



**Australian Government**

**Civil Aviation Safety Authority**

***Civil Aviation Order 48.1 Instrument 2019  
(as amended)***

made under subregulation 5 (1), regulation 210A and subregulation 215 (3) of the *Civil Aviation Regulations 1988*, subregulation 11.068 (1) of the *Civil Aviation Safety Regulations 1998*, and paragraph 28BA (1) (b) and subsection 98 (4A) of the *Civil Aviation Act 1988*.

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Prepared by the Advisory and Drafting Branch, Legal, International and Regulatory Affairs Division, Civil Aviation Safety Authority, Canberra.

Compilation No. 3

## Contents

*Note* This Table of Contents is not part of *Civil Aviation Order 48.1 Instrument 2019*. It is for reader guidance only. The Table may be modified or edited in any published version of the Instrument. See paragraph 1.2 in Part 1.

	Page
PART 1 GENERAL .....	1
1 Name of instrument .....	1
4 Application .....	1
5 When the CAO takes effect .....	2
5A Approval of non-compliance .....	2
6 Definitions .....	2
7 Determination of acclimatisation .....	12
PART 2 CONDITIONS .....	14
8 General condition on Air Operators' Certificates .....	14
9 General conditions on flight crew licences .....	14
PART 3 LIMITS AND REQUIREMENTS .....	15
10 Limits and requirements for operations .....	15
11 Part 137 operations .....	16
12 Private operations .....	17
13 Operations under multiple Appendices .....	17
13A Transitioning from Appendix 4B, 5 or 5A, or Subpart 137.Q of CASR .....	18
14 AOC holder obligations .....	18
15 Enhanced fatigue management obligations .....	20
15A Recognition of prior initial training .....	22
16 Flight crew member obligations .....	23
APPENDIX 1 BASIC LIMITS .....	24
APPENDIX 2 MULTI-PILOT OPERATIONS EXCEPT FLIGHT TRAINING .....	26
APPENDIX 3 MULTI-PILOT OPERATIONS EXCEPT COMPLEX OPERATIONS AND FLIGHT TRAINING .....	37
APPENDIX 4 ANY OPERATIONS .....	45
APPENDIX 4A BALLOON OPERATIONS .....	52
APPENDIX 4B MEDICAL TRANSPORT OPERATIONS AND EMERGENCY SERVICE OPERATIONS .....	54
APPENDIX 5 AERIAL WORK OPERATIONS AND FLIGHT TRAINING ASSOCIATED WITH AERIAL WORK .....	59
APPENDIX 5A DAYLIGHT AERIAL WORK OPERATIONS AND FLIGHT TRAINING ASSOCIATED WITH AERIAL WORK .....	63
APPENDIX 6 FLIGHT TRAINING .....	65
APPENDIX 7 FATIGUE RISK MANAGEMENT SYSTEM (FRMS) .....	69
Notes to Civil Aviation Order 48.1 .....	76

### PART 1 GENERAL

#### 1 Name of instrument

- 1.1 This instrument is the *Civil Aviation Order 48.1 Instrument 2019*.
- 1.2 The Table of Contents at the front of this instrument is not part of this instrument. It is for guidance only and may be modified or edited in any published version of this instrument.

#### 4 Application

- 4.1 Subject to paragraph 4.2, this CAO applies on and from 2 December 2021 to each of the following:

- (a) subject to subparagraph (b), an AOC, other than a foreign air transport AOC;  
*Note* The expression “foreign air transport AOC” and the related expression “foreign air transport operation” are defined in the CASR Dictionary. See Part 129 of CASR.
- (b) except when subsection 11 applies — an AOC which covers application operations under Part 137 of CASR;
- (c) a Part 138 certificate;
- (d) a Part 141 certificate;
- (e) a flight crew member employed by the holder of an AOC or a certificate to which subparagraph (a), (b), (c), or (d) applies;
- (f) for the purposes of subsection 16 — a flight crew member mentioned in that subsection;
- (g) a flight crew member on a flight conducted as a private operation.

- 4.2 Without affecting paragraph 4.4, this CAO does not apply to any of the following:

- (a) a Part 141 operator for authorised Part 141 flight training;
- (b) a Part 142 operator for authorised Part 142 activity;
- (c) an FCM of an operator mentioned subparagraph (a) or (b);

if the flight training or the activity is conducted in a flight simulation training device as the sole and exclusive form of training or activity conducted by the operator under the authorisation.

*Note* The CAO will apply to a person mentioned in subparagraph (a) or (b), and hence apply to a person mentioned in subparagraph (c), if any training or activity involves operations in an aircraft.

- 4.3 Subject to paragraph 4.4, this CAO sets out:

- (a) for paragraph 28BA (1) (b) of the Act — conditions on each AOC mentioned in subparagraphs 4.1 (a) and (b); and
- (b) for subregulation 11.068 (1) of CASR, conditions on each of the following:
  - (i) each Part 138 certificate mentioned in subparagraph 4.1 (c);
  - (ii) each Part 141 certificate mentioned in subparagraph 4.1 (d);

*Note* Conditions on an AOC are imposed under paragraph 28BA (1) (b) of the Act. Conditions on a Part 141 certificate or a Part 138 certificate are imposed under subregulation 11.068 (1) of CASR.

- (c) for subregulation 11.068 (1) of CASR — conditions on the flight crew licence of each flight crew member mentioned in subparagraphs 4.1 (e), (f) and (g).

- 4.4 The condition set out in paragraph 16.1 applies to the holder of a flight crew licence whether or not the person is employed by the holder of an AOC or a Part 138, Part 141, or Part 142 certificate mentioned in paragraph 4.1 or 4.2.

*Note* Under regulation 11.077 of CASR, it is an offence for a person holding a flight crew licence to contravene a condition of the licence.

## **5 When the CAO takes effect**

- 5.1 Without affecting this CAO as in force immediately before 2 December 2021, this CAO takes effect:
- (a) for an operator who holds an AOC or certificate mentioned in paragraph 4.1 — on and from 2 December 2021; and
  - (b) for a person who is issued with an AOC or certificate mentioned in paragraph 4.1 — on and from the day the AOC or certificate is issued; and
  - (c) for a flight crew member of an operator or person mentioned in subparagraph (a) or (b) — on and from the day mentioned in subparagraph (a) or (b) for the operator or person; and
  - (d) for a flight crew member on a flight conducted as a private operation — on and from 2 December 2021.
- 5.2 Each flight crew member of an operator or person mentioned in paragraph 5.1 must comply with the applicable requirements of this CAO that apply to, and take effect for, the operator or person in accordance with this subsection.

## **5A Approval of non-compliance**

- 5A.1 CASA may, on application or on its own initiative, by instrument in writing, approve limited or minor non-compliance with the requirements of a specified provision of this CAO.
- 5A.2 An approval has the effect that the specified provision of this CAO does not apply to the AOC holder to whom the approval applies, provided that any conditions expressed in the approval are complied with.
- Note* The expression AOC holder includes the holder of a Part 138 certificate or a Part 141 certificate: see the definition of **AOC holder** in subsection 6.
- 5A.3 An approval mentioned in paragraph 5A.2 has the effect that the specified provision of this CAO does not apply to the AOC holder's flight crew members.
- 5A.4 CASA must not grant an approval unless CASA is satisfied that compliance with the approval, including any conditions of the approval, will preserve an acceptable level of aviation safety.
- 5A.5 An instrument of approval is a legislative instrument if the instrument is expressed to apply to a class of AOC holders.
- 5A.6 An instrument of approval is not a legislative instrument if the instrument is expressed to apply to a particular AOC holder.

## **6 Definitions**

- 6.1 In this CAO:
- access**, in a provision referring to 1 or more of the following (**necessities**):
- (a) a crew rest facility;
  - (b) suitable sleeping accommodation;
  - (c) suitable resting accommodation;
  - (d) adequate sustenance;
- means that there is no restriction on, or impediment to, a flight crew member's immediate and actual use of the necessity:
- (e) in accordance with the provision; or

- (f) if the provision is a definition — in accordance with a provision which uses the defined term.

