



CLASSIFICATION OF ARMORED PERSONNEL CARRIERS BASED ON CAPABILITY INSTEAD OF VALUE

Secretariat Issue Paper #1 – Mandated Study

Issue Paper Theme: **Major Equipment**

BACKGROUND

The COE Manual 2020 Chapter 8 Annex A currently classifies Infantry Carrier Armored Personnel Carriers (APC) based on whether they are wheeled or tracked and armed or unarmed. Each is assigned either Class I, II or III for armed or Class I or II for unarmed variants of APCs based on its value, (which is determined on presentation of invoices by the PM) and its alignment to the published Generic Fair Market Value (GFMV) within the COE Manual. It is then reimbursed based on the monthly wet lease rate calculated against that GFMV. As such, reimbursement for APCs is largely driven by the value of the APC and not the capability that APC variant offers to the mission. The 2020 Contingent Owned Equipment Working Group (COE WG) considered this matter and, at recommendation 20 (a), made the following recommendation:

The Secretariat submit, for the consideration of the 2023 Working Group, an issue paper on the classification of armored personnel carriers based on capability instead of value, in coordination with interested Member States.

The purpose of this Issue Paper is to recommend a more nuanced method of classifying APCs based on their inherent capability rather than their value. It should be noted this paper does not propose to change the existing reimbursement rates currently published in Chapter 8, Annex A of the COE Manual for APCs. Rather, it proposes a capability-based method of assigning an APC variant against the current classes of APC within Annex A, rather than using the actual value of the APC variant itself.

PROPOSAL

Following the 2020 COE WG recommendation, the Secretariat established a study group including interested member states to undertake a comprehensive review of the current methodology used to classify the APCs thus ensuring the reimbursement is aligned with the capability of the APC variant. The purpose of this review was to study various capabilities that APCs currently deployed in UN Peacekeeping missions are required to have, and to determine methods of classifying these APCs.

The study identified five capabilities that would be used to assess APC variants for the purposes of determining their class: protection level, fire power, mobility, payload or carrying capacity, and command and control.



The Study proposed a new method for determining the Class I, II or III of the APCs,¹ using the following procedures:

- The Analytical Hierarchy Process (AHP) was used in determining the importance of the listed capabilities. The capabilities were selected based on key characteristics of APCs currently deployed in peacekeeping missions.
- A Checklist model² was used in determining the weight of each sub parameter. A total of 13 sub parameters were listed based on the characteristics of APCs. The score for each parameter was between 2 - 6 points. These points were allocated to align with the existing classification of APC, Class I, II and III for armed APCs and Class I and II for unarmed APCs. 45 points being the highest possible score for armed APCs and 39 for unarmed APCs.
- Classification of the capabilities were made for armed and unarmed APCs (both tracked and wheeled) separately, in accordance with the existing categories in the COE framework.
- T/PCCs will be required to provide manuals and documents during MOU negotiations to verify the capabilities in APCs presented for deployment. In the absence of required documentation, minimum allocated point for the applicable sub-parameter will be used to classify the APC.
- Statement of Unit Requirement (SUR) would specify the capabilities required for a specific unit/mission.

Details of capabilities and their points scoring system are contained in Annexes A and B to this paper. Allocation against the existing classes of APC using the points systems would be as follows:

- a. Armed Tracked or wheeled APCs:
 - (i) Class I: 37 to 45 points,
 - (ii) Class II: 26 to 36 points,
 - (iii) Class III: 1 to 25 points,
- b. Unarmed Tracked or Wheeled APCs:
 - (i) Class I: 28 to 39 points,
 - (ii) Class II: 1 to 27 points.

It is proposed the above system to classify APCs would come into effect from 1 January 2024 for all new deployments or APC equipment rotations for currently deployed TCCs after that date. The existing fleet of APCs currently deployed would continue to be reimbursed under the existing classification in the signed MOUs in place with those Member States.

¹ 2020 COE Manual Chapter 8 Annex A

² <https://www.tidyform.com/checklist-template>. Accessed on 13 February 2022.



PROPOSED MANUAL TEXT

It is proposed to insert a new paragraph to Chapter 8, Section II, following paragraph 4 as follows:

4ish. **Classification of Infantry Carrier Armored Personnel Carriers is determined based on the capabilities of the APC. The capabilities include protection level, fire power, mobility, payload or carrying capacity, and command and control. The Statement of Unit Requirement will state the critical capabilities that an APC is required to have based on the operational need of the unit/mission. APC capabilities will be assessed using the assessment sheets contained in Appendices 1 and 2 of Annex A to this Chapter. The capabilities will be confirmed by the TCC/PCC along with documentary proof and verified during the Pre-Deployment Visits or Arrival Inspection, as necessary. Allocation to respective classes of APC will be as follows:**

a. Armed Tracked or Wheeled APCs:

- (iv) **Class I: 37 to 45 points,**
- (v) **Class II: 26 to 36 points,**
- (vi) **Class III: 1 to 25 points,**

b. Unarmed Tracked or Wheeled APCs:

- (iii) **Class I: 28 to 39 points,**
- (iv) **Class II: 1 to 27 points.**

Insert new Appendices 1 and 2 to Annex A – Breakdown of Proposed Capabilities and Corresponding Points Allocated (Armed and Unarmed Tracked / Wheeled APC) – to Chapter 8 of the COE Manual.

