A, Version 1 is effective upon receipt.

4. This publication shall be handled in accordance with C-M(2002)60.

Edvardas MAŽEIKIS
Major General, LTUAF
Director, NATO Standardization Office

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RESERVED FOR NATIONAL LETTER OF PROMULGATION

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RECORD OF RESERVATIONS

CHAPTER	RECORD OF RESERVATION BY NATIONS
Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.	

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RECORD OF SPECIFIC RESERVATIONS

[nation]	[detail of reservation]
LVA	Military motor ambulances of Latvian National Armed Forces corresponds to category A and B. Categories C and D are intended to implement in the future.
NLD	The Netherlands will not be able to apply all standards and requirements. - NLD ambulances carry oxygen 1600L. - NLD personnel on ambulances are not allowed to work with "ventilators".

Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.

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CHAPTER 1 INTRODUCTION

1.1. INTRODUCTION

NATO forces in international operations are increasingly becoming more multinational. This is also relevant within the area of medical support to NATO forces in international operations. As per ref. f., combined or multinational staffs and force structures are some of the crucial aspects of the most likely types of future operations, when seen from the medical point of view. The benefit of this is clear, with regards to minimizing the logistical and medical footprints, utilizing available resources and preventing medical shortfalls.

1.1.1. Military motor ambulances in operations

1. Military motor ambulances form an important part of the ground assets available for the Medical Evacuation (MEDEVAC) system, where both timelines and the ability to evacuate casualties to or between Medical Treatment Facilities (MTF) 24 hours a day, in all weather, over all terrain and in any operational scenario, as long as compatible with the situation of the moment, are essential, as per ref. a. and b.

2. As per ref. g., ambulances are the most common type of ground evacuation transportation assets. Within the range of ambulances available, there is considerable variation in terms of respective capabilities and patient capacity. At the top of the scale are advanced support units, staffed with trained personnel who can provide resuscitative care, administer basic drugs, and begin administration of intravenous fluids in addition to providing basic first aid. Others, usually a greater number, are equipped for basic life support only. Medical ambulances for forward ground MEDEVAC should have the same passive protection status as the combat vehicles that they are supposed to accompany in battle and operations. This usually includes armoured protection and light individual weapons for self-protection, within the regulations of the International Law

3. Ambulance buses may be used for sitting and litter casualties; unfortunately, due to their very nature, buses do not have adequate cross-country movement capability and are usually only used on roads between MTFs or from MTFs to the point of embarkation. In a mass casualty (MASCAL) situation, ambulance buses may be used to convey large numbers of slightly, or moderately injured casualties.

1.1.2. Operational considerations

1. When determining which type of ambulance to employ, the main medical considerations are the medical capacity and capability.

2. From a strictly military point of view, other considerations have to be made when dealing with ambulances besides the medical features defining the different ambulances.

3. Therefore, when deploying different types of ambulances, other features than purely medical ones has to be taken into consideration. The main considerations are decided on a case-by-case situation, but will always include protection level and terrain capability of the ambulance.

1.2. AIM

The aim of this AMedP is to introduce categories for various types of military motor ambulances being used on multinational military operations, their protection level and mobility level.

1.3. SCOPE AND LIMITATIONS

1. This AMedP provides a categorization system for military motor ambulances based on medical capability, vehicle protection level and vehicle terrain capabilities.

2. It will not deal with other types of ambulances (e.g. air ambulances) nor with the training requirements or medical education standards for the ambulance crew. It is assumed that the personnel manning the individual ambulance will be trained and capable of using the equipment and materiel on the vehicle.

3. Vehicle protection levels for IED Threat are classified information and will not be dealt with in detail.

1.4. DEFINITIONS

The following definitions are applicable to this AMedP:

1.4.1. Motor Ambulance:

A motor ambulance is a specially designed, manned, equipped and powered ground vehicle for the conveyance of treated and untreated patients.

As such the term “motor ambulance” falls within the term “ground ambulance” (as per ref. i., p. 2-24) which is defined as *“A ground vehicle, including on-road/off-road vehicles (wheeled or tracked) and railways, manned and equipped to provide in-transit care, for the sick, injured and wounded”* except for railways, which are not applicable for motor ambulances.

1.4.2. Motor Ambulance types:

a. Type A - Transport ambulance: Ambulance designed and equipped for the transport of patients who are not expected to become emergency patients.

b. Type B - Multifunction ambulance: A multifunction ambulance, optimized to deliver Primary Health Care (PHC) and MEDEVAC.

c. Type C - Emergency ambulance: Ambulance primarily designed and equipped for the Specialist MEDEVAC, for the full spectrum of trauma and other medical emergencies, up to consultant led care.

d. Type D - Mobile intensive care ambulance: Ambulances primarily designed and equipped for Specialist MEDEVAC, able to provide in-transit care for high and medium dependency ill or injured patients.

1.4.3. Terrain capability:

Cross-country movement (CCM): The feasibility for military movement by vehicles away from all-weather roads.