**acclimatised** has the meaning given in subsection 7.

**acclimatised time** means local time at the location where an FCM is acclimatised.

**Act** means the *Civil Aviation Act 1988*.

**adaptation period** means a continuous off-duty period for an FCM to become acclimatised to a particular location.

**adequate sustenance** means food and drink, including clean drinking water, in quantities sufficient to reasonably sustain a person in the person's circumstances.

**aerial work certificate** means a certificate issued under regulation 138.040 of CASR.

**aerial work operator** has the meaning given by the CASR Dictionary.

*Note* An aerial work operator is the holder of an aerial work certificate.

**AOC** means an Air Operator's Certificate.

**AOC holder**, or **holder**, means the holder of an Air Operator's Certificate issued under Part III, Division 2 of the Act but, except in subsection 4, is also taken to include the holder of one of the following to whom this CAO applies:

- (a) a Part 138 certificate;
- (b) a Part 141 certificate.

*Note* See also paragraph 6.5.

**approval** means approval in writing.

**assigned** means assigned by the AOC holder to his or her FCM.

*Note* For example, the AOC holder **assigns** to the FCM **duty**, **standby**, a **home base**, a **flight duty period**, a **reporting time**.

**augmented crew operation** means an aircraft operation in which 1 or more FCMs, additional to the minimum required number of FCMs, are engaged in a flight to allow 1 or more FCMs to be relieved of duty during flight time.

**authorised Part 141 flight training** has the same meaning as in subregulation 141.015 (2) of CASR but does not include flight training that is conducted in a flight simulation training device as the sole and exclusive form of training conducted by the operator.

**authorised Part 142 activity** has the same meaning as in subregulation 142.015 (3) of CASR but does not include flight training that is conducted in a flight simulation training device as the sole and exclusive form of training conducted by the operator.

**bed**, for suitable sleeping accommodation, includes at least 1 pillow, clean bed linen, and bed covering appropriate for the temperature of the accommodation.

**call out** means being required by an AOC holder to commence a duty period during a standby.

**CAR** means the *Civil Aviation Regulations 1988*.

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

**Chief Executive Officer** means the person who is:

- (a) if the AOC holder is an individual — that individual; or
- (b) if the AOC holder is a corporation — the person (however described) whom CASA was satisfied, for subparagraph 28 (1) (b) (iv) of the Act (and the definition of **key personnel** in subsection 28 (3) of the Act), could hold or carry out the duties of the AOC holder's Chief Executive Officer.

**complex operation** means an operation which involves 1 or more of the following:

- (a) an FDP with a displacement time of 2 hours or more;
- (b) an augmented crew operation;
- (c) an FDP that commences when the FCM is:
  - (i) in an unknown state of acclimatisation; or
  - (ii) acclimatised to a location other than the location where the FDP commences.

*Note* AOC holders should consider the impact of Daylight Saving Time on local time differences for relevant locations because Daylight Saving Time may have an impact on whether or not an operation is complex.

**consecutive**, in relation to the hours or days of a period of time mentioned in a provision of this CAO, means a continuous, unbroken, period of time for the duration of the hours or days mentioned.

**crew member** has the meaning given by the CASR Dictionary.

**crew rest facility** means 1 of the following defined classes of facility on board an aircraft that is available to an FCM:

- (a) **class 1**, which means a bunk or other surface that:
  - (i) is fit for the purpose of an FCM obtaining sleep in a horizontal sleeping position; and
  - (ii) is located separate from both the flight deck and passenger compartment in an area that:
    - (A) is temperature-controlled; and
    - (B) allows the FCM to control light; and
    - (C) provides isolation from noise and disturbance;
- (b) **class 2**, which means a seat in an aircraft cabin that:
  - (i) is fit for the purpose of an FCM obtaining sleep in a horizontal or near-horizontal sleeping position; and
  - (ii) is separated from passengers by at least a curtain that provides darkness and some noise mitigation; and
  - (iii) is reasonably free from disturbance by passengers or crew members;
- (c) **class 3**, which means a seat in an aircraft cabin or flight deck that:
  - (i) is fit for the purpose of an FCM obtaining rest; and
  - (ii) reclines at least 40 degrees from the vertical plane; and
  - (iii) provides leg and foot support in the reclined position.

**cruise** means the period of a flight from not less than 30 minutes after take-off until not less than 60 minutes before the estimated time of landing.

**cumulative duty** means the progressive sum of duty periods.

**cumulative flight time**, for an FCM, means the progressive total of flight time accrued by the FCM when acting as a crew member on board any aircraft, but excluding flight time accrued during recreational private operations.

**day** means the period between local midnight at home base and the subsequent local midnight at home base.

**displacement time** means the difference in local time between:

- (a) the place where an FCM commenced an FDP; and
- (b) the place where the FCM undertakes an off-duty period following the FDP.

**duty** means any task that a person who is employed as an FCM is required to carry out associated with the business of an AOC holder.

**duty period** means a period of time which:

- (a) starts when an FCM is required by an AOC holder to report for duty; and
- (b) ends when the FCM is free of all duties.

*Note* A duty period includes any time spent by the FCM in positioning. See the definition of **positioning** in subparagraph 6.3 (e).

**early start**, for an FDP of an FCM, means:

- (a) in Appendix 2:
  - (i) if the FCM is acclimatised — an FDP that commences between the hours of 0500 and 0659 local time at the location where the FCM is acclimatised; or
  - (ii) if the FCM is in an unknown state of acclimatisation — an FDP that commences between the hours of 0500 and 0659 local time at the location where the FCM was last acclimatised; and
- (b) for an Appendix other than Appendix 2 — an FDP that commences between the hours of 0500 and 0659 local time at the location where an FCM commences the FDP.

**emergency service operation** means an operation involving an aircraft:

- (a) for the purpose of law enforcement, or saving or protecting life or property; and
- (b) conducted by, or at the request of, an organisation recognised by an Australian governmental agency as having responsibility to conduct or request the operation as part of the organisation's functions.

**employment** includes employment under a contract for services.

**fatigue**, for an FCM, means a physiological state of reduced alertness or capability to perform mental or physical tasks, which:

- (a) may impair the ability of the FCM to safely operate an aircraft; and
- (b) is caused by 1 or more of the following:
  - (i) the FCM's lack of sleep;
  - (ii) the FCM's extended wakefulness;
  - (iii) the FCM's circadian phase at any relevant time;
  - (iv) the FCM's workload of mental activities, or physical activities, or mental and physical activities at any relevant time.

**fatigue risk management system** (or **FRMS**) means a comprehensive system for managing fatigue-related risks that:

- (a) is appropriate for the size, nature and complexity of the AOC holder's operations; and
- (b) includes all of the elements set out in Appendix 7; and
- (c) is approved for implementation by CASA.

**fit for the purpose**, for a crew rest facility, or suitable sleeping accommodation, means that the facility, or accommodation, has ergonomic characteristics which make it suitable for an FCM to obtain sleep or rest, as the case requires.

*Note* CASA has issued guidance on relevant ergonomic characteristics in CAAP 48-01.

**flight crew licence** has the meaning given by the CASR Dictionary.

**flight crew member** (or **FCM**) has the same meaning as in the Regulations. The abbreviation **FCMs** means more than 1 FCM.

*Note* Under Part 1 of the CASR Dictionary, **flight crew member** means a crew member who is a pilot or flight engineer assigned to carry out duties essential to the operation of an aircraft during flight time. Any reference to **flight crew** has a corresponding meaning.

**flight duty period** (or **FDP**) means a period of time which:

- (a) starts when a person is required by an AOC holder to report for a duty period in which 1 or more flights as an FCM are undertaken; and
- (b) ends at the later of:
  - (i) the person's completion of all duties associated with the flight, or the last of the flights; or
  - (ii) 15 minutes after the end of the person's flight, or the last of the flights.

