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NATO STANDARDIZATION AGENCY
AGENCE OTAN DE NORMALISATION

NSA

MILITARY COMMITTEE AIR STANDARDIZATION BOARD (MCASB)

27 March 2007 NSA(AIR)0169(2007)FS/3379

MCASB

STANAG 3379 FS (EDITION 9) – IN-FLIGHT VISUAL SIGNALS

Reference:
NSA(AIR)0905-FS/3379 dated 28 October 2003 (Edition 8).

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 Reference listed above is to be destroyed in accordance with local document destruction procedures.

3. The MCASB, NSA considers this an editorial edition to the STANAG; previous ratifying references and implementation details are deemed to be valid.

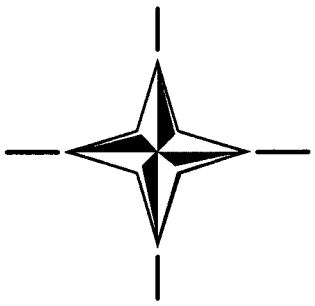
J MAJ
Major General, POL(A)
Director, NSA

Enclosure:
STANAG 3379 (Edition 9)

NATO Standardization Agency – Agence OTAN de Normalisation
B-1110 Brussels, Belgium Internet site: http://nsa.nato.int
E-mail: nsa.air@hq.nato.int – Tel 32.2.707.5587 – Fax 32.2.707.5718

STANAG 3379
(Edition 9)

NORTH ATLANTIC TREATY ORGANIZATION
(NATO)



NATO STANDARDIZATION AGENCY
(NSA)

STANDARDIZATION AGREEMENT
(STANAG)

SUBJECT: IN-FLIGHT VISUAL SIGNALS

Promulgated on 27 March 2007

J. MAJ
Major General, POL(A)
Director, NSA

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.

STANAG 3379
(Edition 9)

NAVY/ARMY/AIR

NATO STANDARDIZATION AGREEMENT (STANAG)

IN-FLIGHT VISUAL SIGNALS

Annex:

A. Description of Signals for Use During Daylight Conditions

Related Documents: None

AIM

1. The aim of this agreement is to establish in-flight visual signals and the essential procedures for using them.

AGREEMENT

2. Participating nations agree that in-flight visual signals and the procedures for using them are as detailed herein.

NOTE: Specialized signals or a complete list of signals, which apply only to a particular aircraft or operational role are not included in this STANAG. They should continue to be included in the unit operating instructions and other specialized publications of the appropriate service.

GENERAL

3. The in-flight visual signals and procedures detailed herein apply in all situations requiring the use of in-flight visual communication. The primary reason for these signals and procedures is to facilitate the passage of information between a radio inoperative aircraft and an intercepting aircraft or an Air Traffic Control unit. The worst-case scenario for their use is a radio inoperative aircraft that is not able to recover to visual meteorological conditions without assistance. Other uses include initial aircrew training and conversion, recurrent aircrew evaluation, exercises/ operations when radio silence is in effect and situations when language difficulties are encountered. If individual nations develop additional in-flight visual signals or procedures to meet national requirements, these additional signals and procedures should be consistent with, and should not lead to confusion with, the signals and procedures detailed herein.

4. The pilot of a radio inoperative aircraft shall attempt to attract attention visually:

a. By rocking the aircraft wings.

b. By flashing on the landing light(s), taxi light(s) and/or other lights (except navigation lights) during darkness conditions; or

c. By any other means.

5. When a suspected radio inoperative aircraft is about to be intercepted, the intercepting pilot shall attempt to establish radio contact on the aeronautical emergency frequencies (40.5, 121.5 and 243.0 MHz). If radio contact is not established, the in-flight visual signals and procedures detailed herein shall be used to pass information.

6. The intercepting pilot should assume that the intercepted aircraft has one or more inoperative systems and should manoeuvre with caution. When intercepting a radio inoperative aircraft, the intercepting aircraft shall be established in position slightly forward and normally to the left of the intercepted aircraft. This established relative position shall be maintained until a change of position is signalled.