This definition originates from the now cancelled STANAG 2259 (Ed.4) Military Geographic Documentation – Terrain (cancelled as of 14. February 2014), and should include amphibious wading ability.

1.4.4. Vehicle protection:

a. KE protection levels for occupants of armoured vehicles: The Kinetic Energy (KE) and Artillery Threat protection levels for occupants of armoured vehicles are divided into protection levels 1 to 6 (as per ref. c., Annex A and ref. l., Annex A)

b. Grenade and Blast Mine Threat protection levels for occupants of armoured vehicles: Grenade and Blast Mine Threat protection levels for occupants of armoured vehicles are divided into protection levels 1 to 4 (as per ref. d., Annex A and ref. l., Annex B)

c. IED Threat protection levels for occupants of armoured vehicles: IED Threat protection levels for occupants of armoured vehicles are divided into protection levels 1 to 7 (as per ref. e., Annex A and ref. l., Annex C)

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ANNEX A MINIMUM REQUIREMENTS FOR AMBULANCES

A.1. OVERVIEW OF MINIMUM REQUIREMENTS FOR AMBULANCES

Nos	Equipment/Capabilities/Capacity	Ambulance type				Comments
		A	B	C	D	
1.	Interior					
	Hight/Headspace in patient compartment	X	X	X	X	Sufficient space for access to the patient during transit
	Mountings for infusion fluid	X	X	X	X	Mountings or similar
	Seating	X	X	X	X	The incorporation of a secure seat within the patient compartment for use by medical attendant carrying out procedures while in transit
	Stretcher (s)	X	X	X	X	Corresponding ambulance capacity in accordance with ref. h.
	Stretcher Loading System (SLS)	X	X	X	X	Ambulances should be equipped with an appropriate means to load and unload stretchers
2.	Communication					
	Communication possible between patients' compartment and the drivers cabin	X	X	X	X	

	Radio communication with the supported force element/parent medical unit	X	X	X	X	
3.	<u>Aircon/Heating/Temperature control</u> Temperature control – ability to keep an adequate temperature for the patient(s), also while vehicle is stationary	X	X	X	X	Aircon/Heating system should be independent of the engine
4.	<u>CBRN</u> Able to provide overpressure against CBRN contamination threats					
4.	<u>Lighting</u> Lighting – adequate for observation and treatment of patient(s)	X	X	X	X	
5.	<u>Noise</u> Overall interior noise level should not exceed 85 dB(A)	X	X	X	X	In accordance with ref. o.
6.	<u>Storage of Equipment</u>					The ambulance shall be capable of stowing internally its general and medical equipment without detriment to patient transport, supervision and treatment

	Ability to control the temperature of infusion fluid	X	X	X	X	
	Automated External Defibrillator (AED)	X	X	X	X	Or Semi-Automated External Defibrillator (SAED)
	Bag valve mask		X	X	X	
	Blankets	X	X	X	X	
	Cervical and spine immobilization equipment		X	X	X	
	Chest seal dressing		X	X	X	
	Dressings	X	X	X	X	
	Emergency blankets	X	X	X	X	Heat reflective blankets
	Fracture splints	(X)	X	X	X	
	Infusion fluid and giving sets		X	X	X	Must comply with ref. n.
	Needle de-compression kit		X	X	X	
	Oxygen, minimum 2000 litres	X	X	X	X	If carried in fixed gas cylinders servicing must comply with ref. k.
	Protective gloves	X	X	X	X	
	Suction	X	X	X	X	Must comply with ref. n.
	Tourniquets	(X)	X	X	X	
	Ventilator		(X)	X	X	Must comply with ref. n.
	Vital signs monitoring		X	X	X	

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ANNEX B CLASSIFICATION TABLE

B.1. AMBULANCE CATEGORIZATION TABLE

Cross-country movement (CCM) is subdivided into having or not having a CCM capability and further defined as being tracked (T) or wheeled (W). This will be pertinent for gaining knowledge on the degree of CCM capability, including amphibious wading ability, an ambulance has. In a tactical supporting role, it should be stated if the ambulance can keep up with the unit it is supporting when conducting CCM. This comment can relate to the CCM of the supported unit vehicles, or to another vehicle which can be used as a common reference when determining the CCM of the ambulance.

<table>
<tr><th>Vehicle</th><th colspan="5">Ambulance type</th></tr>
<tr><td rowspan="4">Example:

DNK
MOWAG
PIR III C
AMB

Information regarding protection levels is not releasable in unclassified publications. These can be compiled in a separate</td><td>A</td><td>B</td><td>C</td><td>D</td><td>Write here how many patient on stretchers/ chairs (e. g. 1/3 meaning 1 patient on a stretcher, 3 on chairs)</td></tr>
<tr><td></td><td>X</td><td></td><td></td><td>2/0 OR 1/3 depending on configuration</td></tr>
<tr><td colspan="5">Terrain capability – Cross-country movement (CCM) including amphibious wading ability
Wheeled (W) or Tracked (T)</td></tr>
<tr><td>No CCM</td><td>CCM Capability

X (W)</td><td colspan="3">CCM capability is to be more closely defined by the operational commander; hence CCM capability of the ambulance on a tactical level will be closely linked to the CCM of the unit it is going to support.