*Note* See also the definition of **positioning**.

**flight review** has the same meaning as in regulation 61.010 of CASR.

*Note* **Flight review** means an assessment of the competency of an FCM to perform:

- (a) for the holder of a pilot licence or flight engineer licence — an activity authorised by a flight crew rating that the crew member holds; or
- (b) for the holder of a glider pilot licence — an activity authorised by the licence.

**flight time**, for an FCM, means such part of the total time mentioned for an aircraft in subparagraph (a) or (b) (as the case may be) which occurs while the FCM is acting as a crew member on board the aircraft:

- (a) in the case of a heavier-than-air aircraft — the total time from the moment at which the aircraft first moves under its own power for the purpose of taking-off, until the moment at which it comes to rest after landing; and
- (b) in the case of a lighter-than-air aircraft — the total time from the moment at which the aircraft first becomes airborne until it comes to rest on the ground, excluding any time during which the aircraft is moored.

*Note* Thus, flight time for an FCM does not include the time he or she spends in positioning.

**flight training** has the same meaning as in regulation 61.010 of CASR and, to avoid doubt, includes flight training associated with aerial work.

*Note* **Flight training**, for a flight crew licence, rating or endorsement, means the training mentioned in regulation 61.195 of CASR for the licence, rating or endorsement.

**flight training associated with aerial work** means flight training for the grant, under Part 61 of CASR, of a rating or endorsement mentioned in subparagraph (a), (b), (c) or (d):

- (a) the following operational ratings:
  - (i) low-level rating;
  - (ii) aerial application rating;
  - (iii) night vision imaging system rating;
- (b) endorsements for the following operational ratings:
  - (i) low-level rating;
  - (ii) aerial application rating;
  - (iii) night vision imaging system rating;
- (c) the following endorsements on the flight instructor rating:
  - (i) low-level rating training endorsement (category specific);
  - (ii) aerial application rating (day) training endorsement (category specific);



- (iii) aerial application rating (night) training endorsement (category specific);
- (iv) night vision imaging system rating training endorsement;
- (v) sling operations training endorsement;
- (vi) winching and rappelling operations training endorsement;
- (d) the following endorsements on the flight examiner rating:
  - (i) low-level rating flight test endorsement (category specific);
  - (ii) aerial application rating flight test endorsement (category specific);
  - (iii) night vision imaging system rating flight test endorsement.

**FRMS Manager** means the person in an AOC holder’s organisation who is appointed by the Chief Executive Officer to be responsible for the day-to-day implementation, management and continuing effectiveness of the AOC holder’s FRMS.

**home base** means the location, assigned by the AOC holder to the FCM, from where the FCM normally starts and ends a duty period or a series of duty periods.

**in-flight rest** means, in an augmented crew operation, the period of time, or periods of time, during which an FCM has access to a crew rest facility.

**late-night operation** means an operation where an FDP includes more than 30 minutes between the hours of 2300 and 0530 local time.

**local night** means a period of 8 consecutive hours which includes the hours between 2200 and 0500 local time.

**local time**, for a location, means:

- (a) local time in the time zone of the location; or
- (b) local time in a time zone (the **alternative local time**):
  - (i) that adjoins the time zone of the location; and
  - (ii) whose nearest boundary is reasonably proximate to the location; provided the alternative local time is:
  - (iii) specified in the AOC holder’s operations manual; and
  - (iv) used consistently as local time for the location, for the purposes of this CAO.

*Note 1* CASA considers an alternative time zone to be used consistently as local time for a location if it is used, for example, throughout a period of daylight saving in the location or the adjoining time zone.

*Note 2* Examples of where an AOC holder may consider using alternative local time are as follows:

Local time	Alternative local time
Gold Coast airport, Queensland summertime	NSW
Kununurra airport, Western Australia	NT

**medical personnel** means a person with medical, paramedical or nursing qualifications, and responsibilities directly related to the qualifications.

**medical transport operation** means an aircraft operation consisting of 1 or more flights for any of the following purposes:

- (a) delivery of urgent medical assistance to a person, when determined to be necessary by a medical transport tasker;

- (b) transportation of any of the following, when determined to be necessary by a medical transport tasker:
  - (i) an ill or injured person;
  - (ii) another person directly involved with the person mentioned in sub-subparagraph (i);
 

*Note* For example, a close relative or the police.
  - (iii) medical personnel intended to be, or who are, directly involved with the person mentioned in sub-subparagraph (i);
  - (iv) blood, tissue or an organ for transfusion, grafting or transplantation (an *item*), including a person who has authorised custody of the item;
- (c) the return of the aircraft to its base because an operation mentioned in subparagraph (a) or (b) is completed.

***medical transport tasker*** means:

- (a) medical personnel; or
- (b) an organisation whose purpose is, or whose purposes include, medical transport tasking.

***multi-pilot operation***:

- (a) means an aircraft operation conducted under multi-pilot procedures contained in the AOC holder's operations manual; but
- (b) does not include:
  - (i) contracted checking, within the meaning of regulation 142.020 of CASR; or
  - (ii) contracted recurrent training within the meaning of regulation 142.020 of CASR;

unless the training or checking is conducted as a multi-crew operation within the meaning of regulation 61.010 of CASR.

***mustering operation*** means an aerial work operation, by a Part 138 operator, to herd or otherwise control livestock, and includes the following:

- (a) aerial livestock spotting;
- (b) aerial humane killing of livestock that is injured or being culled;
- (c) flight training associated with aerial work for any of the activities mentioned in this definition.

***off-duty period*** means a period of time during which an FCM is free of all duties and standby associated with his or her employment.

***operator proficiency check*** has the same meaning as in regulation 61.010 of CASR.

*Note* An ***operator proficiency check*** means an assessment conducted by an operator in accordance with its training and checking responsibilities under the Regulations of whether a person has the aeronautical skills and knowledge required by the operator.

***Part 138 certificate*** means an aerial work certificate issued under regulation 138.040 of CASR.

***Part 138 operator*** means the holder of a Part 138 certificate.

***Part 141 certificate*** means the Part 141 certificate of a Part 141 operator to whom this CAO applies and, to that extent only, has the same meaning as in subregulation 141.015 (4) of CASR.

*Note* See also paragraph 4.2 which excludes from the scope of the CAO a Part 141 operator whose training is conducted exclusively through the use of a flight simulation training device. In

subregulation 141.015 (4) of CASR, a **Part 141 certificate** is defined as a certificate issued under regulation 141.060 of CASR. Except in paragraph 2.2, and subsections 4 and 4B, a reference in this CAO to an AOC holder is taken to include a Part 141 operator: see paragraph 6.4.

**Part 141 operator** means a Part 141 operator to whom this CAO applies and, to that extent only, has the same meaning as in subregulation 141.015 (3) of CASR.

*Note* See also paragraph 4.2 which excludes from the scope of the CAO a Part 141 operator whose training is conducted exclusively through the use of a flight simulation training device. In subregulation 141.015 (3) of CASR, a **Part 141 operator** is defined as the holder of a Part 141 certificate. Except in paragraph 2.2, and subsections 4 and 4B, a reference in this CAO to an AOC holder is taken to include a Part 141 operator: see paragraph 6.4.

**Part 142 operator** means a Part 142 operator to whom this CAO applies and, to that extent only, has the same meaning as in subregulation 142.015 (4) of CASR.

*Note* See also paragraph 4.2 which excludes from the scope of the CAO a Part 142 operator whose activity is conducted exclusively through the use of a flight simulation training device.

**positioning** is defined in paragraph 6.3.

**private operation** has the meaning given by the CASR Dictionary.

**reassign** means to assign to an FCM in a modified form that which had previously been assigned to the FCM.

**recreational private operation** means flying conducted by an FCM in a personal capacity, and at and for the FCM's leisure.

