

**NORTH ATLANTIC TREATY ORGANIZATION  
ORGANISATION DU TRAITE DE L'ATLANTIQUE NORD**

**MILITARY AGENCY FOR STANDARDIZATION (MAS)  
BUREAU MILITAIRE DE STANDARDISATION (BMS)  
1110 BRUSSELS  
Tel : 707.4300**

15 December 2000

MAS/1536-LAND/4568

**STANAG 4568 LAND (EDITION 1) - PROCEDURES TO DETERMINE THE LEVELS  
OF PERFORMANCE (MUZZLE VELOCITY, PRESSURE) AND ASSOCIATED  
QUALITY OF IN SERVICE LARGE CALIBRE PROPELLING CHARGE LOTS**

Reference:

AC/225-D/1442 dated 22 June 1998

1. The enclosed NATO Standardization Agreement which has been ratified by nations as reflected in page iii is promulgated herewith.
2. The reference listed above is to be destroyed in accordance with local document destruction procedures.
3. AAP-4 should be amended to reflect the latest status of the STANAG.

ACTION BY NATIONAL STAFFS

4. National staffs are requested to examine page iii of the STANAG and, if they have not already done so, advise the Defence Support through their national delegation as appropriate of their intention regarding its ratification and implementation.

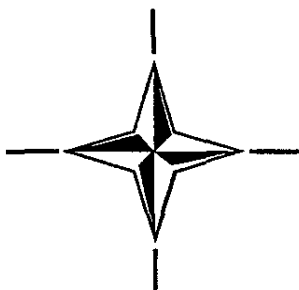


Jan H ERIKSEN  
Rear Admiral, NONA  
Chairman, MAS

Enclosure:

STANAG 4568 (Edition 1)

**NORTH ATLANTIC TREATY ORGANIZATION  
(NATO)**



**MILITARY AGENCY FOR STANDARDIZATION  
(MAS)**

**STANDARDIZATION AGREEMENT  
(STANAG)**

SUBJECT: PROCEDURES TO DETERMINE THE LEVELS OF PERFORMANCE  
(MUZZLE VELOCITY, PRESSURE) AND ASSOCIATED QUALITY OF IN  
SERVICE

Promulgated on 15 December 2000

A handwritten signature in black ink, appearing to read 'Jan H ERIKSEN'. The signature is stylized with a large, sweeping initial 'J' and a series of connected loops for the rest of the name.

Jan H ERIKSEN  
Rear Admiral, NONA  
Chairman, MAS

RECORD OF AMENDMENTS

No.	Reference/date of amendment	Date entered	Signature

EXPLANATORY NOTES

AGREEMENT

1. This NATO Standardization Agreement (STANAG) is promulgated by the Chairman MAS under the authority vested in him by the NATO Military Committee.
2. No departure may be made from the agreement without consultation with the tasking authority. Nations may propose changes at any time to the tasking authority where they will be processed in the same manner as the original agreement.
3. Ratifying nations have agreed that national orders, manuals and instructions implementing this STANAG will include a reference to the STANAG number for purposes of identification.

DEFINITIONS

4. Ratification is "In NATO Standardization, the fulfilment by which a member nation formally accepts, with or without reservation, the content of a Standardization Agreement" (AAP-6).
5. Implementation is "In NATO Standardization, the fulfilment by a member nation of its obligations as specified in a Standardization Agreement" (AAP-6).
6. Reservation is "In NATO Standardization, the stated qualification by a member nation that describes the part of a Standardization Agreement that it will not implement or will implement only with limitations" (AAP-6).

RATIFICATION, IMPLEMENTATION AND RESERVATIONS

7. Page iii gives the details of ratification and implementation of this agreement. If no details are shown it signifies that the nation has not yet notified the tasking authority of its intentions. Page iv (and subsequent) gives details of reservations and proprietary rights that have been stated.

FEEDBACK

8. Any comments concerning this publication should be directed to NATO/MAS - Bvd Leopold III - 1110 Brussels - BE.

ARMY

**NATO STANDARDIZATION AGREEMENT**  
**(STANAG)**

**PROCEDURES TO DETERMINE THE LEVELS OF PERFORMANCE (MUZZLE**  
**VELOCITY, PRESSURE) AND ASSOCIATED QUALITY OF IN SERVICE**  
**LARGE CALIBRE PROPELLING CHARGE LOTS**

**ANNEX:**     A.     Applicable standards and administrative details

**RELATED DOCUMENTS:**

STANAG 4110:	Definition of pressure terms and their interrelationship for use in design and proof of cannons and ammunition
STANAG 4113:	Pressure measurement by crusher gauges.
STANAG 4114:	Measurements of projectile velocities
STANAG 4115	Definition and determination of ballistic properties of gun propellants
STANAG 4144:	Dynamic fire technique to determine ballistic data for cannon artillery firing tables and associated fire control equipment
STANAG 4425:	A procedure to determine the degree of interchangeability of NATO Indirect Fire ammunition.