FINANCIAL IMPLICATIONS

This proposal does not seek to reclassify the existing deployed APC fleet across all Missions and therefore, there will be no immediate financial impact. Analysis by Uniformed Capabilities Support Division on applying the new classification methodology across two existing missions; UNIFIL and MONUSCO, indicated a potential increase in cost of 2.44% against the current total reimbursements of the APC fleet within those mission.

PREVIOUS HISTORY

This issue was raised in the 2020 COE WG by a Member State who described the current system of reimbursement method as outdated, unsatisfactory, and discouraging to TCCs. The proposal from the Member State and members of the COE Sub-working Group, recommended replacing the current methodology and determine the class of armored personnel carrier based on capabilities of the vehicle. The COE Working Group directed, at recommendation 20(a) of the COE Working Group Report, that the Secretariat submit an Issue Paper to the 2023 COE WG to classify APCs based on capability for their consideration.



ENCLOSURE

1. Annex A – Breakdown of Proposed Capabilities and Corresponding Points Allocated for Armed Tracked / Wheeled APCs.
2. Annex B - Breakdown of Proposed Capabilities and Corresponding Points Allocated for Unarmed Tracked / Wheeled APCs.



Proposed Capabilities and Corresponding Points for Classification of Armed APCs

Tracked APC – Armed

Ser	Parameter	Sub-Parameter	Highest Possible Point (HPP) per sub parameter	Measured sub parameter	Weighted Point allocated	Measured sub parameter	Weighted Point allocated	Measured sub parameter	Weighted Point allocated
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1.	Protection	Ballistic 360/Kinetic Energy threat	6	Weapon: Heavy Machine Gun, 14.5 mm Ammunition: AP Distance: 200 m Angle: azimuth 360°; elevation 0°	6	Weapon: Machine Gun and Sniper rifles, 7.62 mm Ammunition: AP tungsten carbide and AP hard steel core Distance: 30 m Angle: azimuth 360°; elevation 0-30°	4	Weapon: Assault rifles, 7.62 mm Ammunition: AP steel core Distance: 30 m Angle: azimuth 360°; elevation 0-30°	2
		Blast Under the body/ track (Mine Explosion/IED)	6	10 kg (explosive mass) Blast AT	6	8 kg (explosive mass) Blast AT	4	6 kg (explosive mass) Blast AT	2
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
		Horsepower /Tonnage	3	> 20HP/T	3	16 - 20 HP/T	2	≤ 15 HP/T	1



2.	Mobility	Operating range on paved road	3	> 500 kms	3	400-500 kms	2	< 400 km	1
		Amphibious ability	3	Float and Ford on the move	3	Ford > 1.5 m on the move	2	Ford ≥ 1.5 m	1
		Off road driving	3	Soft soil + 2.5meter trench + 0.8meter step + satellite (local area) cum inertial navigation system	3	Soft soil + 2-meter trench + 0.5-meter step + satellite navigation (local area)	2	Hard surface + < 2-meter trench + < 0.5-meter step + magnetic compass / gyro-based navigation	1
		Air transportability	3	C-130 & Hel underslung	3	C-130/IL-76	2	C-17	1
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
3.	Fire Power	> 7.62mm / .30 caliber	3	Stabilized Remote-Controlled acquisition & firing without exposing gunner + >1500 round magazine	3	Remote Control acquisition & firing but un-stabilised system mount + 1000 to 1500 round magazine	2	Manual acquisition & firing with Gunner exposed / partially protected + < 500 round magazine	1
		Portholes for firing personal weapons by troops	3	≥ 3 port holes on sides & at least 1 on rear	3	1-2 port hole on sides & rear	2	No portholes. Troops required to open hatches for firing	1
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
4.	Payload Capacity	No of Pax including Crew	3	> 10	3	9 - 10	2	≤ 8	1
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
		VHF/HF communication	3	> 1 VHF + 1 HF radio set & communication feasible on the move plus	3	> 1 VHF radio set & communication feasible on the move	2	> 1 VHF or 1 HF radio set but communication not feasible on the move	1
		Situational Awareness	3	Day + Thermal Imaging Sights	3	Day + Thermal imaging sight	2	Only Day Sights for Driver,	1