*Note* A flight conducted by an FCM as a private operation is not a recreational private operation if it is conducted for, or on behalf of, an entity, regardless of whether or not the entity is an AOC holder.

**reporting time** means the time assigned to an FCM to commence an FDP.

**roster** means a list made available to an FCM by an AOC holder setting out the times when the FCM is assigned to undertake duties or standby.

**sector**, for this CAO, has the following meanings:

- (a) except for a rotorcraft — any flight consisting of a take-off and a landing, when conducted by a person in the capacity of an FCM;
- (b) for a rotorcraft — the period:
  - (i) from when the rotor blades start turning until they stop turning; and
  - (ii) during which an FCM on the rotorcraft conducts 1 or more flights, each consisting of a take-off and a landing;
- (c) each hour, or each part of an hour, of an FDP spent in a synthetic training device.

**single-pilot operation** means any operation other than a multi-pilot operation.

**sleep opportunity** means a period of time during an off-duty period when an FCM:

- (a) is not meeting the reasonable requirements of bodily functioning such as eating, drinking, washing or dressing; and
- (b) has access to suitable sleeping accommodation without, under normal circumstances, being interrupted by any requirement of the AOC holder.

*Note* When an FCM is interrupted during sleep opportunity, this may affect the FCM's fitness for duty before the commencement of, or during, the next FDP.

**SMS** means a safety management system approved by CASA.

**split duty** means an FDP which contains a split-duty rest period.

***split-duty rest period*** means a predefined period of time (or, for Appendix 4B or Appendix 5, a period of time that may or may not be predefined) during which an FCM:

- (a) has access to suitable resting accommodation or suitable sleeping accommodation; and
- (b) is relieved of all duties associated with his or her employment by the AOC holder.

***standby*** means a period of time during which an FCM:

- (a) is required by an AOC holder to hold himself or herself available for duties; and
- (b) has access to suitable sleeping accommodation; and
- (c) is free from all duties associated with his or her employment.

*Note* If suitable sleeping accommodation is not available for an FCM, who is required by an AOC holder to hold himself or herself available for duty, the FCM will be considered to be on duty and not on standby.

***standby-like arrangement*** means a period of time during which an FCM:

- (a) is required by an AOC holder to hold himself or herself available for duties; and
- (b) has no access to suitable sleeping accommodation.

***suitable resting accommodation*** means a comfortable resting area:

- (a) which has a comfortable temperature and minimal noise levels; and
- (b) which contains at least a comfortable chair; and
- (c) at which the FCM has access to adequate sustenance at times appropriate to the duty requirements.

*Note* Suitable resting accommodation is solely for split-duty rest periods. Suitable sleeping accommodation may also be used for split-duty rest periods.

***suitable sleeping accommodation*** means accommodation, not within an aircraft, that is fit for the purpose of an FCM obtaining sleep, and that includes the following:

- (a) a comfortable room, compartment or facility;
- (b) a single occupancy, at the discretion of the FCM;
- (c) access to clean, tidy and hygienic amenities, including a toilet and hand washing basin;
- (d) a bed that is comfortable, flat and horizontal, allowing the occupant to sleep on his or her stomach, and back, and either side;
- (e) minimum noise levels, including low occurrence of random noise;
- (f) the means to control light, temperature and ventilation;
- (g) access to adequate sustenance.

*Note* A person's home or residence is considered to meet the requirements of ***suitable sleeping accommodation***.

***synthetic training device*** has the same meaning as in the Regulations.

*Note* Under the Dictionary in CASR, ***synthetic training device*** means a flight simulator, a flight training device, or a basic instrument flight trainer.

***the Regulations*** means CAR and CASR, as in force from time to time.

*Note* The effect of regulation 2C is that ***the Regulations***, CAR and CASR, are to be read together.

**time zone** means a defined region of the earth with a uniform local time which differs by 1 hour, or by part of 1 hour, from the uniform local time of an adjoining region of the earth.

**unforeseen operational circumstance** means an unplanned exceptional event that becomes evident after the commencement of the FDP, such as unforecast weather, equipment malfunction, or air traffic delay.

*Note* Guidance on the application of **unforeseen operational circumstances** is contained in CAAP 48-01.

**window of circadian low**, or **WOCL**, for an FCM, means:

- (a) in Appendix 2:
  - (i) if the FCM is acclimatised — the period between the hours of 0200 and 0559 local time at the location where the FCM is acclimatised; or
  - (ii) if the FCM is in an unknown state of acclimatisation — the period between the hours of 0200 and 0559 local time at the location where the FCM was last acclimatised; and
- (b) in an Appendix other than Appendix 2 — the period between the hours of 0200 and 0559 local time at the location where the FCM commences a duty period.

**written application**, for an approval, means the written application of the AOC holder who is seeking the approval.

6.2 In this CAO, if any duty is performed during all, or any part, of the period of the **WOCL**, the WOCL is infringed.

6.3 For this CAO, **positioning**, for a person who is employed as an FCM:

- (a) means being transported, as a passenger, to a location, by any mode of transportation, as required by the AOC holder; and
- (b) does not include being transported to or from suitable accommodation after or before an FDP; and
- (c) if undertaken immediately before duty that includes the person flying an aircraft as an FCM (**flying duty**) — must be considered part of his or her FDP; and
- (d) if undertaken immediately after the person's flying duty and no other flying duty is to be conducted in the duty period — is not part of his or her FDP or off-duty period; and
- (e) is duty and part of the duty period.

*Note* The time spent positioning following an FDP, as described in subparagraph 6.3 (d), is not part of the FDP or off-duty period. However, it is added to the FDP for calculating off-duty period requirements. See, for example, clause 10 in Appendix 2.

6.4 The expression, **the operations manual**, when used in a provision of this CAO, is taken to mean whichever of the following the Regulations require of the AOC holder to whom the provision applies:

- (a) the operations manual of the AOC holder;
- (b) the exposition of the AOC holder.

6.5 In this CAO, other than subsection 4:

- (a) a reference to an AOC is taken to include a Part 138 certificate or a Part 141 certificate; and
- (b) a reference to an AOC holder, or a holder, is taken to include a Part 138 operator or a Part 141 operator; and

- (c) a reference to an FCM of an AOC holder (however described) is taken to include an FCM of a Part 138 operator or a Part 141 operator.

## 7 Determination of acclimatisation

- 7.1 At the commencement of an FDP or an off-duty period at a location, an FCM must be considered to be acclimatised to the location if:
  - (a) the location differs in local time by less than 2 hours from the location where the FCM was last acclimatised; and
  - (b) the FCM has remained in an acclimatised state since he or she was last acclimatised.

*Note* AOC holders and FCMs should be aware that a determination of acclimatisation under this definition may impact on an individual's body clock to a small degree. For guidance on acclimatisation, AOC holders and FCMs should refer to CAAP 48-01.

- 7.2 At the commencement of an FDP or an off-duty period (a *period*) at a new location which differs in local time by 2 hours or more from the location where the FCM was last acclimatised (the *original location*), the FCM is considered to remain acclimatised to the original location if the period at the new location commences less than 36 hours after the FCM commenced a duty period at the original location.
- 7.3 At the commencement of an FDP or an off-duty period (a *period*) at a new location which differs in local time by 2 hours or more from the location where the FCM was last acclimatised (the *original location*), the FCM is considered to be in an unknown state of acclimatisation if the period at the new location commences 36 hours or more after the FCM commenced a duty period at the original location.
- 7.4 An FCM is considered to remain in his or her state of acclimatisation (whether acclimatised to a particular location, or in an unknown state of acclimatisation) until he or she has had:
  - (a) an adaptation period in a location (the *adaptation location*) in accordance with Table 7.1 in this subsection; or
  - (b) an adaptation period that is:
    - (i) in a location other than home base; and
    - (ii) in accordance with subparagraph (a); and
    - (iii) reduced by 12 hours for each previous off-duty period that:
      - (A) immediately preceded the adaptation period; and
      - (B) was taken at an off-duty location which differs in local time by less than 2 hours from the adaptation location; and
      - (C) included an off-duty location local night.
- 7.5 In applying Table 7.1 to arrive at an adaptation period for paragraph 7.4:
  - (a) determine the time zone displacement between:
    - (i) the location where the FCM was last acclimatised (the *original location*); and
    - (ii) each location where an FDP or off-duty period was commenced since last acclimatised (*later locations*); and
  - (b) then choose the time zone displacement between the original location and whichever of the later locations gives the greatest time zone displacement; and
  - (c) then choose the time zone change in the Table that corresponds to the greatest time zone displacement; and

- (d) then choose the direction (west or east) in which the FCM travelled and in which, therefore, the greatest time zone displacement occurred under subparagraph (b); and
- (e) then choose the number of hours west or east (as the case requires) that corresponds to the time zone change chosen under subparagraph (c).

