



NATO Allied Ordnance Publication(AOP-6)

NDIA Brief

**May 17, 2005
Atlantic City, NJ**

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I-AMMO-WG, SME
(ARDEC)



Outline

- ▶ **Interservice Ammunition Working Group (I-AMMO WG)**
 - Interservice: Land, Sea and Air
- ▶ **Allied Ordnance Publication (AOP-6)**
- ▶ **AOP-6 Main Users' (Multi-National Commands) request**
- ▶ **Demonstration of Electronic version of AOP-6 VOL. I**



I-AMMO WG

- ▶ **I-AMMO WG Tasked to develop logistics data to fulfill users (MNC) requirements due to increased multinational operational environments (Storage, Transportation and Interchangeability)**
- ▶ **Main Catalogue is AOP-6**



What is AOP-6?

- ▶ **AOP-6 Volume I is a document supporting NATO Commands and Nations that lists ammunition that is interchangeable among the NATO nations. It is designed to be used when national shortfalls arise which may hamper the effectiveness of operations. Ammunition items listed in AOP-6 Vol. I satisfy interchangeability criteria of form, fit, and function only. Function is defined as the physical action, role or purpose of a nature of ammunition**
- ▶ **AOP-6 Volume II specifies approved ammunition based on National evaluation/testing and a signed National Interchangeability Document (NID) that can be used safely and reliably in training and operations, without further authorization**

Electronic Version of AOP-6 Vol. I



- ▶ **National inventories of ammunition (Small to Large caliber, Missiles, Rockets, Explosives and Demolition) produced by selected nation(s), that are interchangeable between two or more nations**
- ▶ **National Inventories of ammunition produced by other nations, that are interchangeable between two or more nations**
- ▶ **Interchangeability information searchable by a Fuze, Cartridge, National Stock Number (NSN), Nations' Abbreviation Short Code, (FSC, DODIC), Weapon, Ammunition's Caliber, NATO Ammunition Reporting Code (NARC), NARC's Description, Remarks (Key word(s) and Nations**



What is a NARC?

▶ A Five Digit Code System

- First three digits – Chapter
- Fourth Digit – ammunition's Function (i.e. HE, Smoke, Tracer)
- Fifth Digit – Serial Number
- Ammunition are interchangeable only within the 5 Digit NARC

▶ NARCs are assigned by the AOP-6 Custodian

NARC Example



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AOP-6(T) Vol I

REVISED SERIAL/NARC
AMMUNITION FUNCTION SMALL CALIBERS

XXX|XX

_____ SERIAL NUMBER

AMMO CHAPTER _____ AMMUNITION FUNCTION

<u>AMMUNITION FUNCTION RIFLE</u>	<u>MEANING</u>	<u>AMMUNITION FUNCTION MACHINE GUN</u>	<u>MEANING</u>
0	Spotting	0	Miscellaneous
1	Ball, Single	1	Ball
2	Ball, Clip	2	Ball-Tracer
3	Tracer, Single	3	Tracer
4	Tracer, Clipped	4	AP
5	Armor Piercing	5	AP-T
6	HEI	6	AP-Ball-T
7	Other	7	AP-I W/ AP-T
8	AP-I Linked W/ Tracer or Linked W/ AP-T		
9	AP-Ball Linked W/		

Page 1 Sec 1 1/6 At 1.8" Ln 9 Col 137 REC TRK EXT OVR English (U.S)

NARC Example Cont'd



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AOP-6(T) Vol. I

**REVISED SERIAL/NARC
AMMUNITION FUNCTION MEDIUM & LARGE CALIBERS**

XXX|XX

SERIAL NUMBER

AMMO CHAPTER | AMMUNITION FUNCTION

<u>AMMUNITION FUNCTION</u>	<u>MEANING</u>
0	Spotting
1	HE, HE-I and cartridges carrying this type <u>submunition</u>
2	HEAT, HESH, HEDP, canister and cartridges carrying this type <u>submunition</u> for engaging armored targets
3	Armor-Piercing (e.g., AP, APDS, APFSDS)
4	Incendiary
5	Smoke
6	Illumination
7	Propellant charge (Low zone)
8	Propellant charge (High zone)
9	Flash Reducer, Primer, Other

Page 2 Sec 1 2/6 At 2.4" Ln 13 Col 3 REC TRK EXT OVR English (U.S)

Source of US Ammunition in AOP-6



- ▶ **World Wide Ammunition Reporting System (WARS), Rock Island**
- ▶ **Conventional Ammunition Interchangeability Substitutability List (CASIL), Rock Island**
- ▶ **Item Managers/SME from Picatinny and other US Commands**
- ▶ **Software checks AOP-6 NSNS & DODICs against WARS & CASIL**
 - **All NSNs and DODICs in AOP-6 Should be in WARS & CASIL**



Source of US Ammunition in AOP-6

CASIL

Microsoft Excel - CASIL

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Reply with Changes... End Review...

