



**Australian Government**  
**Civil Aviation Safety Authority**

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I, JOHN FRANCIS McCORMICK, Director of Aviation Safety, on behalf of CASA, make this instrument under paragraph 28BA (1) (b) and subsection 98 (4A) of the *Civil Aviation Act 1988*, subregulations 5 (1), 207 (2), 215 (3), 217 (1) and 308 (1) of the *Civil Aviation Regulations 1988* and regulation 11.160 of the *Civil Aviation Safety Regulations 1998*.

**[Signed John F. McCormick]**

John F. McCormick  
Director of Aviation Safety

22 December 2011

**Civil Aviation Order 82.6 Amendment Instrument 2011 (No. 1)**

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**1 Name of instrument**

This instrument is the *Civil Aviation Order 82.6 Amendment Instrument 2011 (No. 1)* (the *Amendment Order*).

**2 Commencement**

This instrument commences on the day after registration.

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

Schedule 1 amends *Civil Aviation Order 82.6 Instrument 2007*.

**Schedule 1 Amendments**

**[1] Before section 1**

*insert*

**Part 1A Introduction**

**[2] Section 1**

*substitute*

**1A Name of instrument**

This instrument is the *Civil Aviation Order 82.6 (Night vision goggles — helicopters) 2007*.

**[3] Heading to section 2**

*substitute*

**1B Duration**

**[4] Heading to section 3**

*substitute*

**1C Transitional**

**[5] Section 4**

*omit*

**[6] Schedule 1, the heading**

*omit*

**Schedule 1 Civil Aviation Order 82.6**

**Night vision goggles — helicopters**

**[7] Subsection 1, Definition of *aerial fire fighting***

*substitute*

***aerial fire fighting*** means an operation, in an operational area for a fire, to fight the fire from the air using:

- (a) a flight crew of at least 1 pilot and 1 aircrew member; and
- (b) either:
  - (i) incendiaries for controlled burning dropped from the helicopter by means of a device operated by a person specifically carried for that purpose (***incendiary dropping***) provided that the operation is supported by an operational safety case approved in writing by CASA; or
  - (ii) a helicopter equipped with a belly tank that is filled and refilled with water, fire retardant or similar substance taken from:
    - (A) a source on the ground while the helicopter is on the ground; or
    - (B) a portable tank at a standard HLS with ground lighting while the helicopter is in the hover using the helicopter's on-board pump.

*Note* If acceptable to CASA, an operational safety case may be in the form of, or include, relevant additions or supplements to the operator's operations manual for the aerial fire fighting.

*Note* For standard HLS, see CAAP 92-2. This is not a HLS-NVG standard.

**[8] Subsection 1, new definitions**

*insert*

***CASR 1998*** means the *Civil Aviation Safety Regulations 1998*.

***FAA*** means the Federal Aviation Administration of the United States.

***fire mapping***, as a form of aerial fire fighting support, means the carriage of 1 or more persons to map, locate or observe fires.

***GNSS*** means the Global Navigation Satellite System.

***incendiary dropping***, as a form of aerial fire fighting, means using incendiaries for controlled burning dropped from a helicopter by a person specifically carried for that purpose.

***special fire endorsement*** means a log book endorsement mentioned in subclause 9.6 of Appendix 1.

***standard HLS*** means a place that may be used as an aerodrome for helicopter operations by day or night.

***TSO*** means Technical Standard Order of the FAA.

**[9] Subsection 6**

*after*

CAR 1988 (first occurring)

*insert*

and, to avoid doubt, regulation 11.160 of CASR 1998

**[10] Subparagraph 6 (a) (i)**

*substitute*

- (i) search and rescue, law enforcement, emergency medical services, aerial fire fighting, or, for an operation that is supported by an operational safety case approved in writing by CASA, aerial fire fighting support limited to the carriage of persons to map, locate or observe fires (***fire mapping***);

*Note* If acceptable to CASA, an operational safety case may be in the form of, or include, relevant additions or supplements to the operator's operations manual for the aerial fire fighting support.

**[11] Appendix 1, after subclause 9.5**

*insert*

- 9.6 A log book endorsement for an NVG pilot qualification (a ***special fire endorsement***) may specify that the holder has satisfied the requirements of this Order for:
  - (a) aerial fire fighting involving incendiary dropping; and
  - (b) aerial fire fighting support involving fire mapping.
- 9.7 Only an NVG pilot with a special fire endorsement may conduct an operation mentioned in paragraph 9.6 (a) or (b).

