RA 2135 - Aircrew and Supernumerary Crew Medical Requirements

Rationale

The fitness of Aircrew and Supernumerary Crew to conduct their duties is critical to the safe flight of Aircraft. There is increased Risk to crew, passengers and the public if appropriate levels of fitness and aviation medicine training are not achieved. Significant variation in physical and mental stressors across Air Systems, and differing mitigations for Aircrew incapacitation, necessitate a range of standards. Definitive medical policy for assessment of medical fitness standards is published in AP 1269A\(^1\) and may be augmented in single-Service (sS) orders and other documents. This Regulatory Article (RA) directs Aviation Duty Holders (ADH) and Accountable Managers (Military Flying) (AM(MF)) to set, and Aircrew to demonstrate, the required level of fitness-to-fly and requisite aviation medicine training.

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Medical Employment Standard

2135(1) ADH and AM(MF) shall stipulate, and ensure compliance with, a suitable Medical Employment Standard (MES) for all Aircrew and Supernumerary Crew within their Area of Responsibility (AoR).

Acceptable Means of Compliance

2135(1) Aircrew and Supernumerary Crew should:

1. Hold the required MES detailed in ADH or AM(MF) orders;
2. Complete an Initial Medical Examination (IME)\(^2\);
3. Complete a Periodic Medical Examination (PME)\(^2\);
4. Remain in date for PME if in a flying appointment;
5. Comply with all medical limitations they have been awarded;
6. Complete electrocardiography (ECG) and enhanced cardiac screening\(^3\).

2. If an ADH / AM(MF) specifies a civil medical standard (eg Civil Aviation Authority (CAA) / European Union Aviation Safety Agency (EASA) Class 1) is appropriate for their AoR, this standard may be specified as an alternative to a military Joint Medical Employment Standard (JMES). The suitability of a civil medical standard should follow medical policy advice from the relevant sS medical authority (see paragraph 4). Alignment with medical policy and JMES in AP 1269A should be considered.

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\(^2\) Refer to AP 1269A for criteria and appropriate medical examiners.

\(^3\) If required for their role, as specified in AP 1269A.
Guidance Material 2135(1)

Medical Employment Standard
3. A MES for Supernumerary Crew may be more permissive than for Aircrew (for example, where appropriate to platform and role, they may be similar to passenger standards). As for Aircrew, ADH / AM(MF) will state the required MES for Supernumerary Crew following medical policy advice. Variation in MES by platform and role is anticipated.
4. An ADH or AM(MF) will seek advice on medical standards from their relevant medical authority:
   a. Consultant Advisor Aviation Medicine (CA Avn Med) for Royal Navy / Army;
   b. SO1 Aviation Medicine (SO1 Avn Med) for Joint Helicopter Command;
   c. Command Flight Medical Officer (CFMO) for Royal Air Force (RAF) and Contractor Flying Approved Organization Scheme (CFAOS) organizations.
5. A Military Aviation Medical Examiner (MAME) is a Medical Officer (MO), a Civilian Medical Practitioner (CMP) or a locum doctor, qualified to assess and determine fitness for Aircrew and Controllers\(^5\,^6\). A MAME will complete approved training from RAF Centre of Aviation Medicine (CAM) Aviation Medicine Training Wing (AMTW) and be endorsed by the appropriate Civil medical authority.
6. Aircrew in non-flying appointments can defer their PME in accordance with AP 1269A Leaflet 4-02.
7. Aircrew medical fitness is assessed at PME. The MAME will sign the MES record in the individual’s Flying Logbook or on a suitable certificate. The recorded PME is valid until the last day of the month in which the next PME is due.
8. Defence Contractor Flying Organizations (DCFO) require either a designated MAME or an endorsed Civil Aeromedical Examiner (Civil AME)\(^7\). Details of available MAMEs are available from CFMO( RAF). Civil AMEs require endorsement by Deputy Assistant Chief of Staff Aviation Medicine (DACOS AvMED) at the RAF CAM, before they can act in lieu of a MAME. Civilian Aircrew may seek advice from the CFMO(RAF)\(^4\) for access to a MAME.
9. If a MAME does not have access to a primary care record, they will use a Statement of Health (SoH) and Medical Attendant’s Report (MAR) in conjunction with a civil medical certificate where appropriate, to assess Aircrew fitness for their role\(^8\).

Regulation 2135(2)

Fitness-to-Fly
2135(2) Aircrew and Supernumerary Crew shall be fit-to-fly. Aircrew and Supernumerary Crew who are unfit-to-fly, or uncertain of their fitness-to-fly, shall report to a MAME before they next fly.

Acceptable Means of Compliance 2135(2)

Fitness-to-Fly
10. Aircrew and Supernumerary Crew should:
   a. Seek medical advice if they have any reason to doubt their fitness-to-fly, even for a relatively minor illness.
   b. Contact a MAME prior to returning to flying duties if another medical practitioner (not qualified and endorsed as a MAME) has been consulted.
   c. Report any period they are unfit-to-fly to their Duty Holder chain or, for DCFO, the Flight Operations post-holders (FOPH).