	A	B	C	D	E	F	G	H	I	J	K
1	DODIC	P/S/D/O	WR	TR	OTH	NOMENCLATURE	REMARKS	ACCEPTABLE SUBS	ITEM MANAGER	DSN PHONE	
2	SHOTGUN SHELLS										
3	A010	P		X	X	Ctg 10 Gage Blank	Salute requirements		Dawn Folland	793-4608	
4	A011	P	X	X		Ctg 12 Gage 00 Buckshot			Dawn Folland	793-4608	
5	A014	P		X		Ctg 12 Gage #7-1/2 Shot			Dawn Folland	793-4608	
6	A017	P		X		Ctg 12 Gage #9 Shot			Dawn Folland	793-4608	
7	A055	P		X		Ctg .410 Gage			Dawn Folland	793-4608	
8											
9	CTG 5.56MM FM16A1										
10	A071	P	X	X		Ctg 5.56mm Ball M193 (Clip)		A066	Barb Hugill	793-3373	
11	A066	S		X		Ctg 5.56mm Ball M193 (Ctn Pk)	f/ CONUS training		Barb Hugill	793-3373	
12											
13	A065	P		X		Ctg 5.56mm Short Range			Barb Hugill	793-3373	
14											
15	CTG 5.56MM FM16A2										
16	AA33	P		X	X	Ctg 5.56mm Ball (Com Pk)	Primary sub f/AA45 & AA48	AA45, AA48, A059	JoElla Wise	793-3283	
17	AA45	P	X	X	X	Ctg 5.56mm Ball M855 (Clip) (Lead-free)	Use on lead-free ranges	AA33, A059	Tom Ritchie	793-5474	
18	A059	P	X	X	X	Ctg 5.56mm Ball M855 (Clip)			JoElla Wise	793-3283	
19	AA48	P		X	X	Ctg 5.56mm Ball M855 (commercial pk) (Lead-free)	Use on lead-free ranges	AA33, A059	Tom Ritchie	793-5474	
20	A063	P	X	X	X	Ctg 5.56mm Tracer M856			JoElla Wise	793-3283	
21											
22	CTG 5.56MM COMMON RIFLE AMMO										
23	A070	P			X	Ctg 5.56mm HPT	f/ test		JoElla Wise	793-3283	
24	A076	P		X	X	Ctg 5.56mm Dummy M232	f/test		Barb Hugill	793-3373	
25	A080	P		X		Ctg 5.56mm Blank M200			Tom Ritchie	793-5474	
26	A060	P		X	X	Ctg 5.56mm Dummy M199	f/test		JoElla Wise	793-3283	
27											
28	CTG 5.56MM F/FIRING PORT										
29	A072	P	X		X	Ctg 5.56mm Tracer M196	Valid sub f/ A068		Barb Hugill	793-3373	
30	A068	S	X	X		Ctg 5.56mm Tracer M196			Barb Hugill	793-3373	
31											
32	CTG 5.56MM F/SAW										
<p>Small Caliber / Med Cal / Tank / Pyro / Mortars&Chemical / Mines / Artillery / Air and Ground Support Team / DO</p>											

Ready

AOP-6(T) Vol. I (Main Screen)



AOP-6(T) VOL. I

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Small Calibers [5.56mm to 40mm]

104| 5.56MM RIFLE 119| .50 CAL SP-T
 105| 5.56MM MG 121| 23MM X 151
 106| 7.62MM RIFLE 122| 20MM X 139
 107| 7.62MM MG 123| 20MM X 102
 108| .30 CAL RIFLE 124| 25MM
 109| .30 CAL MG 126| 30MM
 110| 7.65MM 128| 35MM
 112| 9.00MM 130| 40MM L/60
 116| .45 CAL 131| 40MM L/70
 117| 14.5MM X 114 132| 40MM HV
 118| .50 CAL MG 134| 40MM LV

Nation(s) Selection

All Select

BELGIUM -- BE
 CANADA -- CA
 CZECH REPUBLIC -- CZ
 DENMARK -- DA
 FRANCE -- FR
 GERMANY -- GE
 ITALY -- IT
 NETHERLANDS -- NL
 POLAND -- PL
 PORTUGAL -- PO

Interchangeability data for:

