

Explanatory Statement

Civil Aviation Act 1988

Civil Aviation Order 82.6 Amendment Order (No. 1) 2009

Purpose

The purpose of this Civil Aviation Order amendment instrument (*CAO amendment*) is to amend Civil Aviation Order 82.6 concerning the use of night vision goggles.

Background

Night vision goggles (*NVG*) are a head mounted night vision enhancement device. They use image intensifying technology to amplify the available ambient light sufficiently for images to be seen through the NVG eyepieces as a monochromatic green image.

NVG technology evolved mainly in advanced military forces, including in Australia. In certain strictly controlled circumstances, the use of NVG can enhance crew situational awareness and decrease operational risk under night visual flight rules (*NVFR*). As a result of helicopter industry interest, and overseas developments, in the use of NVG for civilian helicopter operations, CASA established an assessment trial to facilitate the use of NVG in certain public interest helicopter operations.

Civil Aviation Order 82.6 (*CAO 82.6*) supported the trial by providing for operational and airworthiness standards and approval requirements for the use of NVG in specialised helicopter aerial work operations, namely, search and rescue, law enforcement, aerial fire fighting, aerial fire fighting support, emergency medical services, marine pilot transfers, training for any of these, and demonstration and positioning flights.

Instrument CASA 288/07 also supported the trial by directing that night vision devices must not be used in private operations as the primary means of terrain avoidance for safe air navigation by means of visual surface reference external to an aircraft.

Thus together, CAO 82.6 and the Direction make unlawful any non-approved use of NVG as a primary means of terrain avoidance when using external visual surface reference.

Trial and Group

For the purposes of the NVG trial, CASA established the joint CASA/industry NVG Trial Monitoring and Evaluation Group (the *Group*). The Group was comprehensively representative of the relevant helicopter industry involved with NVG, and was established by CASA to oversee various aspects of the NVG trial. An important part of its role was to suggest for consideration amendments to CAO 82.6 to ensure that the trial was as effective and as safe as possible so that it could be relied upon to guide future developments in the use of NVG.

CASA regarded the trial as a successful testing environment for CAO 82.6. The trial concluded at the end of January 2009. However, CASA has continued to consider suggestions made by the Group and the CAO amendment contains a series of amendments largely from that source.

The CAO amendment

The CAO amendment generally has the effect of modifying some qualification, training and operations manual requirements in the light of the experience gained during the NVG trial.

Details of the CAO amendment are set out in Attachment A.

Legislation

The legislative basis for the CAO amendment is set out in Attachment B.

Legislative Instruments Act 2003 (the *LIA*)

CAO 82.6, and amendments to it, take effect as conditions on Air Operator Certificates (*AOCs*).

Paragraph 28BA (1) (b) of the *Civil Aviation Act 1988* (the **Act**) provides that an AOC has effect subject to any conditions “specified in the regulations or Civil Aviation Orders”.

Subsection 98 (4A) of the Act provides that CASA may issue Civil Aviation Orders (the **CAOs**) with respect to any matter in relation to which regulations may be made for the purposes of section 28BA. Under subsection 98 (4B) of the Act, a CAO issued under subsection 98 (4A) is stated to be a legislative instrument and is, therefore, subject to tabling and disallowance in the Parliament under sections 38 and 42 of the LIA.

By providing that an AOC has effect subject to any conditions specified in the CAOs, paragraph 28BA (1) (b) also empowers the making of relevant CAOs. For section 5 of the LIA, a CAO imposing conditions on AOCs is legislative in character and, therefore, a legislative instrument subject to tabling and disallowance in the Parliament under sections 38 and 42 of the LIA.

The CAO amendment is made under both paragraph 28BA (1) (b) of the Act and subsection 98 (4A) of the Act and is a legislative instrument.

Consultation

Consultation under section 17 of the LIA has been undertaken as follows. The CASA/Industry NVG Trial Monitoring Group met on 19-20 November 2008 and recommended amendments to CAO 82.6, now included in the CAO amendment. CASA also considered proposed amendments to streamline some processes and these are now also contained in the CAO amendment.

Regulation Impact Statement (RIS)

OBPR does not require a RIS for the CAO amendment because a preliminary assessment of the business compliance costs indicates that the CAO amendment will have only a nil to low impact on business.