**[12] Appendix 1, paragraph 10.1 (b)**

*substitute*

- (b) the person has successfully completed an NVG ground training course approved in writing by CASA; and

**[13] Appendix 1, after subclause 10.1**

*insert*

- 10.1A An NVG testing officer may issue a person with a log book endorsement for a particular NVG qualification if:

- (a) the person has successfully completed an NVG ground training course approved in writing by CASA; and
- (b) in a flight test conducted by an NVG testing officer or an NVG FOI, the person has demonstrated competency in each of the matters mentioned in paragraphs 31 (a) to 31 (l) of Appendix 3; and
- (c) the NVG testing officer has, on application, received from CASA a written statement that CASA is satisfied the person has training and experience comparable to the requirements of the competencies detailed in this Order for the particular NVG qualification.

*Note* Guidelines on the circumstances in which CASA may issue a written statement are set out in CAAP 174-1 (1) and in the *Flight Crew Licensing Procedures Manual*.

**[14] Appendix 1, subclause 10.3**

*omit*

**[15] Appendix 1, subclause 14.2, Note 1**

*substitute*

*Note 1* An NVG testing officer may not issue an NVG endorsement involving recognition of training and experience *except* in accordance with subclause 10.1A of this Appendix.

**[16] Appendix 2, after subclause 4.5**

*insert*

**4.6 Procedures for incendiary dropping and fire mapping**

**4.6.1 The operations manual must provide for the following:**

- (a) an incendiary dropping device in accordance with subparagraph 4.1 (c) (i) of Appendix 3 of this Order;
- (b) the minimum NVG pilot and NVG aircrew qualifications and experience required for NVG operations involving incendiary dropping or fire mapping;
- (c) procedures, crew duties and crew coordination for the matters mentioned in subclause 4.6.2.

**4.6.2 For paragraph 4.6.1 (c), the matters are the following:**

- (a) the in-flight functioning and serviceability of the incendiary dropping device, including in relation to:
  - (i) failure or malfunction of the device, or of equipment on which the device is dependent for effective operation; and
  - (ii) fire in the device or that equipment; and
  - (iii) fire in the helicopter;
- (b) the duties of the following:
  - (i) each NVG aircrew member;
  - (ii) each incendiary dropping device operator;
  - (iii) each person carried to map, locate or observe fires.

**[17] Appendix 3, subclause 2.4**

*omit*

**[18] Appendix 3, paragraph 2.9 (a)**

*substitute*

- (a) complies with regulation 30 of CAR 1988 or Part 145 of CASR 1998 as if the regulation or the Part applied to the organisation for the maintenance of NVG and its related equipment; and

**[19] Appendix 3, after paragraph 2.10 (a)**

*insert*

- (aa) the original manufacturer of the image intensification tubes fitted to the NVG; or

**[20] Appendix 3, clause 3, the heading**

*substitute*

**NVG equipment**

**[21] Appendix 3, paragraph 3.1 (b)**

*omit*

a CASA approved

*insert*

subject to paragraph 3.2 (f), a CASA approved

**[22] Appendix 3, paragraph 3.2 (e)**

*omit*

(a), (b) and (c).

*insert*

(a), (b) and (c); and

**[23] Appendix 3, after paragraph 3.2 (e) (and the Notes)**

*insert*

- (f) for replacement of NVG image intensifier tubes with tubes that are sourced from other than the original manufacturer of the NVG:
- (i) replaced as a pair; and
  - (ii) of the same form, fit and function as the tubes being replaced; and
  - (iii) such that the replacement does not involve modification of the NVG mounting frame or optical components; and
  - (iv) compliant with paragraph 3.1 (a).

*Note* US AN/AVS 9 NVGs, although manufactured by different manufacturers, are produced to the same US Department of Defense specification and, therefore, these tubes are interchangeable.

**[24] Appendix 3, subclause 3.3**

*substitute*

- 3.3 The requirements for maintenance of NVG and other equipment set out in clause 3A must be complied with.

**[25] Appendix 3, after clause 3**

*insert*

**3A Maintenance of NVG and other equipment**

- 3A.1 NVG must be maintained, stored, and checked for serviceability, before an NVG operation, in accordance with the manufacturer's requirements and procedures.
- 3A.2 Any equipment installed as part of the approved type design or modified type design of a helicopter used in an NVG operation, including operational and emergency equipment, must be maintained in accordance with the relevant instructions for continuing airworthiness issued by:
- (a) the manufacturer of the helicopter and the equipment; and
  - (b) for a modified type design — the designer of the modification.
- 3A.3 Any other item of equipment fitted to, or carried on, the helicopter must not at any time adversely affect the safe operation of the helicopter.
- 3A.4 For subclause 3A.3, the operator must:
- (a) identify and assess the risks associated with:
    - (i) the normal operation or dormancy of the equipment; and
    - (ii) any malfunction or failure of the equipment; and
  - (b) take appropriate action to mitigate any identified risk that would adversely affect the safe operation of the helicopter, including mitigation through:
    - (i) flight manual supplements; or
    - (ii) training of flight crew, aircrew or other relevant personnel; or
    - (iii) regular maintenance of the equipment in accordance with the equipment manufacturer's recommendations.