Selected Nations only
 All Nations in NARCs

Select All Clear

NARC	AMMUNITION GENERIC DESCRIPTION
10411	CARTRIDGE, RIFLE, 5.56MM: NATO BALL, SINGLE
10421	CARTRIDGE, RIFLE, 5.56MM: NATO, BALL, CLIP
10441	CARTRIDGE, RIFLE, 5.56MM: NATO, TRACER, CLIP

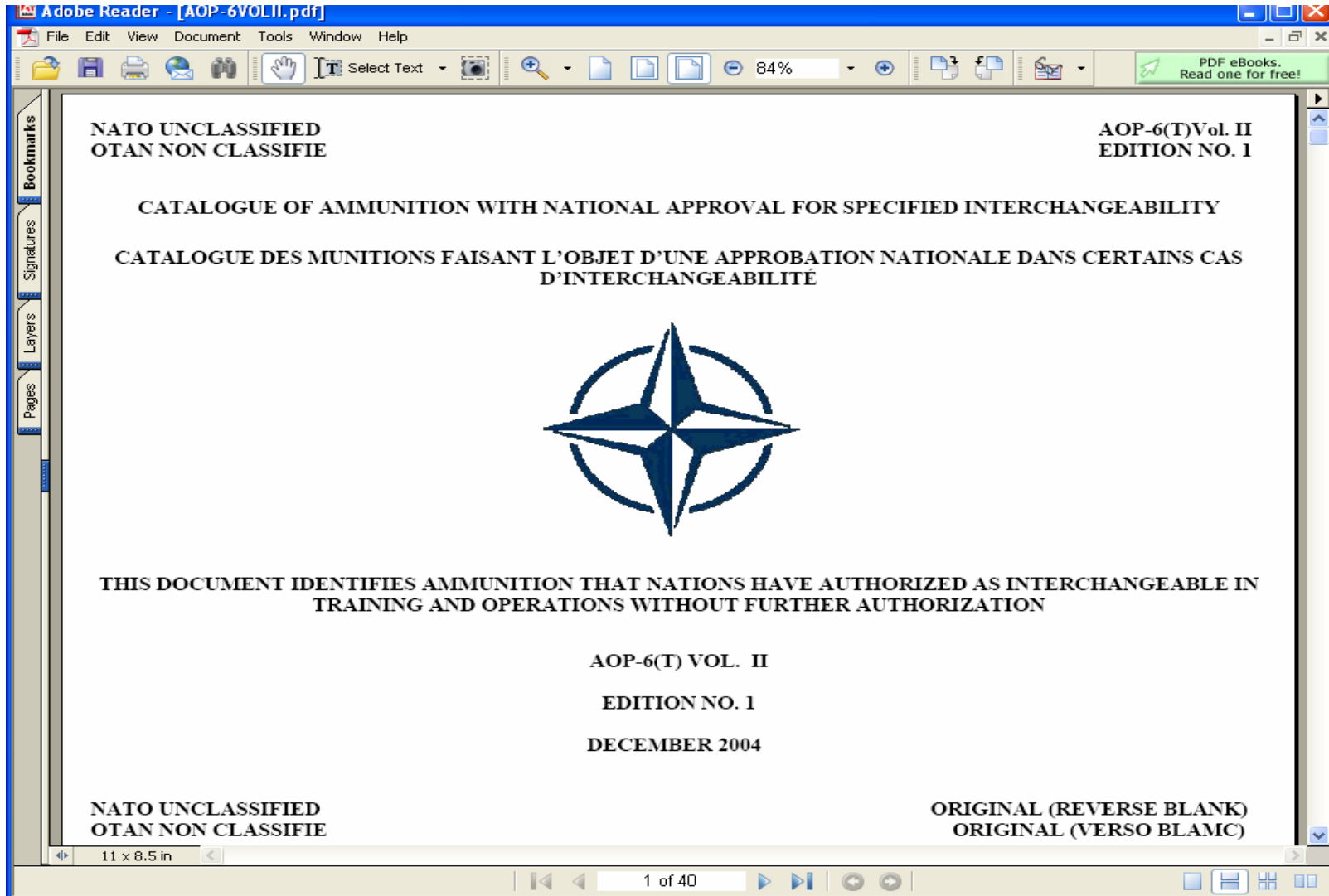
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AOP-6(T) Vol. I Viewer