Commencement and making

The instrument comes into effect on the day after it is registered.

The instrument has been made by the Director of Aviation Safety, on behalf of CASA, in accordance with subsection 84A (2) of the Act.

[Civil Aviation Order 82.6 Amendment Order (No. 1) 2009]

Details of the CAO amendment

1 Name of instrument

This section names the CAO amendment as the *Civil Aviation Order 82.6 Amendment Order (No. 1) 2009* (the ***Amendment Order***).

2 Commencement

Under this section, the Amendment Order commences on the day after it is registered.

3 Amendment of ***Civil Aviation Order 82.6 Instrument 2007***

Under this section, Schedule 1 of the Amendment Order amends *Civil Aviation Order 82.6 Instrument 2007* (***CAO 82.6***).

4 Transitional

Under this section, an NVG approval, NVG qualification, other approval or other instrument issued under CAO 82.6 before this Amendment Order deleted references to the NVG trial, is taken to have been issued as if the deletions of references to the trial had occurred immediately ***before*** the approval, qualification or other instrument was issued.

A Note explains that CAO 82.6 introduced NVG as part of a trial of NVG technology and NVG approvals, qualifications and other instruments were actually issued on that trial basis. *Civil Aviation Order 82.6 Amendment Order (No. 3) 2008* brought the NVG trial to an end on 31 January 2009. However, to avoid doubt, this section 4 is intended to ensure that approvals, qualifications and other instruments issued under CAO 82.6 for the trial, if still in force ***remain in force according to their terms***, and are not affected by the ending of the trial.

Schedule 1 Amendments

SECTIONS

[1] Subsection 1, definition of ***approved operator***

This amendment removes from this definition mention of the NVG trial which concluded on 31 January 2009.

[2] Subsection 1, definition of ***NVG flight time***

This amendment provides a revised definition of ***NVG flight time*** focussing on NVG-aided flight. Now NVG flight time means time spent in NVG-aided flight by an NVG aircrew member, an NVG pilot or a person receiving NVG flight training, during an NVG operation.

The associated Note is amended to substitute the word “should” for “must” as follows: “NVG flight time **should** be logged in the specialist column of the aircrew flying log book.”

[3] Subsection 1, definition of ***NVG trial***

This amendment removes the definition of ***NVG trial***. The trial concluded on 31 January 2009.

APPENDIX 1

[4] Appendix 1, subparagraph 1 (c) (iii)

This amendment removes mention of the NVG trial which concluded on 31 January 2009.

[5] Appendix 1, clause 1, Note 3

This amendment removes a Note mentioning the NVG trial which concluded on 31 January 2009.

[6] Appendix 1, clause 2, the title

This amendment removes from the clause title mention of the NVG trial which concluded on 31 January 2009.

[7] Appendix 1, clause 4

Clause 4 provided for certain trial participant reports to be made to CASA during the NVG trial. The clause is now deleted because the trial concluded on 31 January 2009.

[8] Appendix 1, subclause 5.3, the Note

The Note is amended to substitute the word “must” for “should” as follows: “All other NVG operations below LSALT **must** be under the NVFR.”

[9] Appendix 1, clause 8, the Note

The Note mentions that an NVG training syllabus “must meet the requirements for CASA approval”. However, CASA approval as such will not be required for the syllabus. Instead, the syllabus must conform to the standards set out in a relevant Civil Aviation Advisory Publication (*CAAP*) (see amendment number 43, below). The new Note, therefore, states that a training syllabus “must meet the requirements of this Order [82.6]”.

[10] Appendix 1, subclause 9.1

Previously, an NVG pilot qualification log book endorsement could be entered only by CASA or an NVG testing officer. This is modified so that the endorsement may be entered by CASA, **an NVG FOI** or an NVG testing officer.

[11] Appendix 1, subclause 9.3

The subclause mentions an NVG training syllabus as something that is approved by CASA. However, CASA approval as such will not be required for the syllabus. Instead, the syllabus must conform to the standards set out in a relevant CAAP (see amendment number 43, below). The subclause, therefore, is amended to mention that a training syllabus “must be in accordance with this Order [82.6]”.

[12] Appendix 1, subclause 10.1

This amendment is consequential on amendment 10. Previously, under subclause 10.1, only CASA could issue a log book endorsement for an NVG qualification. The amendment modifies this so that CASA or an NVG FOI may do so.