**Table 7.1 Adaptation period to become acclimatised**

<b>Time zone change (measured in time zones)</b>	<b>Adaptation period to become acclimatised to new location (hours)</b>	
<i>Note</i> See definition of <i>time zone</i>	<i>West</i>	<i>East</i>
<b>2</b>	24	30
<b>3</b>	36	45
<b>4</b>	48	60
<b>5</b>	48	60
<b>6</b>	48	60
<b>7</b>	72	90
<b>8</b>	72	90
<b>9</b>	72	90
<b>10 or more</b>	96	120

*Note 1* **Adaptation period** means a continuous off-duty period for an FCM to become acclimatised to a particular location.

*Note 2* An adaptation period under paragraph 7.4 may commence before the time when an FCM comes to be in an unknown state of acclimatisation.

*Note 3* For guidance in determining acclimatisation, including examples of how an FCM becomes reacclimatised in accordance with paragraph 7.4, AOC holders and FCMs should refer to CAAP 48-01.

## **PART 2      CONDITIONS**

### **8      General condition on Air Operators' Certificates**

Each AOC is subject to the condition that the AOC holder must:

- (a) comply with each requirement for the AOC holder as set out in this CAO; and
- (b) comply with the limits and requirements for an FCM as provided for by each Appendix of this CAO which the AOC holder applies to the FCM; and
- (c) ensure that each of the AOC holder's FCMs, when acting as such, complies with each requirement imposed by this CAO on flight crew licences.

### **9      General conditions on flight crew licences**

- 9.1 The flight crew licence of an AOC holder's FCM is subject to the condition that the FCM must comply with each limit and requirement imposed on the FCM by this CAO.
- 9.2 The flight crew licence of an FCM in a private operation is subject to the condition that the FCM must comply with the requirement imposed on the FCM by paragraph 16.1 of this CAO.

*Note* Under regulation 11.077 of CASR, breach of a flight crew licence condition is a strict liability offence.



## PART 3 LIMITS AND REQUIREMENTS

### 10 Limits and requirements for operations

- 10.1 Subject to subsections 11, 12 and 13, for an aircraft operation mentioned in column 1 of Table 10.1, an AOC holder must:
- choose at least 1 of the Appendices in column 2 of the Table that corresponds to the operation; and
  - comply with the limits and requirements for FCMs mentioned in whichever 1 or more of the Appendices in column 2 of the Table the holder chooses that corresponds to the operation; and
  - for each kind of operation conducted by the holder — specify in the operations manual the Appendix or Appendices with which the holder has chosen to comply.

*Note 1* In this subsection, and generally throughout the CAO, a reference to an AOC holder is taken to include a reference to a Part 138 operator and a Part 141 operator: see paragraph 6.4, but also paragraph 4.2.

*Note 2* This CAO, including the limits and requirements under subsection 10, does not apply to flight training in a flight simulation training device. However, if an AOC holder requires an FCM to carry out flight training in a flight simulation training device (*FSTD*) as well as flight duties, the training in the FSTD must be counted as duty by virtue of the definition of *duty* in subsection 6.

**Table 10.1 Limits and requirements for operations**

Column 1 — Operation	Column 2 — Appendix
Any operation.	Appendix 1
Any multi-pilot operation, except flight training.	Appendix 2
Any multi-pilot operation, except: <ol style="list-style-type: none"> <li>a complex operation; and</li> <li>flight training.</li> </ol>	Appendix 3
Any operation.	Appendix 4
Any balloon operation.	Appendix 4A
Any of the following: <ol style="list-style-type: none"> <li>a medical transport operation;</li> <li>an emergency service operation;</li> <li>flight training for an operation mentioned in paragraphs (a) and (b);</li> <li>an operator proficiency check for an operation mentioned in paragraph (a) or (b);</li> <li>a flight review for an operation mentioned in paragraph (a) or (b).</li> </ol>	Appendix 4B
Any of the following: <ol style="list-style-type: none"> <li>an aerial work operation;</li> <li>flight training associated with aerial work;</li> <li>an operator proficiency check for an operation mentioned in paragraph (a);</li> <li>a flight review for an operation mentioned in</li> </ol>	Appendix 5

Column 1 — Operation	Column 2 — Appendix
paragraph (a).	
Any of the following: (a) an aerial work operation, conducted during daylight hours only; (b) flight training associated with aerial work conducted during daylight hours only; (c) an operator proficiency check for an operation mentioned in paragraph (a); (d) a flight review for an operation mentioned in paragraph (a).	Appendix 5A
Any of the following: (a) flight training; (b) a proficiency check; (c) a flight review.	Appendix 6
Any operation.	Appendix 7 <i>Note</i> Use of Appendix 7 requires CASA approval.

10.2 Subject to subsections 11 and 13, each FCM of an AOC holder must comply with the limits and requirements mentioned in the Appendix or Appendices which the AOC holder has chosen to comply with under paragraph 10.1.

## 11 Part 137 operations

11.1 Despite any other provision of this Order, this subsection takes effect on 2 September 2019.

11.2 In this subsection:

***relevant operation*** means an aerial application operation in an aeroplane under Part 137 of CASR.

*Note* Subsection 11 has no application to aerial application operations in a helicopter.

11.3 Except for this subsection, paragraph 16.1 and any relevant definitions in subsection 5, this CAO does not apply to:

- (a) an AOC holder engaged in a relevant operation;
- (b) an FCM employed by, and undertaking duties for, the AOC holder mentioned in subparagraph (a).

11.4 It is a condition on the AOC of an AOC holder mentioned in subparagraph 11.3 (a) that the holder must comply with Subpart 137.Q of CASR.

*Note* Such AOC holders are bound by Subpart 137.Q of CASR and there are penalties under Subpart 137.Q for failure to comply.

11.5 It is a condition on the flight crew licence of an FCM mentioned in subparagraph 11.3 (b) that the FCM must comply with Subpart 137.Q of CASR.

*Note* Such FCMs are bound by Subpart 137.Q of CASR and there are penalties under Subpart 137.Q for failure to comply.

11.6 Subject to paragraph 11.7, before an FCM conducts a relevant operation for an AOC holder, the holder must be satisfied that the FCM has received awareness material, or training, in managing the fatigue-related risks relevant to his or her duties as an FCM.

- 11.7 Paragraph 11.6 does not apply until 1 July 2020 to an AOC holder for a relevant operation if the holder held an AOC for the relevant operation immediately before 30 April 2013.

## **12 Private operations**

- 12.1 Subject to paragraph 12.3, this CAO does not apply to an AOC holder when conducting private operations.

- 12.2 Subject to the condition mentioned in paragraph 16.1, and paragraph 12.3, this CAO does not apply to an FCM when conducting private operations.

*Note* The condition under paragraph 16.1 applies to FCMs whether or not they are employed by an AOC holder. Paragraph 16.1, therefore, applies to FCMs engaged in private operations as well as FCMs engaged in operations under an AOC. Guidance on the assessment of individual cognitive and physical fitness is contained in CAAP 48-01. CASA recommends that FCMs engaged in private operations consider this guidance in determining self-prescribed limits.