Report Screen		<<Back		100%		1 of 1		AOP-6(T) Vol I		104	
CATALOGUE OF 5.56MM RIFLE AMMUNITION CATALOG DES MUNITIONS POUR CARBINE DE 5.56MM											
5.56MM RIFLE						RIFLE: BE-FNC CA-C7,C7A1,C8 DA-C7A1 FR-MASIT-AR70 GE-G36 IT-AR70 SP-CETME-L US-M16A1/A2 UK-SA80, LSW					
SERIAL	AMMUNITION	GENERIC DESCRIPTION	FUZES	NATO STOCK NUMBER	NATION ABBREVIATION	SHORT CODE	REMARKS				
NO.	DESCRIPTION	GENERIQUE DE LA	IF FITTED	NO. DE NOMENCLATURE	ABBREVIATION NATIONALE	CODE ABREGE	OBSERVATIONS				
PORDE	MUNITION	CAS ECHEANT	OTAN	CODE ABREGE	OBSERVATIONS						
10411	CARTRIDGE, RIFLE, 5.56MM: NATO BALL, SINGLE										
	<u>BE-CARTRIDGE, 5.56MM NATO BALL SS109</u>						(1) NOT NATO QUALIFIED.				
	SS109			1305-13-112-1171(1)	BE-PLAG		(2) CARTRIDGES WITH THE MANUFACTURERS CODE "MEN" CAN TEMPORARILY ONLY BE FIRED IN THE GERMAN'S G36 WEAPON				
BE,DA,FR,GE,IT,PO,SP,TU,UK											
10421	CARTRIDGE, RIFLE, 5.56MM: NATO BALL, CLIP										
	<u>BE-CARTRIDGE, 5.56MM NATO BALL CLIP (10 RD CLIP), SS109</u>						(1) NOT NATO QUALIFIED				
	SS109			1305-13-112-8251	BE-PLFG		(2) THIS IS THE CA C77 CARTRIDGE				
	SS109			1305-13-113-9670	BE-PLFG		(3) NATO QUALIFIED, REF: AC/225				
	SS109			1305-13-113-9671	BE-PLFG		(LG.SSG.1) D/S, 17 JAN 97				
BE,CANL,TU,UK,US											
10441	CARTRIDGE, RIFLE, 5.56MM: NATO, TRACER, CLIP										
	<u>BE-CARTRIDGE 5.56MM TRACER CLIP, L110</u>						(1) NOT NATO QUALIFIED.				
	L110			1305-13-113-9740(1)	BE-PLCG						
	L110			1305-13-112-8249(1)	BE-PLCG						
BE,CA,FR											

AOP-6(T) Vol. II (PDF)



AOP-6(T) Vol. II (NID)



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**ANNEX B TO
STANAG 2459
(Edition 2, Draft 1)**

NATIONAL INTERCHANGEABILITY DOCUMENT

	NCB-Code (initial country)	Authority	NATO Ammunition Reporting Code (NARC) (AOP-6, AOP-19)	National sequence number	Fill out date of the document
Document number:	US	ARDEC	10411	05-2004	28 May 2004

The undersigner states that as a substitute for:

Case A: *The following US (initial country) single item/complete round:*

Item name (NATO nomenclature)	NATO Stock Number (NSN)	Nation Abbreviation Short Code (NASC)	National item name (voluntary)
CARTRIDGE, RIFLE, 5.56MM: NATO BALL, SINGLE	1305-01-155-5455 1305-01-155-5458	1305-A058	Cartridge, 5.56MM: Ball, M855

can be interchanged with

Case A: *The following UK (owner country, Nation which has the substitute item in stock) single item/complete round:*

Item name (NATO nomenclature)	NATO Stock Number (NSN)	Nation Abbreviation Short Code (NASC)	National item name (voluntary)
CARTRIDGE, RIFLE, 5.56MM: NATO BALL, SINGLE	1305-99-978-3163	11901-02	UK-ROUND 5.56MM BALL CTN L2A2 (SA 80)

and can be fired safely with the weapon system(s):

- 5.56MM, Rifle, M16A2
- 5.56MM, MG, M249

104-1

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12 of 40

AOP-6(T) Vol. I I (NID) Cont'd



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based on the following documents (*Specifications (TDP), STANAG/MOPI, Bilateral criteria, Test results (report number), other relevant documents*):

- STANAG 2459 – The procedures for Ammunition Interchangeability
- STANAG 4172 – Small Arms Ammunition 5.56MM

Technical review of the individual lot acceptance data, and a comparison of US, UK and NATO requirements.

with observation of the following aspects (*User information, ballistics as of firing control info, firing table, corrections, deficiencies, safety information, limitations*):

This authorization of interchangeability is restricted to specific lots (see attached list) and is in effect for two years from the date of signature on this document. None of these lots are authorized for use in the M4 Carbine. The UK assets will be marked with the standard UK nomenclature and Nation Abbreviation Short Code (11901-02). The UK assets will be tracked by the UK NSN and a unique US assigned DODIC (AZ42).

