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

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AIR BOARD

3 December 1999 MAS(AIR)1478-AA/3556

See Distribution List Air N° 3

STANAG 3556 AA (EDITION 5) - AIRCRAFT STORE EJECTOR CARTRIDGES

References:
a. MAS(AIR)691-AA/3556 dated 8 June 1999 (Edition 5)(Ratification Draft 1)
b. MAS(AIR)98-AA/3556 dated 31 March 1992 (Edition 4)

1. The enclosed NATO Standardization Agreement which has been ratified by nations as reflected in page iii is promulgated herewith.

2. The references listed above are to be destroyed in accordance with local document destruction procedures.

3. AAP-4 should be amended to reflect the latest status of the STANAG (and AP if applicable).

ACTION BY NATIONAL STAFFS

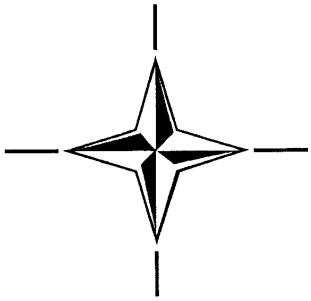
4. National staffs are requested to examine page iii of the STANAG and, if they have not already done so, advise the Air Board, MAS through their national delegation as appropriate of their intention regarding its ratification and implementation.

A. GRØNHEIM
Major General, NOAF
Chairman MAS

Enclosure:
STANAG 3556 (Edition 5)

STANAG No. 3556
(Edition 5)

NORTH ATLANTIC TREATY ORGANIZATION
(NATO)



MILITARY AGENCY FOR STANDARDIZATION
(MAS)

STANDARDIZATION AGREEMENT
(STANAG)

SUBJECT: AIRCRAFT STORE EJECTOR CARTRIDGES

Promulgated on 3 December 1999

A. GRØNHEIM
Major General, NOAF
Chairman, MAS

STANAGCOVE

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

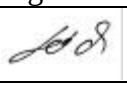
7. Page iii gives the details of ratification and implementation of this agreement. If no details are shown it signifies that the nation has not yet notified the tasking authority of its intentions. Page iv (and subsequent) gives details of reservations and proprietary rights that have been stated.

FEEDBACK

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

RECORD OF AMENDMENTS

STANAG 3556 Edition 1

No.	Reference/date of Amendment	Date entered	Signature
1	MAS(AIR)0606-AA/3556 v 15.05.01	17.04.02	

Agreed English/French Texts

STANAG 3556
(Edition 5)

NAVY/ARMY/AIR

NATO STANDARDIZATION AGREEMENT (STANAG)

AIRCRAFT STORE EJECTOR CARTRIDGES

Annexes: A. Ejector Cartridge Case
B. Dimensional/Theoretical Energy Characteristics for Existing NATO Aircraft Store Ejector Cartridges

Related Documents:

STANAG 3300 AA	-	STANDARDIZED AIRCRAFT ARMAMENT TERMINOLOGY
STANAG 3575 AA	-	AIRCRAFT STORE EJECTOR RACKS
MIL-D-81303	-	DESIGN AND EVALUATION OF CARTRIDGES FOR STORES SUSPENSION EQUIPMENT
RARDEE3B/1-200	-	EJECTION RELEASE UNIT CARTRIDGE

AIM

1. The aim of this agreement is to establish the design criteria of aircraft store ejector cartridges.

AGREEMENT

2. Participating nations agree that the design criteria of aircraft store ejector cartridges are as detailed herein.

DEFINITION

DETAILS OF THE AGREEMENT

3 The ejector cartridge (see diagram at Annex A) shall have a cylindrical body with flange (rim) at the ignition end of the cartridge. There shall be an electrical initiator located centrally in the ignition end of the cartridge. There should be six categories, or types, of ejector cartridge, and the overall length and theoretical energy output of each type of cartridge is as specified in paragraphs 10 and 11.