[13] Appendix 1, subclause 10.1

This amendment is consequential on amendment 12 so that now CASA or an NVG FOI may be satisfied that an applicant for an NVG qualification has the requisite training, experience and testing.

[14] Appendix 1, after subparagraph 13 (a) (i)

This amendment adds an NVG flight instructor to the list of qualified persons who may conduct NVG capability check flights.

[15] Appendix 1, clause 14

This amendment recasts the provisions concerning who is empowered to conduct NVG flight tests and issue NVG qualification endorsements in order to more clearly delineate the differing responsibilities of an NVG testing officer and an NVG FOI, particularly in relation to issue of some NVG endorsements and the flight testing of NVG testing officers.

The amendment also makes it explicit that an NVG flight test must be conducted in actual flight and not in a simulator. Specifically, the following is now the case.

Under subsection 14.1, an NVG flight test must be conducted in actual flight.

Under subsection 14.2, an NVG testing officer appointed by CASA specifically for the purpose (**NVG TO**) may do any of the following:

- (a) conduct an NVG flight test, and issue an NVG endorsement, for an initial NVG pilot qualification;
- (b) conduct an NVG flight test for recognition of training and experience for clause 10 of Appendix 1;
- (c) conduct an NVG flight test for the purpose of CASA issuing an approval for an NVG flight instructor, but only if CASA has informed the NVG TO in writing that CASA is unable to conduct the flight test.

A Note emphasises that an NVG testing officer may not **issue** an NVG endorsement for recognition of training and experience for clause 10 of Appendix 1. Another Note emphasises that an NVG testing officer may not **issue** an NVG approval for an NVG instructor qualification.

Under subsection 14.3, an NVG FOI may:

- (a) conduct an NVG flight test and issue an NVG endorsement for an initial NVG pilot qualification; and
- (b) conduct an NVG flight test, and issue an NVG endorsement, for recognition of training and experience for clause 10 of Appendix 1; and
- (c) conduct an NVG flight test for the purpose of CASA issuing an approval or appointment for any of the following:
 - (i) an NVG flight instructor;
 - (ii) an NVG training and checking pilot of a TCO;
 - (iii) an NVG testing officer.

Subsection 14.4 deals with NVG aircrew member qualifications but is unchanged apart from being renumbered (from being 14.2).

APPENDIX 2

[16] **Appendix 2, paragraph 1.1 (c)**

Previously, operations manual variations required CASA's approval. This is modified so that now an operations manual must be revised from time to time where necessary because of changes to the operator's operations, aircraft or equipment, or in the light of experience.

[17] **Appendix 2, clause 2, the Note**

The Note is unnecessary and is removed.

[18] **Appendix 2, clause 3**

This technical amendment allows for the insertion of the new subclause in amendment number 19.

[19] **Appendix 2, after subclause 3.1**

Under subregulation 215 (3) of the *Civil Aviation Regulations 1988 (CAR 1988)*, CASA may give directions that a certain matter be included in an operations manual, or if already included, revised or varied. New subclause 3.2 is a direction under subregulation 215 (3) of CAR 1988. Its effect is that if a provision of CAO 82.6, other than clause 4 of Appendix 2, mentions that the operations manual of an NVG operator must include a matter, the matter must be addressed in the operations manual in the detail, and to a standard, acceptable to CASA. Clause 4 of Appendix 2 contains the principal directions about the contents of an operations manual but some other provisions of the Order also mention matter to be included in an operations manual.

[20] **Appendix 2, before subclause 4.1**

This amendment inserts a new subclause 4.1A concerning operations manuals. It provides that an operations manual must include an organisation chart which clearly indicates the key

NVG-related positions and position holders responsible for the operator's NVG operations. It must also indicate the lines of accountability and responsibility of this position holder to the more senior people **to whom** they are accountable and to the more junior people **for whom** they are responsible. A Note indicates that the key NVG-related positions would include, for example, the safety manager (however described), the NVG chief pilot, the NVG senior pilot, and the NVG training and checking pilot.

[21] Appendix 2, paragraph 4.3.4 (c)

This amendment removes the word “phraseology” that was included in a provision about operations manual contents. This inclusion was redundant because NVG phraseology requirements are more appropriately located in subclause 4.4.