7. In order not to dazzle the pilot and to prevent disorientation or distraction in either daylight or darkness conditions, all anti-collision lights such as rotating beacons and strobe light should be switched off as soon as the initial intercept is assured. Navigation lights should be on.

8. En route and penetration airspeeds are left to the good judgement of aircrew considering such things as aircraft type and configuration, nature of the problem, fuel remaining, weather conditions, etc. In order to allow for the full range of possible aircraft from helicopter to fast jet, two speed ranges with basic approach airspeeds of 60 KIAS or 130 KIAS are used. The basic approach airspeed may be increased as required using the appropriate signals for daylight or darkness conditions. The intercepted pilot indicates what approach speed is required; the lead pilot is responsible for deciding which speed range is required by the following aircraft. A straight-in approach for landing is preferred, especially during instrument meteorological conditions and during darkness conditions. The intercepted pilot should land from the approach while the lead pilot executes an overshoot or a missed approach.

9. The following procedure is for requesting clearance to land during daylight visual meteorological conditions and/or at night when the pilot of a radio inoperative aircraft elects to land single, when radio contact cannot be established with an air traffic control unit and when a visual signal for clearance to land has not been received. Fly alongside the desired runway in the landing direction at a height of 150 m (500 ft) AGL with all available lights flashing and slowly rocking the aircraft wings. Upon reaching the departure end of the runway, climb and turn downwind checking for light or pyrotechnic signals from the tower or mobile control unit. Caution should be exercised to avoid other aircraft.

<u>DURING DAYLIGHT CONDITIONS</u>

10. During daylight conditions, visual signals shall be acknowledged using the general head signals at Annex A (a nod of the head means “Affirmative” or “I will comply”, and turning the head left and right means “Negative” or “I will not comply”). The receiver should not repeat visual signals. Questions should not be posed by gestures or non-standard signals.

11. After the intercepting aircraft is established in position slightly forward and normally to the left of the intercepted aircraft, the intercepting pilot shall rock the aircraft wings to indicate:

a. that he is ready to assist;

b. that the intercepted aircraft should follow or fly formation with the intercepting aircraft; and

c. that the intercepting aircraft is the lead aircraft.

12. To signal concurrence with these conditions, the intercepted pilot shall rock the aircraft wings.

13. The intercepted pilot shall ensure that communication by visual signals is possible and then use the appropriate signals at Annex A to pass information.

DURING DARKNESS CONDITIONS

14. During darkness conditions, visual signals shall be acknowledged using light signals as follows. One distinct flash means “Affirmative” or “I will comply”, and two distinct flashes means “Negative” or “I will not comply”. Visual signals should not be repeated by the receiver. Questions should not be posed by gestures or non-standard signals. Do not use the navigation lights for acknowledging signal.

15. Because intercepting and flying formation or following in poor visual conditions are potentially hazardous and also because the visual signals for use during daylight conditions are difficult to understand in poor visual conditions, only a minimum number of light signals shall be used during darkness conditions. In using light signals during darkness conditions, care should be taken not to dazzle the other pilot.

16. After the intercepting aircraft is established in position slightly forward and normally to the left of the intercepted aircraft, the intercepted pilot shall send a series of intermittent white flashes with a flashlight, utility light, landing light(s) or taxi light(s). This initial flashing white light signal acknowledges the presence of the intercepting aircraft and means that:

a. the intercepted pilot wishes to land as soon as possible;

b. the intercepting aircraft is the lead aircraft; and the intercepted aircraft is the wing or following aircraft; and

c. the intercepting pilot should initiate a penetration descent without delay.

17. Following a short break after the initial signal, the intercepted pilot shall indicate the desired approach airspeed as follows. Using the same light(s) as used for the initial signal, send a steady light signal for approximately five seconds followed by one distinct flash for each desired increase of 10 KIAS above 60 KIAS for helicopters and 130 KIAS for other aircraft types.

18. The signal to prepare for any configuration change (air brakes, flaps, undercarriage) shall be the repeated switching on and off of the navigation lights of the lead aircraft. The signal to execute the configuration change shall be when these lights remain at steady on. Abrupt changes of airspeed should be avoided. As required by the situation the intercepted aircraft may change configuration at any time without having received the preparatory signal.