4 The cartridge case shall be as light as practicable but strong enough to withstand rough handling.

5 Ejector cartridges shall be initiated by a firing pin as specified in STANAG 3575 AA.

6 Ejector cartridges shall be constructed such that sympathetic ignition will occur when they are used in multiple cartridge applications with breeches that are specifically designed for that purpose.

7 Ejector cartridges shall function normally through a temperature range of -54°C to 93°C (-65°F to 200°F).

8 The storage life of the cartridges shall be not less than five years. The installed life shall be not less than one year.

9. The dimensions of the cartridge shall be as follows:

Feature	mm	in
Cylinder diameter	27.18 + 0.25 - 0.51	1.070 + 0.010 - 0.020
Taper	0.00	0.000
Flange diameter	29.34 + 0.51 - 0.38	1.155 + 0.020 - 0.015
Flange thickness	2.31 + 0.00 - 0.38	0.091 + 0.000 - 0.015
Head length	12.70	0.500
Electrode diameter	3.81 + 0.25 - 0.00	0.150 + 0.010 - 0.000

Feature		mm	in
Overall Length (max)	Type 0	31.75	1.250
	Type 1	31.75	1.250
	Type 2	41.91	1.650
	Type 3	41.91	1.820
	Type 4	46.23	1.820
	Type 5	86.87	3.420

10 The energy levels provided by the six categories of cartridges shall be as follows:

Cartridge Type	Theoretical Energy	
	Joules	ft-lbs
0	1,356 ± 475	1,000 ± 350
1	4,750 ± 680	3,500 ± 500
2	8,840 ± 680	6,500 ± 500
3	10,850 ± 680	8,000 ± 500
4	13,450 ± 680	10,000 ± 500
5	24,400 ± 680	18,000 ± 500

11 Theoretical energy levels shall be derived as follows:

Theoretical Energy (J/ft-lbs) = sum of impetus x charge weight for all propellant/pyrotechnic increments

Where:

a. Propellant impetus (expressed in Joules/kg or ft-lbs/lb) is obtained experimentally or calculated using combustion modeling techniques for each propellant/pyrotechnic type.

b. Propellant/pyrotechnic increments include:

(1) Ignition charges.

(2) Booster charges.

(3) Main charge propellant/pyrotechnic(s).

Theoretical energy levels for existing store ejector cartridges are provided in Annex B.

12. The electrical initiator shall be single-pole, and shall be grounded to the case. It shall ignite the cartridge within 15 milliseconds upon application of a current of 5.00 ± 0.25 amps at normal aircraft voltage. The electrical threshold of the initiator shall be such that cartridges will not be ignited when the initiator is subjected to a current of 1 amp and power of 1 watt for five minutes. Safeguards must also be provided in ejector release units in accordance with STANAG 3575 AA to provide protection from spurious electrical sources including electromagnetic radiation.

13. The surface of the electrode contact shall be 0.20 ± 0.10 mm (0.008 ± 0.004 in) below the surface of the head. The electrode shall be capable of withstanding a force of 1100N (247 lbf) applied axially without suffering damage apart from the pin indentation. The range of force exerted by the firing pin over which the electrode contact shall function normally is 177N to 730N (40 lbf to 164 lbf). Over this range the 58° to 90° point pin as specified in STANAG 3575 AA shall penetrate the electrode contact 0.05 mm to 0.50 mm (0.002 ± 0.020 in).