CCM equivalent to other PIR vehicles in Infantry Fighting Vehicle role</td></tr>
<tr><td colspan="5">Protection level – Kinetic Energy and Artillery Threat
(In accordance with ref. c., l. and p.)</td></tr>
</table>

<table>
<tr><td rowspan="11">classified document</td><td>No protection</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td colspan="3">Level 6 is the highest protection level in this category</td></tr>
<tr><td colspan="9">Protection level – Mine Threat
(In accordance with ref. d., l. and p.)</td></tr>
<tr><td rowspan="2">No protection</td><td rowspan="2">1</td><td colspan="2">2</td><td colspan="2">3</td><td colspan="2">4</td><td colspan="3" rowspan="2">Level 4 is the highest protection level in this category</td></tr>
<tr><td>2a</td><td>2b</td><td>3a</td><td>3b</td><td>4a</td><td>4b</td></tr>
<tr><td colspan="9">Protection level - IED Threat
(In accordance with ref. e., l. and p.)</td></tr>
<tr><td rowspan="7">No protection</td><td>1</td><td colspan="2">2</td><td colspan="2">3</td><td colspan="2">4</td><td colspan="2">5</td><td colspan="2">6</td><td colspan="2">7</td><td rowspan="7">Level 7 is the highest protection level in this category</td></tr>
<tr><td>RB1a</td><td>RB1b</td><td>RB2a</td><td>RB2b</td><td>RB3a</td><td>RB3b</td><td>RB4a</td><td>RB4b</td><td>RB5a</td><td>RB5b</td><td>RB6a</td><td>RB6b</td><td>RB7a</td><td>RB7b</td></tr>
<tr><td colspan="2">RF1</td><td colspan="2">RF2</td><td colspan="2">RF3</td><td colspan="2">RF4</td><td colspan="2">RF5</td><td colspan="2">RF6</td><td colspan="2">RF7</td></tr>
<tr><td>RP1a</td><td>RP1b</td><td>RP2a</td><td>RP2b</td><td>RP3a</td><td>RP3b</td><td>RP4a</td><td>RP4b</td><td>RP5a</td><td>RP5b</td><td>RP6a</td><td>RP6b</td><td>RP7a</td><td>RP7b</td></tr>
<tr><td>UB1a</td><td>UB1b</td><td>UB2a</td><td>UB2b</td><td>UB3a</td><td>UB3b</td><td>UB4a</td><td>UB4b</td><td>UB5a</td><td>UB5b</td><td>UB6a</td><td>UB6b</td><td>UB7a</td><td>UB7b</td></tr>
<tr><td colspan="2">UF1</td><td colspan="2">UF2</td><td colspan="2">UF3</td><td colspan="2">UF4</td><td colspan="2">UF5</td><td colspan="2">UF6</td><td colspan="2">UF7</td></tr>
<tr><td colspan="2">PF1</td><td colspan="2">PF2</td><td colspan="2">PF3</td><td colspan="2">PF4</td><td colspan="2">PF5</td><td colspan="2">PF6</td><td colspan="2">PF7</td></tr>
</table>

ANNEX C REFERENCES

C.1. REFERENCE PUBLICATIONS

The following are the principal references used for this document:

a. MC 0326/3 - NATO Principles and Policies of Medical Support
b. AD 83-1 (Ed.2) - Medical Support to Operations
c. STANAG 4569(3) - AEP-55(C), Vol.I - Procedures for Evaluating the Protection Level of Armoured Vehicles – Kinetic Energy and Artillery Threat
d. STANAG 4569(3) - AEP-55(C), Vol.II - Procedures for Evaluating the Protection Level of Armoured Vehicles – Mine Threat
e. STANAG 4569(3) - AEP-55(C), Vol.III - Procedures for Evaluating the Protection Level of Armoured Vehicles – IED Threat
f. STANAG 2228 (3) - AJP-4.10(B) - Allied Joint Doctrine for Medical Support
g. STANAG 2546(1) - AJMedP-2 - Allied Joint Medical Doctrine for Medical Evacuation
h. STANAG 2040(7) - AMedP-2.1(A) - Stretchers, Bearing Brackets and Attachment Supports
i. STANAG 2409(2) - AMedP-13(A) - NATO Glossary of Medical Terms and Definitions
j. STANAG 2560(1) - AMedP-27 - Medical Evaluation Manual
k. STANAG 2121(4) - AMedP-53(A) - Cross-Servicing of Medical Gas Cylinders
l. STANAG 4569(3) - AVPP-1(A) - Protection Level Lists for Occupants of Armoured Vehicles
m. STANAG 2126 (Ed.6) - First-Aid Dressings, First Aid Kits and Emergency Medical Care Kits
n. STANAG 2178 (Ed.1) - Compatibility of Medical Tubing and Connectors in the Field
o. STANAG 2899 (Ed.3) - Protection of Hearing

AMedP-1.14(A)(1)