19. The signal to change the lead shall be a steady light moved horizontally forward along the canopy rail.

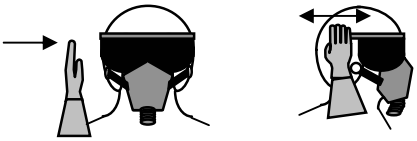
IMPLEMENTATION OF THE AGREEMENT

20. This STANAG is considered ready to be implemented when it has been received by the authorities and units concerned and will be implemented on the NATO Effective Date (NED) **(28 April 2004)**..

DESCRIPTION OF SIGNALS FOR USE DURING DAYLIGHT CONDITIONS

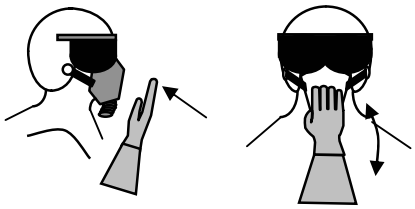
1. RECEIVER FAILURE

Tap earphone with an open hand and then move hand forward and backward over the ear position.



2. TRANSMITTER FAILURE

Tap microphone with an open hand and then move hand up and down in front of the face.



3. SYSTEMS FAILURES (HEFOE CODE)

To indicate the nature of the problem or the malfunctioning system, hold a closed hand at or above eye level and then extend vertically the appropriate number of fingers as follows:

PREPARATORY

H - hydraulic — 1 finger (index) →

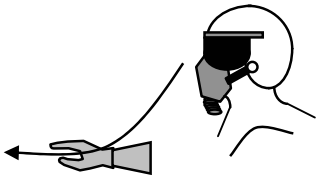
E - electrical — 2 fingers →

F - fuel — 3 fingers →

O - oxygen — 4 fingers →

E- engine — 5 fingers (open hand) →

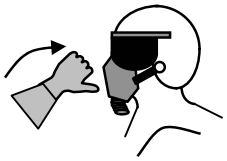
4. DESIRE TO LAND AS SOON AS POSSIBLE



Hold an open hand horizontally above the shoulder and then move it forward and downward to shoulder level finishing with a movement to simulate rounding out for landing.

5. FUEL REMAINING

To signal intent to indicate the amount of fuel remaining or to query the amount of fuel remaining, hold a closed hand in front of the face with thumb extended to touch the oxygen mask and then rotate the hand slightly to simulate drinking from a cup. Thereafter, to indicate less than 10 minutes of fuel remaining, give the signal for "Desire to Land as soon as Possible". To indicate a greater amount of fuel remaining, hold a closed hand at or above eye level with the appropriate number of fingers extended vertically as follows:



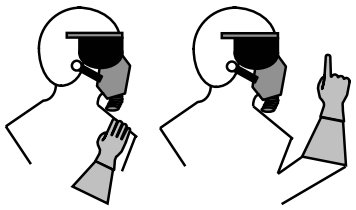
10 - 19 minutes	1 finger (index)
20 - 29 minutes	2 fingers
30 - 39 minutes	3 fingers
40 - 49 minutes	4 fingers
50 minutes or more	5 fingers (open hand)

Fuel remaining
30 – 39 min

6. DESIRED APPROACH AIRSPEED

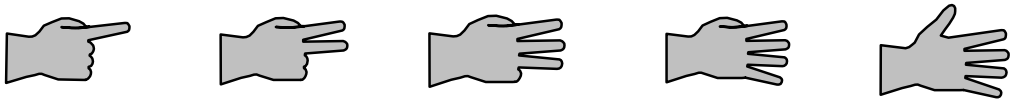
In order to allow for the full range of possible aircraft from helicopter to fast jet, two speed ranges have been incorporated into one series of hand signals. The lead pilot is responsible for deciding which speed range is intended by the following aircraft.
NOTE: As there is a speed difference of 70 KIAS between the two ranges, confusion should not result.