\(^{4}\) CFMO(RAF), RAF CAM, RAF Henlow, Bedfordshire, SG16 6DN.
\(^{5}\) Aircrew and Controllers who are subject to the MRP.
\(^{6}\) Refer to RA 3203 – Controller Medical Requirements.
\(^{7}\) A Civil AME certified by the CAA / EASA.
\(^{8}\) The SOH and MAR may be found in AP 1269A Leaflet 4-02 Annex C and Annex D.
11. Supervisors and Authorizing Officers who have reason to doubt the medical fitness of any Aircrew or Supernumerary Crew should seek the advice of a MAME.

12. A MAME should ensure that the Duty Holder chain is informed of any change in medical fitness affecting the flying status of their Aircrew or Supernumerary Crew.

13. FOPH should have a mechanism to be notified of any change in medical fitness affecting the flying status of their Aircrew or Supernumerary Crew.

**Fitness-to-Fly**

14. Aircrew and Supernumerary Crew may declare, without medical advice, that they are not fit-to-fly.

15. Strenuous or prolonged physical exercise, breaks from flying, or fatigue, may adversely affect individual ability to withstand the stress of flight, including G tolerance - particularly in the short term. Aircrew, Supernumerary Crew, and their supervisors, will need to consider when such circumstances (whether on or off-duty) may necessitate advice from a MAME prior to flight.

**Pilot Operations - Upper Age Restriction**

2135(3) Pilots shall not operate an Air System once they reach the age of 65 unless the Air System is fitted with dual controls and is operated with a second pilot. The second pilot shall hold the appropriate qualification and JMES to act as pilot in command, and be under the age of 65.

16. ADH and AM(MF) should stipulate minimum MES, qualifications and flying currency to be held by the second pilot. The second pilot should be capable of undertaking all the manoeuvres, roles, or exercises that the sortie has been authorized for.

17. Nil.

**Flying After an Accident or In-Flight Medical Incident**

2135(4) After being involved in a flying Accident or in-flight medical incident, Aircrew and Supernumerary Crew shall not operate an Air System until they have gained appropriate medical approval.

18. A MAME should issue medical approval prior to any return to flying duties for Aircrew or Supernumerary Crew involved in a flying Accident or in-flight medical incident.

19. ADH and AM(MF) should consider the guidance in AP 1269A Leaflet 4-02 Annex I for the management of Aircrew and Supernumerary Crew following an Aircraft Accident or Incident.

20. AP 1269 Section 6 provides detailed information on handling specific types of in-flight medical incidents.9

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9 Refer to AP 1269 – Medical Management and Administration.

10 Including inter alia: hypoxia; contamination of oxygen supply; fumes in the cockpit; spatial disorientation; G-Induced Loss of Consciousness (G-LOC).
Regulation 2135(5)

Aviation Medicine Training

2135(5) An ADH / AM(MF) shall stipulate, and ensure Aircrew and Supernumerary Crew comply with, aviation medicine training requirements within their AoR.

Acceptable Means of Compliance 2135(5)

Aviation Medicine Training

21. An ADH and AM(MF) should determine appropriate initial and refresher aviation medicine training requirements in conjunction with RAF CAM11 and / or the sS medical authority.

22. As a minimum, ADH and AM(MF) orders should:
   a. Set initial and refresher aviation medicine training requirements within their AoR.
   b. Ensure all Aircrew and Supernumerary Crew complete initial aviation medicine training prior to flying training.
   c. Ensure all Aircrew and Supernumerary Crew engaged on flying duties receive refresher aviation medicine training at intervals not exceeding 5 years.
   d. Promulgate procedures to be followed when a dispensation or extension to aviation medicine training requirements is deemed necessary. The relevant medical authority should be consulted prior to any dispensation or extension to aviation medicine training requirements.

Guidance Material 2135(5)

Aviation Medicine Training

23. Aviation Medicine (AvMed) Training for Supernumerary Crew is required but training design is left up to the ADH or AM(MF) to specify following medical policy advice. As AvMed training addresses various elements including physiological (environmental) and cognitive factors, training for Supernumerary Crew may be similar in some respects to Aircrew on the same platform type, and different in others. Variation in AvMed Trg by platform and role is anticipated.

24. Further guidance on aviation medicine training can be found in AAMedP-1.212 which contains appropriate syllabi for initial and refresher training by Aircraft type.

Regulation 2135(6)

High G Training

2135(6) ADH and AM(MF) shall stipulate, and ensure Aircrew and Supernumerary Crew comply with, High G training requirements in their AoR.

Acceptable Means of Compliance 2135(6)

High G Training

25. ADH and AM(MF) should determine initial and refresher High G training requirements in conjunction with RAF CAM11. Consideration should be given to the definitions and stipulations in STANAG 382713.