- 12.3 Despite paragraphs 12.1 and 12.2, if an FCM performs duty by conducting a private operation (a *private flight*) during an FDP that involves a flight that is not a private operation (a *non-private flight*), the rules in paragraph 12.4 apply in relation to the FCM.

- 12.4 For paragraph 12.3:

- (a) if the private flight is conducted *before* any non-private flight is conducted — the private flight time must be taken to be part of the FCM's FDP and must not be taken to be part of the FCM's off-duty period; and
- (b) if the private flight is conducted *between* non-private flights — the private flight time must be taken to be part of the FCM's FDP and must not be taken to be part of the FCM's off-duty period; and
- (c) if:
  - (i) only 1 non-private flight is conducted during the FDP; and
  - (ii) the private flight is conducted *after* the non-private flight; the private flight time must be taken to be part of the FCM's duty period and must not be taken to be part of the FCM's off-duty period; and
- (d) if:
  - (i) more than 1 non-private flight is conducted during the FDP; and
  - (ii) the private flight is conducted *after* the last non-private flight; the private flight time must be taken to be part of the FCM's duty period and must not be taken to be part of the FCM's off-duty period.

*Note* CAAP 48-01 provides examples of how to consider private flights within an FDP.

## **13 Operations under multiple Appendices**

- 13.1 If, under paragraph 10.1, 2 or more Appendices apply to a single FDP of an FCM, the following rules apply for an operation undertaken at any particular time in the FDP:

- (a) the maximum FDP that an AOC holder and an FCM must comply with is the FDP limit contained in the Appendix under which the operation is being conducted at that particular time;
- (b) the maximum flight time that an AOC holder and an FCM must comply with is the flight time limit contained in the Appendix under which the operation is being conducted at that particular time.

- 13.2 In determining the maximum FDP and flight time under paragraph 13.1, the limit determined from each Appendix must be based on the time of commencement of the FDP, and not on the time of commencement of operations under each Appendix.
- 13.3 At any particular time in an FDP, the AOC holder and FCM must each ensure that the FCM remains within the cumulative duty and cumulative flight time limits for the Appendix under which the operation is being conducted at that particular time.
- 13.4 Where operations under 2 or more Appendices are undertaken in a single FDP, the minimum off-duty period that the AOC holder and FCM must comply with following the FDP is that contained in the Appendix with the highest off-duty period as if the entire FDP was performed under that Appendix.
- 13.5 Subject to paragraph 13A.2, an AOC holder and an FCM must comply with the off-duty period requirements of the Appendix determined under paragraph 13.4 before the FCM commences another FDP.

### **13A Transitioning from Appendix 4B, 5 or 5A, or Subpart 137.Q of CASR**

- 13A.1 Subject to paragraph 13A.2, an FCM, transitioning from the application of Appendix 4B, 5 or 5A, or Subpart 137.Q of CASR to his or her last FDP or standby, to the application of another Appendix of this CAO (other than Appendix 4B, 5 or 5A) (the *other Appendix*) to his or her next FDP or standby, must before commencing the next FDP or standby under the other Appendix, have had at least 6 days off-duty in the previous 28 consecutive days.
- 13A.2 Subject to paragraph 13A.3, if, despite paragraph 13A.1, an FCM has not had the minimum number of days off-duty that are specified under the subsection for the transition to the other Appendix, the FCM may commence a first FDP or standby under the other Appendix provided that:
  - (a) the off-duty period immediately before the first FDP or standby under the other Appendix is at least 12 hours; and
  - (b) the report time for the FCM for the first FDP is not earlier than 0700 hours local time; and
  - (c) the FCM's previous FDP was less than 8 hours; and
  - (d) the first FDP is less than 8 hours in duration; and
  - (e) after the first FDP, there is only 1 subsequent FDP, also of less than 8 hours, before the requirements of paragraph 13A.1 must be complied with.
- 13A.3 Paragraph 13A.2 does not apply to a transition to Appendix 1.

## **14 AOC holder obligations**

### **Fitness for duty**

- 14.1 An AOC holder must not assign a duty on a flight to an FCM if the AOC holder reasonably believes that the FCM is unfit to perform the duty because of fatigue.

### **Limits**

- 14.2 The limits and requirements that are to apply to an FCM must be determined in accordance with the Appendix chosen under this CAO to apply to the FCM.

*Note* The word “limit” in a provision refers expressly or impliedly to a quantity of time and, depending on the context and other language of the provision, is used to denote a maximum quantity of time that is not to be exceeded except in accordance with this CAO, or a minimum quantity of time that is not to be reduced except in accordance with this CAO.

## Operations manual

- 14.3 The AOC holder must include in the operations manual:
- (a) the limits arising from compliance with each applicable Appendix of this CAO that the holder has chosen to apply to an FCM, showing:
    - (i) each maximum limit under the Appendix which must not be exceeded; and
    - (ii) each minimum limit under the Appendix which must not be reduced; and

*Note 1* For example, taking into account the provisions of an applicable Appendix, an FDP *limit* must not be exceeded, and an *off-duty period* must not be reduced.

*Note 2* An AOC holder with an FRMS implementation approval must include relevant limits in the operations manual (see subclauses 2.5 and 3.2 in Appendix 7).
  - (b) for FCMs conducting a particular operation — each limit mentioned in subparagraph (a) as modified by the AOC holder for the FCMs and the operation, but not so as to exceed a maximum limit, or reduce a minimum limit, set out in the applicable Appendix; and
  - (c) where the need to take account of possible hazards arises under subsection 15 — for FCMs conducting a particular operation, each limit mentioned in subparagraph (b) as modified by taking the possible hazard into account.

## Employee responsibilities

- 14.4 An AOC holder must set out in the operations manual its employees' responsibilities for operational fatigue management, and fatigue risk management.

## Meals

- 14.5 Except for operations under Appendix 7 — Fatigue Risk Management System (FRMS), where an FCM's FDP is to exceed 5 hours, the AOC holder must provide the opportunity for the FCM to have access to adequate sustenance (a *meal*) during the first 5 hours and periodically after that meal, so that not more than 5 hours elapse between each meal.

*Note* For operations under Appendix 7, it is expected that the FRMS would provide the opportunity for FCMs to have access to adequate sustenance at appropriate intervals.

## Records and reports

- 14.6 An AOC holder must maintain records (including relevant reports and documents) of the following:

- (a) FCM rosters;
- (b) actual duty periods;
- (c) actual flight times of each FCM when acting in the capacity of a crew member;

*Note* Thus, the flight time record does not include time spent positioning.
- (d) actual split-duty rest periods, standby periods and off-duty periods;
- (e) any FDP that was extended under the relevant provision (if any) of the Appendix or FRMS which the AOC holder has chosen to comply with, including information about the extensions in such detail as enables the holder to comply with subparagraph 14.8 (a).

*Note* A record under subparagraph 14.6 (e) is not required where an FDP is reassigned under the relevant provision of the Appendix, unless the reassignment results in an FDP that exceeds the relevant limit set out in the AOC holder's operations manual.

- 14.7 Each record mentioned in paragraph 14.6, including copies of reports and documents, must be securely retained for at least 5 years from the date the record and copy were made.
- 14.8 Each record concerning an extension of an FDP or a flight time limit mentioned in subparagraph 14.6 (e) must be:
- (a) studied and used by the AOC holder to provide for continuous improvement of the holder's fatigue management, and fatigue risk management policies; and
  - (b) promptly given to CASA, if so requested in writing.

#### Home base

- 14.9 Subject to paragraph 14.10, an AOC holder must:
- (a) determine the home base for each FCM (a **home base determination**); and
  - (b) inform each FCM of his or her home base determination; and
  - (c) set out in its operations manual procedures for making a home base determination which ensure that each determination, and any changes to it, do not adversely affect aviation safety.