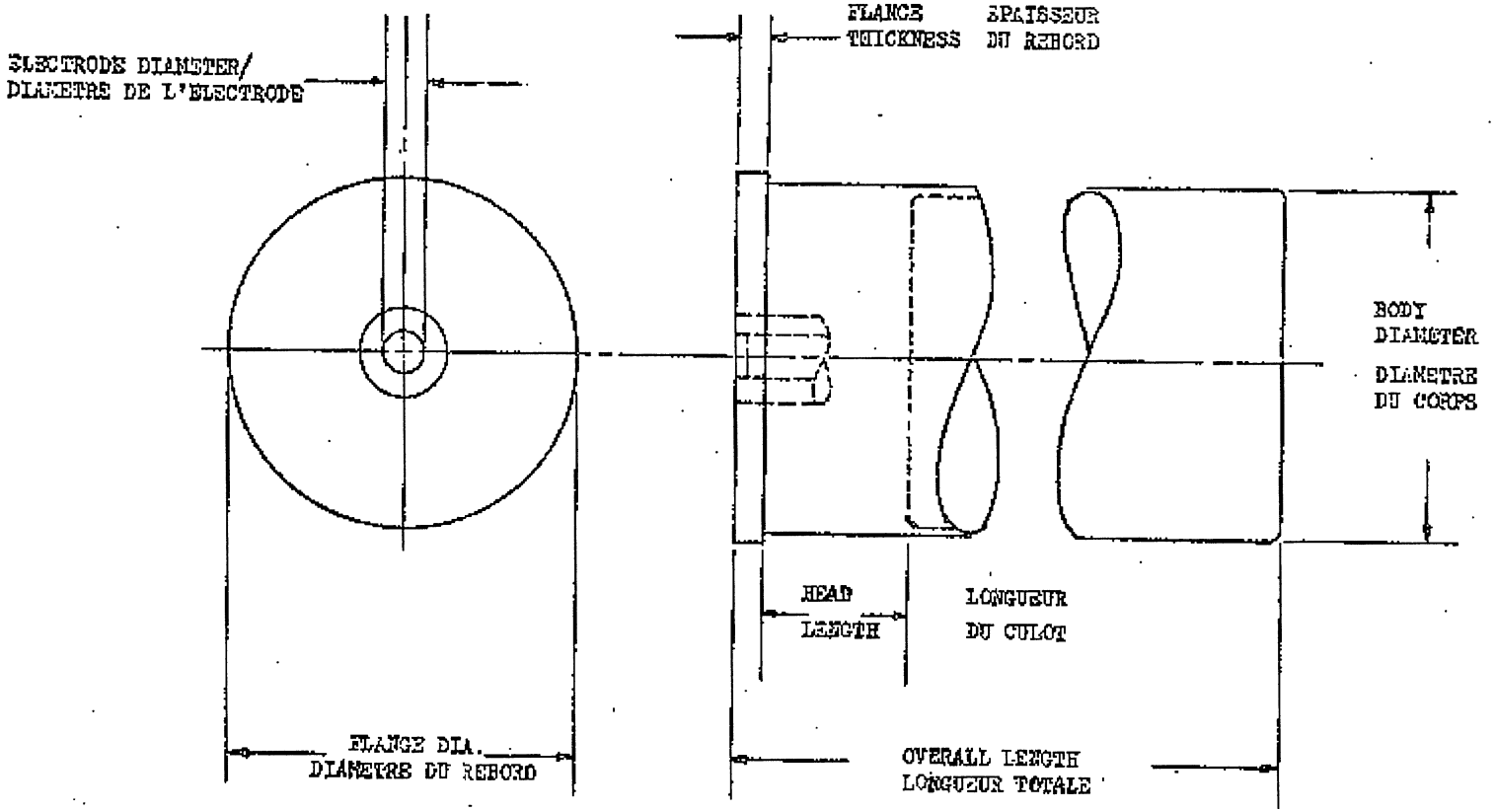
14. For the associated stores ejector equipment, the diameter of the breech (or cartridge holder, if used) shall be a straight bore of 27.46 + 0.076 - 0.000 mm (1.081 + 0.003 - 0.000) over its full length. Any taper which exists within these limits shall be uniform over the full length of the breech or cartridge holder, with the maximum diameter occurring at the end adjacent to the cartridge flange.

IMPLEMENTATION OF THE AGREEMENT

15. This STANAG is implemented when a nation has issued instructions that all future equipment for its forces will be in accordance with the specifications detailed in this agreement.