**AIM**

1.     The aim of this Agreement is to achieve confidence in the levels of performance (muzzle velocity, pressure) and associated quality of the in service propelling charge lots for large calibre munitions, in order to facilitate interchangeability of ammunition between NATO cannons.

**AGREEMENT**

2.     Participating nations agree to use the procedures specified in International Test Operations Procedures (ITOP) 4-2-606 and 4-2-700 in order:

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(Edition 1)

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- (a) to determine:
  - (1) the performance level of the master, reference and interim calibration lots,
  - (2) the in-service propelling charge weight to obtain service velocity.
- (b) and to assess:
  - (1) the uniformity of pressure and velocity for established charges,
  - (2) the effects of temperatures on the performance of propelling charges.

3. Details of ITOPs 4-2-606 and 4-2-700, including how to obtain copies of these, are at Annex A.

**CUSTODY**

4. This STANAG is in the custody of the AC/225-Land Group 4/Sub-Group 2. It has one Annex (A), referencing the appropriate ITOPs and this will be updated by the unanimous approval of the custodian group as necessary (that is, when new editions of the ITOPs are issued) without a further edition of this STANAG being issued. Any queries concerning the exact status of the current edition of the documents referenced in Annex A shall be addressed to the custodian nation, also listed in Annex A. A contact address is provided.

**IMPLEMENTATION OF THE AGREEMENT**

5. This STANAG is implemented when the ratifying nations, by means of adequate national procedures have ensured that all agencies responsible for conducting tests related to the subject apply this NATO STANAG and the associated ITOPs defined at Annex A.

**APPLICABLE STANDARDS AND ADMINISTRATIVE DETAILS**

1. In April 1998, the applicable International Test Operations Procedures (ITOPs) relevant to this STANAG were

ITOP No 4-2-606 dated 10 Apr 97 "Establishment of Master and Reference Calibration Rounds"

ITOP No 4-2-700 dated 25 May 95 "Propelling Charges"

2. By authority of the four nation group which developed these procedures (France, Germany, United Kingdom and United States), the two ITOPs at paragraph 1 may be released on demand to the 19 NATO Allies (which include the four nation grouping).
3. The Report Document Page and Cover Page of ITOP 4-2-606 are at Appendix 1.
4. The Report Document Page and Cover Page of ITOP 4-2-700 are at Appendix 2.
5. To obtain copies of these ITOPs, eligible nations should contact the Sponsoring/Monitoring Agency quoted at Section 9 of the Report Document Pages, quoting this STANAG as authority for release.

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APPENDIX 1 to  
ANNEX A to  
STANAG 4568  
(Edition 1)

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washing Headquarters Services Directorate for information on Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302 and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE 10 April 1997	3. REPORT TYPE AND DATES COVERED FINAL		
4. TITLE AND SUBTITLE FR/UK/US International Test Operations Procedure (ITOP) 4-2-606 Establishment of Master and Reference Calibration Rounds			5. FUNDING NUMBERS WU A268445	
6. AUTHOR(S)				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Commander U.S. Army Aberdeen Test Center ATTN: STEAC-AC-I Aberdeen Proving Ground, MD 21005-5059			8. PERFORMING ORGANIZATION REPORT NUMBER ITOP 4-2-606	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Commander U.S. Army Test and Evaluation Command ATTN: AMSTE-TM-T Aberdeen Proving Ground, MD 21005-5055			10. SPONSORING/MONITORING AGENCY REPORT NUMBER  Same as item 8	
11. SUPPLEMENTARY NOTES  Defense Technical Information Center (DTIC), AD No: A This ITOP supersedes TOP 4-2-606, 8 February 1985				
12a. DISTRIBUTION/AVAILABILITY STATEMENT  Distribution limited to FR/GE/UK/US Gov't agencies; Foreign Gov't Information; Apr 97. Other requests for this document shall be referred to Sponsoring/Monitoring Agency as shown in block 9.			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words)  This document describes techniques for conducting firings to establish master, reference, and interim calibration lots for artillery, tank, mortar, and recoilless rifle ammunition. It also discusses procedures for performing check firings and for assessing the effects of substitute components on a master, reference, or interim calibration lot.				
14. SUBJECT TERMS  Ammunition, artillery      Ammunition, recoilless rifle      Propellant Ammunition components      Calibration firing Ammunition, mortar      Interim, master and reference lots			15. NUMBER OF PAGES 61	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT  UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE  UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT  UNCLASSIFIED	20. LIMITATION OF ABSTRACT  SAR	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)  
Prescribed by ANSI Std Z39-18  
298-102

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**International Test Operations Procedure  
Internationales Erprobungsverfahren  
Procédure Internationale d'Essais**

**Ratification Agreement For:**

ITOP No: 4-2-606

Date: 10 April 1997

Title: "Establishment of Master and Reference Calibration Rounds"

**Abstract:** This ITOP describes techniques for conducting firings to establish master, reference, and interim calibration lots for artillery, tank, mortar, and recoilless rifle ammunition. It also discusses procedures for performing check firings and for assessing the effects of substitute components on a master, reference, or interim calibration lot.