*Note* A determination of home base should be assigned with a degree of permanence.

- 14.10 Paragraph 14.9 does not apply for an AOC holder in relation to an FCM who only conducts operations for which the limitations and requirements are those set out in Appendix 5 or Appendix 5A.

#### Rosters

- 14.11 An AOC holder must publish each roster so far in advance of the FDPs and standby periods listed in it as to provide the FCM to whom it applies with a reasonable opportunity to plan adequate rest before his or her duty.

*Note* Guidance for AOC holders with regards to their obligations is contained in CAAP 48-01.

### 15 Enhanced fatigue management obligations

- 15.1 This subsection applies to an AOC holder to whom 1 or more of Appendices 2, 3, 4, 4A, 4B, 5, 5A and 6 of this CAO applies in accordance with subsection 10.

#### Operations manual procedures for hazards, multiple Appendices etc.

- 15.2 The AOC holder must set out the following in the operations manual:
- (a) procedures for identifying any reasonably foreseeable hazard that may compromise an FCM's alertness during an FDP;
  - (b) procedures for determining the limits and requirements mentioned in subparagraph 14.3 (c) which take into account the identified hazards;
  - (c) procedures for the continuous monitoring and evaluation of the AOC holder's policies, limits, practices and relevant organisational experiences, taking into account the hazards identified by the procedures mentioned in subparagraph (a), with a view to continuous improvement of fatigue management, and fatigue risk management;
  - (d) where the AOC holder undertakes operations under multiple Appendices — procedures to ensure that transitions between the different limits of the Appendices:
    - (i) are undertaken in accordance with subsections 13 and 13A; and
    - (ii) do not adversely affect aviation safety;

- (e) details of the training and assessment required by paragraph 15.3.

*Note* The procedures mentioned in this paragraph may be met, at least in part, by existing procedures such as those for an SMS.

## Training

- 15.3 Subject to subsection 15A, the AOC holder must, as a minimum:
  - (a) make available, and require each FCM to undertake, initial and recurrent fatigue-related risk training relevant to the FCM's duties in operations under the AOC; and
  - (b) at the end of the initial training, and at the end of each occasion of recurrent training — assess the FCM's knowledge and learning from the training.

*Note* The training required by this paragraph may be incorporated into existing training programs such as an AOC holder's human factors and non-technical skills training program.
- 15.4 Initial training under paragraph 15.3:
  - (a) for an FCM who becomes an AOC holder's employee after this CAO takes effect for the holder — must occur within 6 months of the person commencing the employment; and
  - (b) for an FCM who was the AOC holder's employee on the date this CAO takes effect for the holder — must occur within 6 months of the CAO taking effect.
- 15.5 Initial training under paragraph 15.3 must:
  - (a) be in accordance with a syllabus; and
  - (b) deliver a thorough knowledge and understanding of the following:
    - (i) fatigue causes;
    - (ii) fatigue-related impairment;
    - (iii) the management of risks associated with fatigue;
    - (iv) the AOC holder's fatigue risk management obligations and procedures under the operations manual and this CAO; and
  - (c) equip each FCM with the ability to comply with his or her obligations under this CAO in operations for the AOC holder.
- 15.6 Recurrent training must occur at appropriate intervals and:
  - (a) be in accordance with a syllabus; and
  - (b) revise the knowledge and understanding acquired under paragraph 15.5; and
  - (c) deliver a thorough knowledge and understanding of any changes in the AOC holder's operating practices, or fatigue risk management obligations and procedures, that have occurred since initial training or the preceding recurrent training (as the case may be).
- 15.7 Subject to subsection 15A, an FCM must:
  - (a) attend the initial and each recurrent training mentioned in paragraph 15.3; and
  - (b) at the end of each training, successfully complete an assessment of learning from the training; and
  - (c) satisfy the AOC holder that he or she has sufficient knowledge of, and competence in managing, the fatigue-related risks relevant to his or her duties as an FCM.
- 15.8 The AOC holder must maintain for each FCM records of training and assessment completed under this subsection.

- 15.9 Each record mentioned in paragraph 15.8 must be securely retained from the date the record was made until at least 12 months after the FCM ceases to be employed by the AOC holder.

*Note* Guidance for AOC holders on these additional obligations is contained in CAAP 48-01.

## **15A Recognition of prior initial training**

- 15A.1 In this subsection:

**agent** means an organisation contracted by an AOC holder to provide initial training to its FCMs.

**currency time** means the period of time that is the appropriate interval at which an AOC holder requires recurrent training to occur under paragraph 15.6.

*Note* For example, the interval may be every 18 months, or every 24 months. Further guidance is provided in CAAP 48-01.

**initial training** means fatigue-related risk training relevant to a person's duties as an FCM.

**registered training organisation** has the same meaning as in the Dictionary in CASR.

*Note* **Registered training organisation** means a training organisation listed on the National Register as a registered training organisation.

- 15A.2 This subsection applies to an AOC holder (the **current AOC holder**) for an FCM (a **new FCM**) who becomes a new employee of the current AOC holder.
- 15A.3 Subject to paragraph 15A.4, the references to initial training in paragraphs 15.3 and 15.7 do not apply to the current AOC holder for a new FCM who has successfully completed initial training (the **prior initial training**) with:
- (a) a different AOC holder or its agent; or
  - (b) the current AOC holder or its agent when previously employed by the current AOC holder; or
  - (c) a registered training organisation capable of delivering initial training.
- 15A.4 Paragraph 15A.3 does not apply unless:
- (a) the prior initial training was completed within the currency time immediately before the new FCM becomes employed by the current AOC holder; and
  - (b) the current AOC holder is satisfied that:
    - (i) the prior initial training complied with the requirements of subparagraph 15.5 (a) and sub-subparagraphs 15.5 (b) (i) to (iii); and
    - (ii) the new FCM complied with the requirements of paragraph 15.7 for the prior initial training; and
  - (c) the satisfaction mentioned in subparagraph (b) is based on authentic records proving the matters mentioned in sub-subparagraphs (b) (i) and (ii); and
  - (d) within 4 weeks of the new FCM being employed by the current AOC holder — the new FCM has successfully completed an induction course to inform him or her of any fatigue-related risks and information specific to the current AOC holder; and
  - (e) the records mentioned in subparagraph (c), and details of the induction course mentioned in subparagraph (d), are:
    - (i) included with the new FCM records mentioned in paragraph 15.8; and
    - (ii) retained for at least the period mentioned in paragraph 15.9.



## **16 Flight crew member obligations**

- 16.1 For subregulation 11.068 (1) of CASR, it is a condition on each flight crew licence that the licence holder must not begin to carry out any task for a flight if, due to fatigue, the FCM is, or is likely to be, unfit to perform a task that the FCM must perform during the flight.

*Note* Guidance for FCMs on this obligation is contained in CAAP 48-01.

- 16.2 The condition in paragraph 16.1 applies to an FCM regardless of whether the flight is conducted on behalf of an AOC holder, or a Part 138 operator, or a Part 141 operator, or as a private operation.

*Note* An FCM employed by an AOC holder must not exceed any limit specified for the FCM in the AOC holder's operations manual, except where an extension is permitted.

## APPENDIX 1 BASIC LIMITS

### 1 Sleep opportunity before an FDP

- 1.1 An FCM must not be assigned or commence an FDP commencing away from home base unless, within the 10 hours immediately before commencing the FDP, he or she has at least 8 consecutive hours' sleep opportunity.
- 1.2 An FCM must not be assigned or commence an FDP commencing at home base unless, within the 12 hours immediately before commencing the FDP, he or she has at least 8 consecutive hours' sleep opportunity.

*Note* See subsection 6 of this CAO for the definition of *sleep opportunity* where it is defined as occurring during an off-duty period.