**3B Helicopter mounting device for incendiary dropping using NVG**

The fittings and mounting device for an incendiary dropping device and its directly associated systems, used for dropping incendiaries during an NVG operation, must have been granted a design approval under Subpart 21.M of CASR 1998.

**[26] Appendix 3, after paragraph 4.1 (b)**

*insert*

- ; and (c) if the operation involves incendiary dropping or fire mapping — each of the following:
- (i) an incendiary dropping device, approved in writing by CASA, which meets at least the specifications set out in an airworthiness bulletin published by CASA for this provision;

(ii) 1 GNSS, with map display, that at least complies with the standards in 1 of the following as in force from time to time:

- (A) TSO-C 129;
- (B) TSO-C145;
- (C) TSO-C 146;

(iii) 1 standby attitude indicator installation (*standby artificial horizon* or *AH*).

*Note* A standby AH is in addition to any turn or bank indicator. The standards for a standby AH are set out in paragraph 6 in Appendix VII of Civil Aviation Order 20.18.

**[27] Appendix 3, subclause 5.2, the Note**

*omit*

**[28] Appendix 3, after subclause 8.4**

*insert*

8.4A For an NVG operation involving incendiary dropping or fire mapping, the minimum NVG crew and other aircrew must be not less than the following:

- (a) 1 NVG qualified pilot with a special fire endorsement;
- (b) 1 NVG qualified aircrew member;
- (c) for incendiary dropping operations — 1 incendiary device operator for whom the minimum qualifications and experience, and the duties and responsibilities of the position, must be set out in the operator's operations manual;
- (d) for fire mapping — 1 fire mapping observer for whom the minimum qualifications and experience, and the duties and responsibilities of the position, must be set out in the operator's operations manual.

**[29] Appendix 3, after subclause 8.5**

*insert*

8.5A For an incendiary device operator and a fire mapping observer, the minimum qualifications and experience, and the duties and responsibilities, of the position must be set out in the operator's operations manual.

**[30] Appendix 3, paragraph 13 (a)**

*substitute*

- (a) an NVG pilot qualification combined with 50 hours of post-endorsement NVG flying experience, and be a pilot in command; or

**[31] Appendix 3, after clause 13**

*insert*

**13A Senior NVG pilot**

An NVG operator's senior NVG pilot must hold an NVG pilot qualification combined with 50 hours of post-qualification NVG flying experience, and be a pilot in command.

**[32] Appendix 3, paragraph 16 (c)**

*omit*

this Appendix

*insert*

Appendix 1

**[33] Appendix 3, clause 16**

*omit*

A person must

*insert*

16.1 A person must

**[34] Appendix 3, after subclause 16.1**

*insert*

16.2 For eligibility to be an NVG qualified pilot with a special fire endorsement, a person must, as a minimum, hold the following qualifications and experience:

- (a) compliance with the requirements of subclause 16.1, with the addition of a GPSN (GPS NAV) endorsement to the night V.F.R. rating required by paragraph 16. 1 (b);
- (b) successful completion of special fire endorsement training and testing under this Order, or its equivalent based on recognition of training and experience under clause 10 of Appendix 1;
- (c) the following hours of aeronautical experience as a helicopter pilot:
  - (i) 1 000 hours;
  - (ii) 50 hours in the type or class of helicopter that is, or is representative of, the type or class of helicopter in which incendiary dropping and fire mapping is to be conducted;
  - (iii) 100 hours in fire fighting;
  - (iv) 50 hours in night V.F.R. (unaided);
  - (v) 10 hours in night V.F.R. (unaided) in the type or class of helicopter that is, or is representative of, the type or class of helicopter in which incendiary dropping and fire mapping is to be conducted;
  - (vi) 50 hours of post-NVG qualification NVG flying experience.

**[35] Appendix 3, clause 21**

*omit*

An NVG pilot must meet the following minimum recency requirements,

*insert*

21.1 An NVG pilot must meet the minimum recency requirements set out in Table 21.1,



**[36] Appendix 3, after subclause 21.1**

*insert*

21.2 The minimum recency requirements for an NVG pilot with a special fire endorsement are as follows:

- (a) compliance with the requirements of subclause 21.1;
- (b) within the 90 days before an NVG operation for which the pilot requires a special fire endorsement, NVFR recency, including 3 hours of NVFR (unaided) flight;
- (c) within the 30 days before an NVG operation for which the pilot requires a special fire endorsement — completion on type of the NVG CCF for an NVG pilot with a special fire endorsement, in accordance with the requirements of paragraphs 23.2 (a) to (d) (including subparagraphs (d) (i) to (ix));
- (d) separate from any requirements under paragraphs (a), (b) and (c) — practice recovery from unusual attitudes, which must be conducted in daylight.

