NATO OTAN

NATO STANDARDIZATION AGENCY
AGENCE OTAN DE NORMALISATION

NSA

MILITARY COMMITTEE AIR STANDARDIZATION BOARD (MCASB)

22 January 2009 NSA(AIR)0061(2009)AA/3898

MCASB

STANAG 3898 AA (EDITION 7) - AIRCRAFT STORES INTERFACE MANUAL (ASIM) - AOP-12

References:
A. NSA(AIR)0660-AA/3898 dated 17 July 2003
B. NSA(AIR)0801(2007)AA/3898 dated 24 September 2007

1. The enclosed NATO Standardization Agreement which has been ratified by nations as reflected in the **NATO Standardization Document Database (NSDD),** is promulgated herewith.

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

ACTION BY NATIONAL STAFFS

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

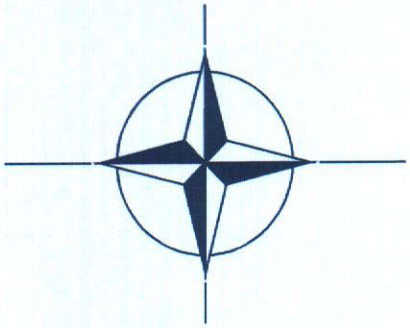
Juan A. MORENO
Vice Admiral, ESP(N)
Director, NATO Standardization Agency

Enclosure:
STANAG 3898 (Edition 7)

NATO Standardization Agency - Agence OTAN de normalisation
B-1110 Brussels, Belgium Internet site: http://nsa.nato.int
E-mail: air@nsa.nato.int - Tel 32.2.707.55.88 - Fax 32.2.707.57.18

STANAG 3898
(Edition 7)

NORTH ATLANTIC TREATY ORGANIZATION
(NATO)



NATO STANDARDIZATION AGENCY
(NSA)

STANDARDIZATION AGREEMENT
(STANAG)

SUBJECT: AIRCRAFT STORES INTERFACE MANUAL (ASIM) - AOP-12

Promulgated on 22 January 2009

Juan A. MORENO
Vice Admiral, ESP(N)
Director, NATO Standardization Agency

RECORD OF AMENDMENTS

No.	Reference/date of Amendment	Date Entered	Signature

EXPLANATORY NOTES

AGREEMENT

1. This NATO Standardization Agreement (STANAG) is promulgated by the Director NATO Standardization Agency under the authority vested in him by the NATO Standardization Organisation Charter.

2. No departure may be made from the agreement without informing the tasking authority in the form of a reservation. 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.

RATIFICATION, IMPLEMENTATION AND RESERVATIONS

4. Ratification, implementation and reservation details are available on request or through the NSA websites (internet http://nsa.nato.int; NATO Secure WAN http://nsa.hq.nato.int).

FEEDBACK

5. Any comments concerning this publication should be directed to NATO/NSA – Bvd Leopold III - 1110 Brussels - BEL.

Agreed English/French texts

STANAG 3898
(Edition 7)

NAVY/ARMY/AIR

NATO STANDARDIZATION AGREEMENT (STANAG)

AIRCRAFT STORES INTERFACE MANUAL (ASIM) - AOP-12

Annex: A. Formats for Drawings in AOP-12

Related Document:

STANAG 3899 AA - GROUND FIT AND COMPATIBILITY CRITERIA FOR AIRCRAFT STORES

AIM

1. The aim of this agreement is to register national acceptance and updating of AOP-12.

AGREEMENT

2. Participating nations agree:

   a. To use AOP-12 as an aircraft stores compatibility status listing and its resident drawings to identify aircraft/stores/suspension equipment physical compatibility.

   b. To forward updated aircraft stores compatibility information, or a nil reply, when requested by the custodian; information copy is to be forwarded to the NSA Air Board.

3. The Custodian address is:

Naval Air Systems Command
Code 4.3.2.5 (A. Piranian)
Bldg 2187, Room 1322
48110 Shaw Road
Patuxent River, MD 20670
U.S.A.

Tel: (301) 342-8555
Fax: (301) 342-8585
Email: alfred.piranian@navy.mil

4. The data from the former AOP-11 paper volume and from the former AOP-12 paper volumes have been merged on the ASIM CD-ROM under the new AOP-12. The data include:

a. NATO aircraft/store interoperability matrix. The matrix consists of listings of NATO nations' aircraft, and stores used, or planned to be used, on those aircraft.

b. Aircraft drawings which are used for the planning, designing, and testing of aircraft/stores adaptations based on dimensional clearance envelopes for hard point, moveable surfaces, and static ground line variables. The data facilitates comprehensive assessments for the feasibility and basic physical fit between aircraft/suspension equipment/store combinations. These drawings are intended to be used as a preliminary tool and in no way supersede the compatibility testing or fit-and-function requirements specified by STANAG 3899.

c. Aircraft store drawings which are used for the planning, designing, and testing of aircraft/stores adaptations based on geometry of the store and other associated reference information. The data facilitates comprehensive assessments for the feasibility and basic physical fit between aircraft/suspension equipment/store combinations. These drawings are intended to be used as a preliminary tool and in no way supersede the compatibility testing or fit-and-function requirements specified by STANAG 3899.

d. Store suspension and release equipment drawings for the planning designing, and testing of aircraft/stores adaptations based on primary physical and functional characteristics of suspension and release equipment. The data facilitates comprehensive assessments for the feasibility and basic physical fit and system interface between aircraft suspension equipment/store combinations. These drawings are intended to be used as a preliminary tool and in no way supersede the compatibility testing of fit-and-function requirements specified by STANAG 3899.