ANNEX A TO/ANNEXE A AU
STANAG 3556
(Edition 5)

EJECTOR CARTRIDGE CASE/DOUILLE DES IMPULSEURS DE CHARGES



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ANNEX B TO
STANAG 3556
(Edition 5)

Dimensional/Theoretical Energy Characteristics for Existing NATO Aircraft Store Ejector Cartridges

Cartridge Designation (Producer)	Cylinder Diameter in. (mm)	Taper in. (mm)	Flange Diameter in. (mm)	Flange Thickness in. (mm)	Head Length in. (mm)	Electrode Diameter in. (mm)	Overall Length in. (mm)	Theoretical Energy ft-lbs (J)
CERU No 400 MK 1 (UK)	1.057 max (26.85 max)	0.00	1.170 ± 0.005 (29.72 ± 0.127)	0.085 ± 0.002 (2.159 ± 0.051)	0.290 ± 0.010 (7.370 ± 0.250)	0.175 + 0.000 - 0.005 (4.450 + 0.000) - 0.127	1.250 max (31.80 max)	697 (945)
ARD 863-1 (US)	1.070 ± 0.010 (27.18 ± 0.076)	0.000	1.155 + 0.000 - 0.015 (29.34 + 0.000) - 0.381	0.091 + 0.000 - 0.015 (2.311 + 0.000) - 0.381)	0.393 * (9.970)	0.250 * (6.350)	1.000 ± 0.031 (25.40 ± 0.787)	3,106 (4,224)
ARD 863-1A/1W (US)	1.070 ± 0.010 (27.18 ± 0.076)	0.000	1.155 + 0.000 - 0.015 (29.34 + 0.000) - 0.381	0.091 + 0.000 - 0.015 (2.311 + 0.000) - 0.381)	0.393 * (9.970)	0.250 * (6.350)	1.000 ± 0.031 (25.40 ± 0.787)	3,106 (4,224)
MK 2 MOD 1 (US)	1.083 ± 0.006 (27.51 ± 0.150)	0.026 (0.660)	1.150 ± 0.005 (29.21 ± 0.127)	0.090 ± 0.005 (2.290 ± 0.130)	0.500 ± 0.010 (12.70 ± 0.250)	0.174 + 0.000 - 0.002 (4.420 + 0.000) - 0.050	1.245 + 0.000 - 0.0400 (31.62 + 0.000) - 1.020	3,626 (4,931)
CCU-44/B (US)	1.080 max. (27.43 max.)	0.00	1.150 ± 0.005 (29.21 ± 0.127)	0.085 ± 0.002 (2.159 ± 0.051)	0.400 ± 0.008 (10.60 ± 0.203)	0.155 ± 0.005 (3.970 ± 0.127)	1.100 ± 0.025 (27.94 ± 0.635)	3,650 (4,964)