Note that a total of 8 lots listed below (2 shipped to Germany and 6 shipped to Kuwait) are restricted to training use only.

The authority/date
Michael P. Devine 9/12/04
Michael P. Devine
Technical Director
U.S. Army Armaments Research
Development and Engineering Center
Picatinny, NJ, USA

104-2

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User Requirements for Ammunition Interchangeability

Multinational Commands

- **Allied Forces Northern Europe (AFNORTH)**
- **Supreme Headquarters Allied Powers Europe (SHAPE)**
- **NATO Consultation Command & Control Agency (NC3A)**
- **Allied Rapid Reaction Corps (ARRC)**
- **Component Command Land Headquarters (CCLH)**



User Requirements for Ammunition Interchangeability

- ▶ **Single Source Ammunition Data Base, Combination of:**
 - **Logistic Functional Services (LOG FS) **Transportation & Storage** information**
 - **AOP-6 Vol. I and AOP-40(Ammunition Data sheets, Not yet available) **Interchangeability** Information**
 - **SHAPE's technical experts are looking into the possibility of linking LOG FS with AOP-6 Vol. I**
- ▶ **Nations to provide their ammunition data for all services (Land, Air and Sea) for incorporation in AOP-6 and AOP- 40**

User Requirements for Ammunition Interchangeability



- ▶ Nations to provide their NIDs for incorporation in AOP-6 Vol. II
- ▶ Future Technical Expert meeting at the Hague, possibly in July to make final decision on linking LOG FS with AOP-6 Vol. I

Electronic Version of AOP-6(T) Vol. I



- ▶ **Electronic Version can answer the following Questions:**

Electronic Version of AOP-6(T) Vol. I



- ▶ **Which NATO Nations have 30MM Ammunition in their inventories?**
- ▶ **Which 30MM ammunition can be interchanged between BE and the UK?**
- ▶ **Which NATO Nations have ammunition with the following NSN: 1310-00-309-4935?**
- ▶ **Which ammunition can be interchanged with the selected ammunition (1310-00-309-4935)?**
- ▶ **Which weapons can be used to fire the ammunition?**

Electronic Version of AOP-6(T) Vol. I



- ▶ **Which small Ammunition are produced by France?**
- ▶ **Which NATO Nations are using small arms ammunition produced by FR?**
- ▶ **What are all weapons (Machine Gun, Cannon, Rifle) used by a selected Nation to fire all the ammunition in its inventory?**
- ▶ **Which NATO Nations use a particular weapon?**

Electronic Version of AOP-6(T) Vol. I



- ▶ **What ammunition can be interchanged between BE, FR, UK and US?**
- ▶ **What new ammunition have been submitted in the latest AOP-6 catalogue?**
- ▶ **All [Small arms, Tank Gun and All Artillery] Ammunition can be interchanged between TU, GR and DA?**
- ▶ **Which ammunition are listed with a “Do Not Fire” restriction?**
- ▶ **Which Small Arms ammunition are NATO Qualified?**



ARDEC POCs

- ▶ **Mr. Stephen Schoonmaker (I-AMMO WG, US HOD)
AMSRD-AAR-AIL-LA (973-724-3452, DSN 880 -3452)**
- ▶ **Mr. Andrew Deblock (I-AMMO WG, US Custodian)
AMSRD-AAR-AIL-LA (973-724-5707, DSN 880 - 5707)**
- ▶ **Mr. Timothy Healy (I-AMMO WG, US Custodian)
AMSRD-AAR-AIL-LA (973-724-8055, DSN 880 -8055)**
- ▶ **Mr. Victor Charles (I-AMMO WG, SME)
AMSRD-AAR-EMB (973-724-8551, DSN 880 -8551)**



Conclusion

- ▶ **AOP-6 Vol. I & II are published in the same CD twice a year (June (Draft Version), December (Official Version))**
- ▶ **Nations were urged by the I-AMMO WG chairman to update the information listed in AOP-6 Vol. I**
- ▶ **AOP-6 will play a major role in the future Single Source Ammunition Database (SSAD)**
 - **Transportation, Storage and Interchangeability**
- ▶ **Nations were tasked by the I-AMMO WG to brief AOP-6 within their National Commands**
- ▶ **AOP-6 Vol. I is included in the NATO Ammunition Database (NADB) produce by the NATO Maintenance Supply Agency (NAMSA)**