26. High G training should be conducted using a centrifuge appropriate to the Aircraft being flown. Individuals subject to centrifuge exposure should not return to flying duties for 6 hours and until free of all residual symptoms14.

27. As a minimum, ADH and AM(MF) orders should:
   a. Ensure all Aircrew and Supernumerary Crew whose employment exposes them to High G environments complete High G training.

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11 OC AMW Training Section, RAF CAM, RAF Henlow, Bedfordshire, SG16 6DN. Air COS Spt-CAM-AMW-OCAMTW@mod.gov.uk
12 AAMedP-1.2 is available from the NATO Standardization Office (NSO) public website.
14 If in doubt, refer to Regulation 2135(2): Fitness-to-Fly.
b. Specify initial and refresher High G training requirements within their AoR.

c. Ensure refresher High G training is completed by Aircrew and Supernumerary Crew returning to High G flying following an absence from a High G environment for 3 years or more.

d. Ensure refresher High G training is completed at intervals not exceeding 5 years.

e. Describe procedures to be followed for individuals who do not complete High G training to the required standard.

f. Give procedures to be followed when a dispensation or extension to High G training requirements is deemed necessary. RAF CAM should be consulted prior to any dispensation or extension to High G training requirements.

28. Centrifuge exposure may adversely affect individuals due to the physical strain of High G and sensory disturbance induced by centrifuge manoeuvres.

29. Further guidance on High G training can be found in AAMedP-1.13\(^{15}\).

30. Aircrew and Supernumerary Crew should consult a MAME prior to:

   a. Elective surgery;
   b. Corneal refractive surgery for visual correction;
   c. Ophthalmic procedures including Anaesthetics or Glaucoma preparations;
   d. Routine immunisation;
   e. Hypnotherapy;
   f. Acupuncture;
   g. Psychological therapy or counselling;
   h. Complementary and alternative medicine.

31. Aircrew and Supernumerary Crew should establish with a MAME any flying restrictions caused by inoculations or vaccinations.

32. Aircrew and Supernumerary Crew should not:

   a. Take any prescription medicine, drugs, tablets, remedies, or nicotine replacement therapy before flying unless prescribed or approved by a MAME.
   b. Use any over-the-counter medicines, drugs, tablets, or remedies within 24 hours of reporting for flying duties unless approved by a MAME, as the effect on an individual’s fitness-to-fly may not be immediately apparent.
   c. Use any dietary supplements, homeopathic remedies or alternative medicines unless approved by a MAME.
   d. Fly for 7 days after a general, spinal, or epidural anaesthetic, or for 12 hours after a local or regional (dental) anaesthetic, unless the period is extended in consultation with a MAME.

\(^{15}\) Refer to AAMedP-1.13 - Minimum Requirements for Physiological Training of Aircrew in High “G” Environment. AAMedP-1.13 is available from the NSO public website.
e. Fly for 12 hours after acupuncture treatment.

f. Fly for 36 hours after donating blood, or as directed by a MAME.

g. Fly for 24 hours after the application of mydriatic eye drops or agents (14 days in the case of atropine).

h. Fly for 7 days after the donation of bone marrow or stem cell harvesting, after which they should consult a MAME prior to returning to flying duties.

33. Aircrew and Supernumerary Crew should not fly:

a. Within 12 hours of using compressed air breathing apparatus for swimming / diving, or within 24 hours if a depth of 10 m has been exceeded (unless 100% oxygen has been breathed throughout the dive after which immediate flying is permissible) or;

b. Within 12 hours of experiencing hyperbaric pressures\textsuperscript{16} or;

c. Within 24 hours of Short-Term Air Supply System training unless all the following apply:

   (1) Immersion has been less than 20 minutes.

   (2) Depth of immersion did not exceed three metres.

   (3) Cabin pressure altitude will be below 8000 ft.

   (4) An interval of 4 hours has elapsed between the end of training and commencing flying.

34. Aircrew and Supernumerary Crew should not fly at a cabin altitude above FL100 within 12 hours of exposure in a low-pressure chamber.

35. Following exposure to any chemical warfare training agents, Aircrew and Supernumerary Crew should not:

a. Conduct flying duties until all physical and psychological effects produced by the agent have cleared.

b. Conduct flying duties for a minimum period of 12 hours following exposure to CS gas.

c. Fly in any clothing or equipment that remains contaminated by the training.

36. Aircrew and Supernumerary Crew who have engaged in boxing (including sparring, but not including non-contact training) should not fly for 48 hours after a bout. Furthermore, they should be examined by a MAME before resuming flying duties.

\textsuperscript{16} Such as cabin pressure testing. This does not apply to patients or attendants undertaking long treatment for decompression illness, refer to BRd 2806(4) - Therapeutic and Medical Management of Diving.