5.	Command & Control			for Driver, Commander & Gunner		for one crew member		Commander & Gunner (no night vision)	
		Inter Communication	3	Inter Communication between all crew and dismounted troops	3	Inter Communication between crew or dismounted troops but not between crew and dismounted troops	2	No inter communication capability.	1



Wheeled APC– Armed

Ser	Parameter	Sub-Parameter	Highest Possible Point (HPP) per sub parameter	Measured sub parameter	Weighted Point allocated	Measured sub parameter	Weighted Point allocated	Measured sub parameter	Weighted Point allocated
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1.	Protection	Ballistic 360/Kinetic Energy threat	6	Weapon: Heavy Machine Gun, 14.5 mm Ammunition: AP Distance: 200 m Angle: azimuth 360°; elevation 0°	6	Weapon: Machine Gun and Sniper rifles, 7.62 mm Ammunition: AP tungsten carbide and AP hard steel core Distance: 30 m Angle: azimuth 360°; elevation 0-30°	4	Weapon: Assault rifles, 7.62 mm Ammunition: AP steel core Distance: 30 m Angle: azimuth 360°; elevation 0-30°	2
		Blast Under the body/ Wheel (Mine Explosion/IED))	6	10 kg (explosive mass) Blast AT	6	8 kg (explosive mass) Blast AT	4	6 kg (explosive mass) Blast AT	2
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2.	Mobility	Horsepower /Tonnage	3	>20HP/T	3	16 -20 HP/T	2	≤15 HP/T	1
		Operating range on paved road	3	> 500 kms	3	400-500 kms	2	<400 km	1
		Amphibious ability	3	Float and Ford on the move	3	Ford >1.5 m on the move	2	Ford < 1.5 m	1
		Off road driving	3	8 x 8	3	6 x 6	2	4 x4	1
		Air transportability	3	C-130 & Hel underslung	3	C-130/IL-76	2	C-17	1
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)



3.	Fire Power	≥7.62mm / .30 calibre	3	Stabilised Remote-Controlled acquisition & firing without exposing gunner + >1500 round magazine	3	Remote Control acquisition & firing but un-stabilised system mount + 1000 to 1500 round magazine	2	Manual acquisition & firing with Gunner exposed / partially protected + < 500 round magazine	1
		Portholes/hatches for firing personal weapons by troops	3	≥ 3 port holes on sides & at least 1 on rear	3	1-2 port hole on sides & rear	2	No portholes. Troops required to open hatches for firing	1
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
4.	Payload Capacity	No of Pax including Crew	3	> 10	3	9 - 10	2	≤ 8	1
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
5.	Command & Control	VHF/HF communication	3	> 1 VHF + 1 HF radio set & communication feasible on the move	3	≥ 1 VHF radio set & communication feasible on the move	2	≥ 1 VHF or 1 HF radio set but communication not feasible on the move	1
		Situational Awareness	3	Day + Thermal Imaging Sights for Driver, Commander & Gunner	3	Day + Thermal imaging sight for one crew member	2	Only Day Sights for Driver, Commander & Gunner (no night vision)	1
		Inter Communication	3	Inter Communication between all crew and dismounted troops	3	Inter Communication between crew or dismounted troops but not between crew and dismounted troops	2	No intercommunication capability	1

Abbreviations in use:



1. HP – Horsepower.

Classification for armed APCs:

The Highest Possible Point (HPP) per sub parameter is 3, less Protection.

HPP for Protection is 6, other sub parameters are 3.

The total possible points for the sub parameters $(6 \times 2) + (3 \times 11) = 45$

Consequently, the classification would be as follows:

Class I = 37 – 45 points

Class II = 26 – 36 points

Class III = 1 – 25 points



Annex B

Breakdown of Proposed Capabilities and Corresponding Points for Classification of Unarmed APCs**Tracked APC – Unarmed**