5. ASIM distribution policy:

a. One free copy will be provided to each NATO nation. Additional copies can be ordered from the Custodian.

IMPLEMENTATION OF THE AGREEMENT

6. This STANAG is implemented when AOP-12 has been received by the authorities and units concerned, and when the provisions herein have been incorporated in the appropriate national orders.

ANNEX A to
STANAG 3898
(Edition 7)

FORMATS FOR DRAWINGS IN AOP-12

FORMAT FOR DRAWINGS IN AOP-12

1. Drawings submitted for inclusion in AOP-12 shall be in accordance with the guidelines in this Annex and should illustrate the Ground-fit and Compatibility Tests performed in accordance with STANAG 3899.

2. Drawings shall be black line masters. Dimensions shall be included wherever practicable. The scale shall be indicated on each drawing.

3. Drawings shall be submitted in order of preference as follows:

   a. DXF file format (1/16 scale preferred).

   b. IGES files (1/16 scale preferred).

   c. T4G files (Tommy CAD format 1/16 scale).

   d. Unigraphics Part/Drawing files.

   e. CATIA Part/Drawing files.

   f. STEP AP203 solids files.

   g. Paper drawings per Annex A.

   h. Manufacturers' Paper drawings.

Dimensions shall be included wherever practical. The scale shall be indicated on each drawing. In most cases any electronic file format is better than paper drawings.

SUSPENSION DEVICES

4. There shall be three outline views (front, side, and plan) of suspension devices showing the following details as applicable:

   a. Swaybrace arms and pads with sweep lines (dashed) showing the extent of travel.

   b. Suspension points.

   c. Arming units.

   d. Store sensing devices.

e. Ejector feet.

AIRCRAFT

5. There shall be three outline views (front, side, and plan) of the aircraft and helicopters showing the following details as applicable:

a. The flaps, slats, control surfaces, speed brakes, landing gear doors, weapons bay doors, service doors and access doors in the maximum extended position with sweep lines showing their arcs of travel.

b. A sweep line showing the arc of wing sweep at nominal flight positions.

c. A sweep line showing the rotor tip arc of travel.

d. The landing gear at maximum take-off weight, maximum deflection and maximum extension.

e. A sweep line showing the arc of travel of helicopter fixed skids from the hanging position to the maximum deformed position at maximum weight.

f. The ground line at maximum take-off weight.

g. The “worst case” for each store station with any combination of one or more tires flat and oleos compressed/skids deformed in the static, takeoff, and landing attitudes. For aircraft and helicopters designed to operate from ships, include a 5’ roll angle about the main landing gear.

h. A dashed 3 inch clearance line for the “worst case” conditions detailed in sub-paragraph 5.g.

i. A dashed 6 inch clearance line for the “worst case” conditions detailed in sub-paragraph 5.g. for aircraft and helicopters designed to operate from rough terrain or ships.

j. Points where store suspension equipment and launchers attach to pylons or other aircraft structures shall be identified by a cross within a circle.

k. Dimensions shall be shown for:

(1) The distance from hook points to static ground lines.

(2) The distance from hook points to the arc of travel of flaps, slats, control surfaces, speed brakes, weapons bay doors, landing gear doors and landing gear.

(3) The angle of movement of flaps, slats, control surfaces, speed brakes, weapons bay doors and landing gear doors.

PYLONS

6. There shall be three outline views (front, side, and plan) of the pylon or suspension installation area with the wing or fuselage contour showing the following details as applicable:

a. Suspension points

b. Cartridges, safety pins, or other required devices.

c. Electrical connector with identification.

d. Bail rods and lanyard retainers.

e. Access doors with sweep lines showing their arc of travel.

STORES

7. There shall be three outline views (front, side, and plan) of the store showing the following details as applicable:

a. Suspension points, control surfaces, fins, exit ports, electrical connections and hard back or hard spot locations.

b. Sweep lines showing the arc of travel of control surfaces, tail fins (applicable for retarding weapons), and access and service doors.

c. General data should include weapon type, fuze type, arming system, launcher type and safety devices.

d. Physical data should include weight, suspension type (lugs, T-hangars, rails), center of gravity and moments of inertia for pitch, roll and yaw.

e. Views of hard back, lugs and hangars.

SUSPENSION EQUIPMENT

8. There shall be three outline views (front, side, and plan) of the suspension equipment showing the following details as applicable:

a. Suspension and attachment points.

b. Electrical connections.

c. Ejectors with sweep lines showing the extent of travel.

d. Cartridge location.

e. Arming devices.

f. Swaybraces with sweep lines showing the extent of travel.

g. Wiring diagram and electrical requirement.

h. Physical data should include weight, center of gravity and moments of inertia.

i. Performance data should include ejector characteristics and parameters performance and time/force curves, retention force, jettison force/velocity, acceleration, pitch characteristics and orificing.