Cartridge Designation (Producer)	Cylinder Diameter in. (mm)	Taper in. (mm)	Flange Diameter in. (mm)	Flange Thickness in. (mm)	Head Length in. (mm)	Electrode Diameter in. (mm)	Overall Length in. (mm)	Theoretical Energy ft-lbs (J)
CCU-107/B (US)	1.078 max. (27.38 max.)	0.00	1.150 ± 0.005 (29.21 ± 0.127)	0.085 ± 0.002 (2.159 ± 0.051)	0.400 ± 0.008 (10.60 ± 0.203)	0.155 ± 0.005 (3.970 ± 0.127)	1.000 ± 0.025 (25.40 ± 26.04)	3,506 (4,768)
CERU No 201 MK 3 (UK)	1.057 max. (26.85 max.)	0.00	1.170 ± 0.005 (29.72 ± 0.127)	0.085 ± 0.002 (2.159 ± 0.051)	0.29 ± 0.01 (7.37 ± 0.25)	0.175 + 0.000 - 0.005 (4.450 + 0.000) - 0.127	1.25 max. (31.8 max.)	4,116 (5,581)
MK 9 MOD 0 (US)	1.080 ± 0.003 (27.43 ± 0.076)	0.027 (0.686)	1.150 ± 0.005 (29.21 ± 0.127)	0.090 + .005 (2.290 ± 0.130)	0.714 ± 0.005 (18.14 ± 0.130)	0.174 + 0.000 - 0.002 (4.420 + 0.000) - 0.050	1.753 ± 0.035 (44.53 ± 0.889)	6,735 (9,159)
MK 124 MOD 0 (US)	1.056 ± 0.003 (26.82 ± 0.076)	0.00	1.150 ± 0.005 (29.21 ± 0.127)	0.125 ± .002 (3.175 ± 0.051)	0.400 ± 0.008 (10.60 ± 0.203)	0.293 + 0.000 - 0.002 (7.442 + 0.000) - 0.050	1.650 ± 0.025 (41.91 ± 26.04)	6,322 (8,598)
CCU-45/B (US)	1.808 max. (27.43 max.)	0.00	1.150 ± 0.002 (29.21 ± 0.127)	0.085 + 0.002 (2.159 + 0.051)	0.400 ± 0.008 (10.16 ± 0.203)	0.155 ± 0.005 (3.970 ± 0.127)	1.470 ± 0.025 (36.33 ± 26.04)	6,966 (9,474)
CCU-141/B ** (US)	1.808 max. (27.43 max.)	0.00	1.150 ± 0.002 (29.21 ± 0.127)	0.085 + 0.002 (2.159 + 0.051)	0.400 ± 0.008 (10.16 ± 0.203)	0.155 ± 0.005 (3.970 ± 0.127)	1.470 ± 0.025 (36.33 ± 26.04)	6,900 (9,474)
CCU-43/B (US)	1.080 max. (27.43 max.)	0.00	1.150 ± 0.005 (29.21 ± 0.127)	0.085 ± 0.002 (2.159 ± 0.051)	0.400 ± 0.008 (10.60 ± 0.203)	0.155 ± 0.005 (3.970 ± 0.127)	1.570 ± 0.005 (39.88 ± 0.127)	8,277 (11,257)
CCU-106/B (US)	1.078 max. (27.38 max.)	0.00	1.150 ± 0.005 (29.21 ± 0.127)	0.085 ± 0.002 (2.159 ± 0.051)	0.400 ± 0.008 (10.60 ± 0.203)	0.155 ± 0.005 (3.970 ± 0.127)	1.570 ± 0.005 (39.88 ± 0.127)	8,130 (11,057)

Cartridge Designation (Producer)	Cylinder Diameter in. (mm)	Taper in. (mm)	Flange Diameter in. (mm)	Flange Thickness in. (mm)	Head Length in. (mm)	Electrode Diameter in. (mm)	Overall Length in. (mm)	Theoretical Energy ft-lbs (J)
ARD 446-1 (US)	1.070 ± 0.010 (27.18 ± 0.076)	0.00	1.155 + 0.000 - 0.015 (29.34 + 0.000) - 0.381	0.091 + 0.000 - 0.015 (2.311 + 0.000) - 0.381)	0.393 * (9.970)	0.250 * (6.350)	1.813 ± 0.063 (46.05 ± 1.600)	9,246 (12,575)
ARD 446-1A/1W (US)	1.070 ± 0.010 (27.18 ± 0.076)	0.00	1.155 + 0.000 - 0.015 (29.34 + 0.000) - 0.381	0.091 + 0.000 - 0.015 (2.311 + 0.000) - 0.381)	0.393 * (9.970)	0.250 * (6.350)	1.813 ± 0.063 (46.05 ± 1.600)	9,246 * (12,575)
CERU No 204 MK 3 (UK)	1.057 max. (26.85 max.)	0.00	1.170 ± 0.005 (29.72 ± 0.127)	0.085 ± 0.002 (2.159 ± 0.051)	0.29 ± 0.01 (7.37 ± 0.25)	0.175 + 0.000 - 0.005 (4.450 + 0.000) - 0.127	1.82 max. (44.6 max.)	9,520 (12,907)

*: Nominal value - to be verified by manufacturer.
**: Service release pending completion of qualification testing.