The following principal national representatives of Working Group of Experts 2.1 and 2.4 agree this document to be acceptable.

Ratifying Nations		
FRANCE	Signature	Date: 10/04/97
	ICT G. Cagnin, DEA/DCE/ETC4/ETBS, BP 712, 18015 Bourges Cedex, France	
GERMANY	Signature _____	Date: _____
	BDir. Dietrich Cleve, WTD 91-440, 49707 Meppen Germany	
UNITED KINGDOM	Signature	Date: 10 April 97
	Dr. Gurmit Chana, DERA, T&E RANGES, Shoeburyness, Essex, SS3 9SR, UK	
UNITED STATES	Signature	Date: April 10, 97
	Mr. Wolfgang Schmidt, HQ TECOM, AMSTE-TM-T, APG, MD 21005-5055, USA	

In principal ITOPs are intended for official use in the governments or authorized agents of the governments of France, Germany, the United Kingdom and the United States, i.e., the participants of the Four-Nation MOU relating to the mutual acceptance of Test and Evaluation, 5 December 1983. This ITOP may be released to other nations provided permission to do so has been granted by each signatory nation. Formal prior notification is required and a 30 day silent procedure is to be observed.

Supersedes: NA

No. of Pages: 60

Classification: UNCLASSIFIED



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APPENDIX 2 to  
ANNEX A to  
STANAG 4568  
 (Edition 1)

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
<small>Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302 and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503</small>				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE 25 May 1995	3. REPORT TYPE AND DATES COVERED Final		
4. TITLE AND SUBTITLE FR/GE/UK/US International Test Operations Procedure (ITOP) 4-2-700 Propelling Charges		5. FUNDING NUMBERS WU A268445		
6. AUTHOR(S)				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Commander U.S. Army Aberdeen Test Center ATTN: STEAC-AC-I Aberdeen Proving Ground, MD 21005-5059		8. PERFORMING ORGANIZATION REPORT NUMBER ITOP 4-2-700		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Commander U.S. Army Test and Evaluation Command ATTN: AMSTE-CT-T Aberdeen Proving Ground, MD 21005-5055		10. SPONSORING/MONITORING AGENCY REPORT NUMBER Same as Item 8		
11. SUPPLEMENTARY NOTES Defense Technical Information Center (DTIC), AD NO: A 295058 (This ITOP supersedes ITOP 4-2-700, 12 December 1985)				
12a. DISTRIBUTION AVAILABILITY STATEMENT Approved for public release; distribution unlimited.		12b. DISTRIBUTION CODE		
13. ABSTRACT (Maximum 200 words) This ITOP describes procedures for determining the propellant charge weight to produce service velocity, velocity and pressure uniformity of the established charge, and effects of extreme temperatures on the performance of propelling charges used with guns, howitzers, mortars, and recoilless rifles.				
14. SUBJECT TERMS Propelling charge      Top zone      Performance Service velocity      Lower zone			15. NUMBER OF PAGES 20	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT SAR	

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Standard Form 298 (Rev. 2-89)

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APPENDIX 2 to  
ANNEX A to  
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(Edition 1)

ITOP 4-2-700  
25 May 1995

**RATIFICATION AGREEMENT  
INTERNATIONAL TEST OPERATIONS PROCEDURE**

Four-Nation (FR/GE/UK/US) MOU Relating to the Mutual Acceptance of Test and Evaluation for the Reciprocal Procurement of Defense Equipment.

ITOP 4-2-700

FR/GE/UK/US "Propelling Charges"

<b>RATIFYING NATIONS</b>			
<b>FR</b>	<b>GE</b>	<b>UK</b>	<b>US</b>
<b>INITIALS/ DATE</b>	<b>INITIALS/ DATE</b>	<b>INITIALS/ DATE</b>	<b>INITIALS/ DATE</b>
<i>[Signature]</i> 25 May 95	<i>[Signature]</i> 25 May 95	<i>[Signature]</i> 25 May 95	<i>[Signature]</i> 25 May 95

The following Working Group of Experts national principal representatives, who have initialed above, agree this document to be technically adequate for the intended purpose:

For FR: ICT G. Cagnin, DGA/DSTI/ETBS/CE/DEA/MTC, BP 712,  
18015 Bourges Cedex, FRANCE

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For UK: Mr. Howard G. Sandford, MOD, DTEO Shoeburyness,  
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For US: Mr. Wolfgang HR. Schmidt, HQ TECOM, AMSTE-CT-T, APG, MD  
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