[22] Appendix 2, paragraph 4.3.7 (e)

This amendment substitutes the expression “close proximity” for “in company”, to better describe an NVG flying activity that the operations manual must restrict.

[23] Appendix 2, after paragraph 4.5.1 (d)

This amendment adds a new item which an operations manual must address, namely, white light failure requiring a no-light approach to landing.

APPENDIX 3

[24] Appendix 3, subclause 2.4

This amendment recasts the requirement for aircraft lighting requirements. Before NVG operations may commence with aircraft lighting modified to be NVG compatible, an advice about the design of the modification must be submitted to CASA by an authorised person appointed for regulation 35 of CAR 1988.

[25] Appendix 3, subclause 2.7

This amendment tightens up the requirements for NVG maintenance. Now, an operator conducting, or intending to conduct, NVG operations must have a documented maintenance program which includes procedures to ensure that maintenance, inspection, and serviceability standards for the NVG are met. The maintenance program must also ensure that a biennial assessment is made to identify and rectify any degradation in the compatibility of the aircraft lighting systems with the NVG system. A Note indicates that RTCA/DO-275 provides guidance for the ongoing maintenance of installed NVG compatible systems. The previous requirement to have an “approved system of maintenance” has been removed. Although in context not relevant to whether a helicopter was a Class A or Class B aircraft, the mention of a “system of maintenance” erroneously led some to think that “Class A aircraft systems of maintenance” were required for all NVG helicopters. This was never intended and arises only from a misinterpretation of regulations in Part 4A of CAR 1988, including regulation 39. However, to avoid further confusion, reference to an “approved system of maintenance” has been replaced by mention of a “documented maintenance program” that applies only to the NVG itself.

[26] Appendix 3, subclause 2.8

This amendment clarifies the scope of procedures included in a documented maintenance program. The procedures must include a method for assessing NVG compatibility not with every aircraft change but only with certain aircraft changes that may have an effect on the aircraft's NVG compatibility.

[27] Appendix 3, paragraph 2.9 (b)

This amendment, in conjunction with amendment number 28, modifies subclause 2.9. Subclause 2.9 now provides that maintenance of NVG must be carried out by a CAR 30 type organisation that is endorsed by the “manufacturer” of the NVG.

[28] Appendix 3, after subclause 2.9

For amendment number 27, this amendment defines “manufacturer” as the person who is the original manufacturer of the NVG, or, if parts of the NVG were manufactured by different persons — the person who makes the final assembly of the parts into the NVG.

[29] Appendix 3, paragraph 3.1 (b)

Subclause 3.1 sets out the standard for the minimum operational performance specification for NVG equipment as being that defined in RTCA/DO 275 (as modified) or a CASA approved equivalent. This amendment redefines the concept of equivalency so that the CASA approved equivalent must be so in terms of tube resolution, system resolution, system luminance gain, photosensitivity and signal to noise ratio.

[30] Appendix 3, subparagraph 7 (g) (ii)

This amendment modifies the requirement that an operator must notify CASA before an NVG flight with a passenger when the sole purpose of the flight is only to demonstrate NVG technology. The amendment provides that before the flight, the NVG operator must give CASA written details of the intent and conduct of the flight, and must receive from CASA written acknowledgment of those details. The flight may not take place without CASA’s acknowledgment.

[31] Appendix 3, paragraph 8.3 (b)

This amendment modifies requirements for when a single NVG pilot may be the minimum NVG crew in an NVG operation. Provided the operations manual has been varied for this purpose to CASA’s satisfaction, a single NVG pilot may be the minimum NVG crew in an NVG operation at or above 500 ft AGL but below 1 000 ft AGL, or in an operation to a HLS-NVG basic.

[32] Appendix 3, subparagraph 8.3 (b) (i)

This amendment makes a single NVG pilot operation (and CASA’s acceptance of the relevant operations manual changes) contingent on CASA having examined the operator’s risk assessment for the operation.

[33] Appendix 3, after paragraph 8.3 (b)

This amendment adds a new circumstance in which a single NVG pilot may be the minimum NVG crew in an NVG operation. Thus, a single NVG pilot will suffice in a permitted NVG operation below 500 ft in the hover during which an NVG aircrew member, **who would otherwise complete the minimum NVG crew**, de-goggles to enhance operational safety.