Ser	Parameter	Sub-Parameter	Highest Possible Point (HPP) per sub parameter	Measured sub parameter	Weighted Point allocated	Measured sub parameter	Weighted Point allocated	Measured sub parameter	Weighted Point allocated
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1.	Protection	Ballistic 360/Kinetic Energy Threat	6	Weapon: Heavy Machine Gun, 14.5 mm Ammunition: AP Distance: 200 m Angle: azimuth 360°; elevation 0°	6	Weapon: Machine Gun and Sniper rifles, 7.62 mm Ammunition: AP tungsten carbide and AP hard steel core Distance: 30 m Angle: azimuth 360°; elevation 0-30°	4	Weapon: Assault rifles, 7.62 mm Ammunition: AP steel core Distance: 30 m Angle: azimuth 360°; elevation 0-30°	2
		Blast Under the body/ Track (Mine Explosion/IED))	6	10 kg (explosive mass) Blast AT	6	8 kg (explosive mass) Blast AT	4	6 kg (explosive mass) Blast AT	2
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2.	Mobility	Horsepower /Tonnage	3	>20HP/T	3	16 - 20 HP/T	2	≤15 HP/T	1
		Operating range on paved road	3	> 500 kms	3	400-500 kms	2	<400 km	1
		Amphibious ability	3	Float and Ford on the move	3	Ford ≥1.5 m on the move	2	Ford < 1.5 m	1
		Off road driving	3	Soft soil + 2.5meter trench	3	Soft soil + 2-meter trench +	2	Hard surface + < 2-meter trench +	1



				+ 0.8-meter step + Satellite (local area) cum Inertial Navigation System		0.5-meter step + Satellite navigation (local area)		< 0.5-meter step + magnetic compass / gyro-based navigation	
		Air transportability	3	C-130 & Hel Underslung	3	C-130/IL-76	2	C-17	1
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
3.	Payload Capacity	No of Pax including Crew	3	≥ 10	3	7 to 9	2	≤ 8	1
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
4.	Command & Control	VHF/HF communication	3	> 1 VHF + 1 HF radio set & communication feasible on the move	3	1 VHF radio set & communication feasible on the move	2	≥ 1 VHF or 1 HF radio set but communication not feasible on the move	1
		Situational Awareness	3	Day + Thermal Imaging Sights for Driver, Commander & Gunner	3	Day + Thermal imaging sight for one crew member	2	Only Day Sights for Driver, Commander & Gunner (no night vision)	1
		Inter Communication	3	Inter Communication between all crew and dismounted troops	3	Inter Communication between crew or dismounted troops but not between crew and dismounted troops	2	No intercommunication capability	1

**Wheeled APC – Unarmed**

Ser	Parameter	Sub-Parameter	Highest Possible Point (HPP) per sub parameter	Measured sub parameter	Weighted Point allocated	Measured sub parameter	Weighted Point allocated	Measured sub parameter	Weighted Point allocated
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1.	Protection	Ballistic 360/Kinetic Energy Threat	6	Weapon: Heavy Machine Gun, 14.5 mm Ammunition: AP Distance: 200 m Angle: azimuth 360°; elevation 0°	6	Weapon: Machine Gun and Sniper rifles, 7.62 mm Ammunition: AP tungsten carbide and AP hard steel core Distance: 30 m Angle: azimuth 360°; elevation 0-30°	4	Weapon: Assault rifles, 7.62 mm Ammunition: AP steel core Distance: 30 m Angle: azimuth 360°; elevation 0-30°	2
		Blast Under the body/ Wheel (Mine Explosion/IED)	6	10 kg (explosive mass) Blast AT	6	8 kg (explosive mass) Blast AT	4	6 kg (explosive mass) Blast AT	2
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
2.	Mobility	Horsepower /Tonnage	3	>20HP/T	3	16 -20 HP/T	2	≤15 HP/T	1
		Operating range on paved road	3	> 500 kms	3	400-500 kms	2	<400 km	1
		Amphibious ability	3	Float and Ford on the move	3	Ford ≥1.5 m on the move	2	Ford < 1.5 m	1
		Off road driving	3	8 x 8	3	6 x 6	2	4 x4	1
		Air transportability	3	C-130 & Hel underslung	3	C-130/IL-76	2	C-17	1
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)



3.	Payload Capacity	No of Pax including Crew	3	≥ 10	3	9 - 10	2	8	1
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
4.	Command & Control	VHF/HF communication	3	> 1 VHF + 1 HF radio set & communication feasible on the move	3	1 VHF radio set & communication feasible on the move	2	≥ 1 VHF or 1 HF radio set but communication not feasible on the move	1
		Situational Awareness	3	Day + Thermal Imaging Sights for Driver and Commander.	3	Day + Thermal imaging sight for one crew member	2	Only Day Sights for Driver, Commander (no night vision)	1
		Inter Communication	3	Inter Communication between all crew and dismounted troops	3	Inter Communication between crew or dismounted troops but not between crew and dismounted troops	2	No intercommunication capability	1

Abbreviations in use:

1. HP – Horsepower.

The Highest Possible Point (HPP) per sub parameter is 3, less Protection.

HPP for Protection is 6, other sub parameters are 3.

The total possible points for the sub parameters $(6 \times 2) + (3 \times 9) = 39$

Consequently, the classification would be as follows:

Class I = 28 – 39 points

Class II = 1 – 27 points