**[37] Appendix 3, clause 22, Table 22.1, NVG CCF for front seat aircrew member**

*substitute*

For LESS than 50 hours NVG experience — 6 monthly, and after the first NVG CCF each subsequent NVG CCF may be conducted within 30 days before recency would otherwise expire.

For MORE than 50 hours NVG experience — 12 monthly, and after the first NVG CCF each subsequent NVG CCF may be conducted within 30 days before recency would otherwise expire.

**[38] Appendix 3, paragraph 23.2 (c)**

*substitute*

- (c) be a minimum of:
  - (i) 60 minutes NVG flight time; or
  - (ii) for the NVG CCF for an NVG pilot with a special fire endorsement — 90 minutes NVG flight time.

**[39] Appendix 3, after subparagraph 23.2 (d) (viii)**

*insert*

- ; (ix) for the NVG CCF of an NVG pilot with a special fire endorsement — procedures for operating in the vicinity of a fire, including the following:
  - (A) ability to assess risks in, and plan operations to avoid, smoke-laden air;
  - (B) ability to communicate and interact effectively with observers and fire authorities who are in the air or on the ground;
  - (C) emergency procedures for fire mapping and incendiary dropping, including emergencies arising from any failure or malfunctioning of the incendiaries or the incendiary dropping device.

**[40] Appendix 3, after clause 23**

*insert*

**23A Due date for NVG CCF**

Despite anything in clause 21, 22 or 23 for an NVG CCF, for an NVG pilot or an NVG aircrew member, recency is deemed to expire at the end of the last day of the month in which recency would otherwise expire but for this clause.

**[41] Appendix 3, clause 24**

*omit*

An NVG

*insert*

24.1 An NVG

**[42] Appendix 3, after subclause 24.1**

*insert*

24.2 An NVG initial qualification training course for an NVG pilot with a special fire endorsement must:

- (a) comply with the requirements of subclause 24.1; and
- (b) be in accordance with the requirements of this Order for training in incendiary dropping and fire mapping.

**[43] Appendix 3, after subclause 25.2 (and the Notes)**

*insert*

25.3 CASA may only approve an NVG pilot training course which includes incendiary dropping and fire mapping if:

- (a) subclause 25.2 is complied with; and
- (b) the course is designed to also achieve the following competency, namely, the ability to conduct incendiary dropping and fire mapping NVG operations with maximum safety and in a way that eliminates or reduces the risk that smoke, cloud or malfunctioning NVG equipment may result in inadvertent IMC.

**[44] Appendix 3, after subclause 27.2**

*insert*

27.3 Before any NVG initial flight training may commence for incendiary dropping and fire mapping, initial NVG qualification training must:

- (a) comply with subclauses 27.1 and 27.2; and
- (b) include a CASA approved NVG pilot special fire endorsement course followed by a written examination to certify competency in the matters covered by the course.

**[45] Appendix 3, after subclause 29.1**

*insert*

- 29.1A Subject to subclause 29.2, before commencing NVG training for an initial NVG pilot qualification that includes incendiary dropping and fire mapping, a trainee pilot must, as a minimum, meet the following requirements:
- (a) met the requirements of subclause 29.1;
  - (b) have logged at least the following hours of aeronautical experience as a helicopter pilot:
    - (i) 1 000 hours;
    - (ii) 50 hours in the type or class of helicopter that is, or is representative of, the type or class of helicopter in which incendiary dropping and fire mapping is to be conducted;
    - (iii) 100 hours in fire fighting;
    - (iv) 50 hours night V.F.R. (unaided);
    - (v) 10 hours night V.F.R. (unaided) in the type or class of helicopter that is, or is representative of, the type or class of helicopter in which incendiary dropping and fire mapping is to be conducted;

**[46] Appendix 3, subclause 29.2**

*after*

29.1

*insert*

or 29.1A

**[47] Appendix 3, subclause 30.1**

*substitute*

- 30.1 NVG flight training for the initial NVG pilot qualification must include:
- (a) at least 5 hours of NVG flight time, exclusive of the NVG flight test mentioned in clause 31 of Appendix 3; or
  - (b) if the qualification is to include incendiary dropping and fire mapping — at least 50 hours of NVG flight time, exclusive of the NVG flight test mentioned in clause 31 of Appendix 3.
-