[34] Appendix 3, after subclause 8.3

This amendment adds an additional condition for when a single NVG pilot is the minimum NVG crew in an NVG operation. If a single NVG pilot is the minimum NVG crew for an operation, he or she must comply with night V.F.R. weather minima, and subclause 10.2 (as amended and set out below) does not apply.

[35] Appendix 3, clause 10, the heading

This amendment inserts a new heading for the clause as follows:

NVG flight weather minima (planning and actual), alternate aerodromes and fuel requirements

[36] Appendix 3, subclauses 10.2 and 10.3

This amendment modifies the requirements for NVG flight weather minima by making them more specific. Under new subclause 10.2, an NVG flight may comply with the standard reduced flight planning weather minima (**standard RFPWM**) for an operation as set out in the operations manual **only if** the standard RFPWM is in accordance with CAAP 174-1 (0) as in force from time to time.

Under new subclause 10.3, an NVG flight may comply with a non-standard RFPWM for an operation only if the non-standard RFPWM is described and assessed by the operator in a risk assessment given to CASA, and approved by CASA following consideration of the risk assessment, and set out in the operations manual with a copy of the CASA approval.

[37] Appendix 3, subclause 14.2

This amendment modifies the requirements for appointment as an NVG testing officer. Now, CASA may appoint a person to be an NVG testing officer only if the person has NVG instructing experience acceptable to CASA, and the person has successfully completed an NVG flight test conducted by an NVG FOI or other person approved by CASA. A Note indicates that experience may be in military or civilian NVG instructing, in Australia or outside Australia, or in a combination of any of these. The Note points to CAAP 92-2 (1) for further guidance on NVG instructing experience that may be acceptable to CASA.

[38] Appendix 3, paragraph 15.4 (fa)

This amendment removes a requirement that an NVG flight instructor training course be acceptable to CASA. The course must comply with the detailed requirements for such a course as set out in paragraph 15.4 (fa).

[39] Appendix 3, clause 21, Table 21.1, NVG CCF

This amendment substitutes new requirements for an NVG pilot's NVG CCF (capability flight check) to allow more flexibility in applying in anticipation to renew his or her NVG CCF:

NVG CCF	6 monthly; after the first NVG CCF, each subsequent NVG CCF may be conducted within the 30 days before recency would otherwise expire.	Annually; after the first NVG CCF, each subsequent NVG CCF may be conducted within the 30 days before recency would otherwise expire.
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[40] Appendix 3, clause 22, Table 22.1, NVG CCF

This amendment substitutes new requirements for an NVG aircrew member's NVG CCF (competency flight check) to allow more flexibility in applying in anticipation to renew his or her NVG CCF:

Substitute

NVG CCF	6 monthly; after the first NVG CCF, each subsequent NVG CCF may be conducted within the 30 days before recency would otherwise expire.	Annually; after the first NVG CCF, each subsequent NVG CCF may be conducted within the 30 days before recency would otherwise expire.
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[41] Appendix 3, after subparagraph 23.2 (d) (ii)

Paragraph 23.2 (d) specifies some of the competencies that a candidate must demonstrate for an NVG CCF. This amendment adds a new one, namely, white light failure requiring a no-light approach to landing. This amendment complements amendment number 23 which added a new item which an operations manual must address, namely, white light failure requiring a no-light approach to landing.

[42] Appendix 3, paragraph 23.3 (b)

This amendment removes the time specification for the flight component of an NVG aircrew member's NVG CCF. Instead, a specific requirement is substituted, namely, that the NVG CCF must involve an NVG flight that is in the nature of a check flight that establishes the NVG aircrew member's competency.

[43] Appendix 3, paragraph 24 (a)

This amendment complements amendment number 11. Previously, under clause 24, an NVG initial qualification training course was to be approved by CASA. Now, the course must be in accordance with the relevant syllabus as set out in CAAP 174-1 (0) as in force from time to time and included in the operations manual.

[44] Appendix 3, clause 29

This technical amendment makes subclause 29.1 subject to the new subclause 29.2, below.