To signal a desired approach airspeed, tap a shoulder with an open hand, then hold a closed hand at or above eye level with one finger extended vertically for each desired increase of 10 KIAS above 60/130 KIAS or one finger extended horizontally for each desired increase of 10 KIAS above 110/180 KIAS.



Low Speed Range

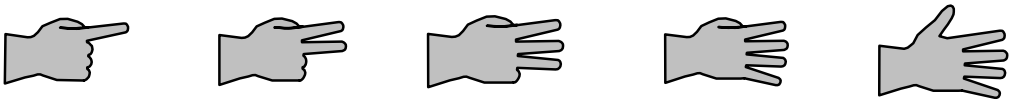
60 70 80 90 100 110



120 130 140 150 160

High Speed Range

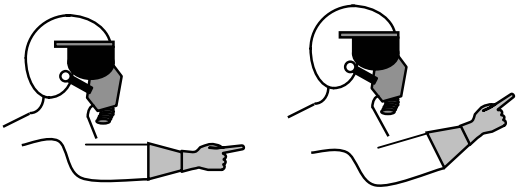
130 140 150 160 170 180



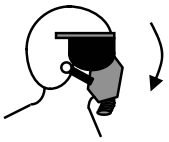
190 200 210 220 230

7. POSITION CHANGE

To signal intent to change position, point with an index finger at the pilot who is to change position, and then point at the new position to which this pilot is to move.

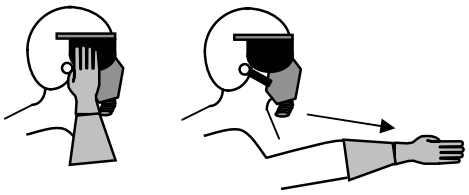


The pilot who is to change position acknowledges with a head nod and then manoeuvres to take the new position.



8. LEAD CHANGE

To signal intent to change the lead, point with an index finger at the pilot who is to take the lead, then hold an open hand vertically at eye level with fingers together, and then move it horizontally forward with rotation to finish with hand held horizontally and arm fully extended.

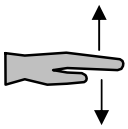


The pilot who is to take the lead acknowledges with a head nod and then manoeuvres to take the lead.

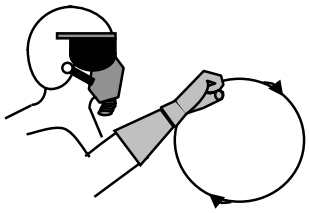
9. CONFIGURATION CHANGE

To signal intent to extend or retract the air brakes, hold an open hand horizontally at eye level and then move the fingers and thumb to simulate a biting motion.

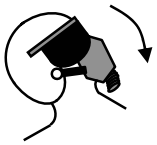
To signal intent to extend or retract the flaps, hold an open hand horizontally at eye level with fingers and thumb flat and then tilt the hand downward by bending the wrist.



To signal intent to extend or retract the undercarriage, hold a closed hand forward of your head and rotate it in a circular motion in the vertical plane.

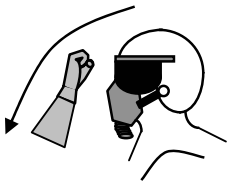


To signal execution of a configuration change following a preparatory signal, tilt the head back and then make an accentuated nod.



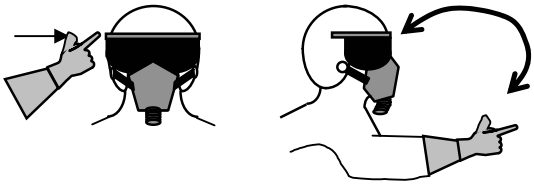
10. EJECTION

To signal intent to eject, hold closed hand(s) above the head and then move it (them) downward across the face to simulate pulling the ejection blind.



11. TERRORIST ATTACK

To signal a terrorist attack, hold pointed finger to your head with thumb sticking up to simulate a pointed gun to the head.



12. AFFIRMATIVE / I WILL COMPLY

Nod the head forward and back.

13. NEGATIVE / I WILL NOT COMPLY

Turn the head left and right.