[45] Appendix 3, after subclause 29.1

Clause 29 deals with the prerequisites for initial NVG pilot flight training. This amendment inserts a new subclause 29.2 to deal with unforeseen circumstances in which equally satisfactory prerequisites are met. Thus, CASA may by legislative instrument exempt a trainee pilot from a requirement mentioned in subclause 29.1 (the prerequisites) if a safety case prepared by the trainee pilot or other relevant person is given to CASA, and the safety case documents and demonstrates that an acceptable level of safety for NVG training and NVG operations will be preserved in spite of the exemption from the requirement.

[46] Appendix 3, paragraph 30.2 (a)

This amendment reduces from 4 to 3 the minimum number of separate flights over which initial NVG pilot flight training must be conducted. The minimum NVG flight time required overall (5 hours) remains unchanged.

[47] Appendix 3, subclause 30.2, the Note

This amendment inserts a Note to support amendment number 47. The Note indicates that if only 3 separate NVG flights are used (i.e. the minimum), the trainee should undergo at least 4 supervised NVG pre-flight and operational functional check procedures in accordance with the manufacturer's requirements.

[48] Appendix 3, Attachment 1, amended performance requirement

By replacing the reference to Class A/B filter, with a reference to Class B filter only, this amendment corrects a performance requirement in the modified RTCA/DO 275 Standard for NVG equipment.

Legislative basis for CAO amendment

Section 98 of the Act empowers the Governor-General to make regulations for the Act and the safety of air navigation.

CAR 1988

Under subregulation 5 (1) of CAR 1988, where CASA is empowered to issue certain instruments, it may do so in a CAO.

Under subregulation 157 (1) of CAR 1988, the pilot in command of an aircraft must not fly over a city, town or populous area at a height lower than 1 000 feet, or over any area at a height lower than 500 feet.

Under subregulation 174B (1) of CAR 1988, except for take-off and landing, the pilot in command of an aircraft must not fly it at night under the visual flight rules (V.F.R.) at a height of less than 1 000 feet above the highest obstacle within 10 miles.

Under subregulation 195 (1) of CAR 1988, at night and in conditions of poor visibility, the operator and pilot in command of an aircraft must comply with the rules in Part 13 of CAR 1988 about the lights to be displayed for the aircraft.

Under subregulation 207 (2) of CAR 1988, a person must not use an Australian aircraft in a class of operation if the aircraft is not fitted with the instruments and equipment approved and directed by CASA. In approving or directing, CASA may have regard only to the safety of air navigation.

Under subregulation 215 (3) of CAR 1988, CASA may give directions requiring an operator to include, revise or vary information, procedures or instructions in the operations manual (operating procedures).

Under subregulations 217 (1) and (3) of CAR 1988, CASA may specify operators who must provide an approved training and checking organisation (a *TCO*) to ensure that members of the operator's operating crews maintain their competency.

Under subregulation 308 (1) of CAR 1988, in relation to particular aircraft or categories of aircraft, CASA may exempt the aircraft, or persons in, on, or otherwise associated with the operation of, the aircraft, from compliance with specified provisions of CAR 1988. Under subregulation 308 (2), before making an exemption, CASA must take relevant safety considerations into account. Under subregulation 308 (3), CASA may make an exemption subject to necessary safety conditions.

Under section 27 of the Act, CASA may issue AOCs for its functions. Under subsections 27 (2) and (9) of the Act, an aircraft operator must hold an AOC in order to operate for certain prescribed purposes. Paragraph 206 (1) (a) of CAR 1988, prescribes aerial work purposes of various kinds, including aerial spotting, flying training, ambulance functions, and purposes that are *substantially similar* to these. Substantially similar purposes are generally taken to include search and rescue, law enforcement, aerial fire fighting and marine pilot transfers.

The heads of power for making relevant CAOs are twofold. Under paragraph 28BA (1) (b) of the Act, an AOC has effect subject to, among other things, conditions specified in CAOs. For section 5 of the LIA, CAOs imposing conditions on AOCs would be legislative instruments.

Under subsection 98 (4A) of the Act, CASA may issue CAOs not inconsistent with the Act or the Regulations, and not prescribing any pecuniary penalty, with respect to any matter in relation to which regulations may be made for the purposes of, among other things, section 28BA of the Act. Under subsection 98 (4B) of the Act, a CAO issued under subsection 98 (4A) of the Act is a legislative instrument.