### 2 FDP and flight time limits

- 2.1 An FCM may only be assigned an FDP that is between the following times:
  - (a) the earlier of the following:
    - (i) the beginning of morning civil twilight on a day;
    - (ii) 0700 hours local time on the day;
  - (b) 0100 hours (local time at the location where the FDP commenced) on the following day.
- 2.2 Subject to subclauses 2.1, 2.3 and 2.4, an FCM may be assigned an FDP that is not longer than 9 hours.
- 2.3 If an FCM is assigned an FDP that is to commence before 0600 hours local time, being after the beginning of morning civil twilight — the assigned FDP must not be longer than 8 hours.
- 2.4 If an FCM is assigned an FDP that is to commence at or after 1400 hours local time — the assigned FDP must not be longer than 8 hours.

*Note* If an FDP commences *after* 1700 hours on a day, the FDP must be *less* than 8 hours because, under paragraph 2.1 (b), an FDP must not end later than 0100 hours on the following day (all times being local time at the commencing location).

- 2.5 An FCM may be assigned an FDP that finishes after 2200 hours local time (a *late FDP*) only if not more than 3 late FDPs are assigned to the FCM in any 168 consecutive hours.
- 2.6 An FCM must not be assigned or commence flight time for flight training during an FDP unless the flight training is conducted during the first 7 hours of the FDP's flight time.
- 2.7 An FCM must not exceed the flight time limit, or an FDP limit mentioned in subclause 2.2, 2.3 or 2.4, except in accordance with clause 3.

### 3 Extensions

- 3.1 An FDP limit mentioned in clause 2 may be extended by up to 1 hour if:
  - (a) the FDP has commenced; and
  - (b) unforeseen operational circumstances arise; and
  - (c) an extension of the FDP is operationally necessary to complete the duty; and
  - (d) the FCM considers himself or herself fit for the extension.

*Note 1* Under regulation 91.215 of CASR, the pilot in command of an aircraft is responsible for the conduct and safety of members of the crew on the aircraft and, therefore, has discretion not to permit an extension.

*Note 2* Guidance on the assessment of individual cognitive and physical fitness is contained in CAAP 48-01.

- 3.2 Flight training for up to 30 minutes may be conducted after the first 7 hours of the FDP's flight time if:
- (a) unforeseen operational circumstances arise after the commencement of the FDP; and
  - (b) it is operationally necessary in order to complete the duty; and
  - (c) the FCM considers himself or herself fit for the extension.
- 3.3 An FDP limit must not be extended under this clause if it would cause an FCM to exceed the cumulative flight time limits in clause 5.
- 3.4 Despite any limit or number under this Appendix, if:
- (a) unforeseen operational circumstances arise after take-off on the final sector of an FDP; and
  - (b) the unforeseen operational circumstances would cause an FCM to exceed any limit or number permitted under this Appendix;
- then, the flight may continue to the planned destination at the discretion of the pilot in command.

#### **4 Off-duty period limits**

- 4.1 An FCM must have a minimum off-duty period of at least 12 consecutive hours during any consecutive 24-hour period.
- 4.2 Before beginning an FDP, an FCM must have had:
- (a) at least 36 consecutive hours off-duty, including 2 local nights, in the 168 hours before the projected end time of the assigned FDP; and
  - (b) at least 6 days off-duty in the 28 consecutive days before the FDP commences.
- 4.3 If an FDP under this Appendix is followed by an FDP under another Appendix, then, despite anything in the other Appendix, the FCM must have a minimum off-duty period of at least 12 consecutive hours before commencing the FDP under the other Appendix.

#### **5 Limit on cumulative flight time**

- 5.1 The cumulative flight time accrued by an FCM during any consecutive 28-day period must not exceed 100 hours.
- 5.2 The cumulative flight time accrued by an FCM during any consecutive 365-day period must not exceed 1 000 hours.

## APPENDIX 2 MULTI-PILOT OPERATIONS EXCEPT FLIGHT TRAINING

### 1 Sleep opportunity before an FDP or standby

- 1.1 An FCM must not be assigned or commence an FDP or standby commencing away from home base unless he or she has at least 8 consecutive hours' sleep opportunity within the 10 hours immediately before:
- (a) if the commencement of the FDP has not been delayed — commencing the FDP; or
  - (b) subject to paragraph (c), if the commencement of the FDP has been delayed — the original reporting time for the FDP; or
  - (c) if the commencement of the FDP has been delayed by a single delay of 10 hours or more — commencing the FDP following the delay; or
  - (d) for a standby — commencing the standby.
- 1.2 An FCM must not be assigned or commence an FDP or standby commencing at home base unless he or she has at least 8 consecutive hours' sleep opportunity within the 12 hours immediately before:
- (a) if the commencement of the FDP has not been delayed — commencing the FDP; or
  - (b) subject to paragraph (c), if the commencement of the FDP has been delayed — the original reporting time for the FDP; or
  - (c) if the commencement of the FDP has been delayed by a single delay of 10 hours or more — commencing the FDP following the delay; or
  - (d) for a standby — commencing the standby.

*Note* See subsection 6 of this CAO for the definition of *sleep opportunity*, where it is defined as occurring during an off-duty period.

### 2 Limits for an acclimatised FCM

- 2.1 Subject to clause 5, an acclimatised FCM must not be assigned an FDP longer than the number of hours specified in Table 2.1 in this clause (the **FDP limit**), as determined by the acclimatised time at the start of the FDP and the number of sectors to be flown.
- 2.2 An acclimatised FCM must not be assigned flight time longer than 10.5 hours except in an augmented crew operation.
- Note* There is no flight time limit for an augmented crew operation.
- 2.3 In applying Table 2.1, first, choose the appropriate acclimatised time at which the FDP for the FCM is to start, then choose the number of sectors which are to be flown. The maximum FDP for the acclimatised FCM is the number under the chosen number of sectors that corresponds to the chosen acclimatised time at which the FDP for the FCM is to start.

**Table 2.1 Maximum FDP (in hours) for an acclimatised FCM according to number of sectors and acclimatised time at the start of the FDP**

Acclimatised time at start of FDP	Maximum FDP hours according to sectors to be flown					
	1-3	4	5	6	7	8+
<b>0000-0459</b>	10	9.5	9	8.5	8	7.5
<b>0500-0559</b>	11	10.5	10	9.5	9	8.5
<b>0600-0659</b>	12	11.5	11	10.5	10	9.5
<b>0700-1259</b>	13	12.5	12	11.5	11	10.5
<b>1300-1359</b>	12	11.5	11	10.5	10	9.5
<b>1400-1459</b>	11	10.5	10	9.5	9	8.5
<b>1500-2359</b>	10	9.5	9	8.5	8	7.5

*Note* To determine an FCM's acclimatised time, refer to subsection 7 at the beginning of this CAO.

### **3 Limits for an FCM in an unknown state of acclimatisation**

3.1 Subject to clause 5, an FCM in an unknown state of acclimatisation must not be assigned an FDP longer than the number of hours specified in Table 3.1 in this clause, as determined by duration of the off-duty period immediately before the FDP and the number of sectors to be flown.

3.2 An FCM in an unknown state of acclimatisation must not be assigned flight time longer than 10.5 hours except in an augmented crew operation.

*Note* There is no flight time limit for an augmented crew operation.

3.3 In applying Table 3.1, first, choose the appropriate duration of off-duty period before the FDP for the FCM, then choose the number of sectors which are to be flown. The maximum FDP for the appropriate off-duty period for the FCM is the number under the chosen number of sectors that corresponds to the chosen off-duty period.

**Table 3.1 Maximum FDP for an FCM in an unknown state of acclimatisation according to number of sectors and duration of the off-duty period immediately before the FDP**

Duration of off-duty period immediately before the FDP	Maximum FDP hours according to sectors to be flown					
	1-3	4	5	6	7	8+
<b>Less than 30 hours</b>	10	9.5	9	8.5	8	7.5
<b>30 hours or more</b>	12	11.5	11	10.5	10	9.5

3.4 An FCM may only be assigned 4 consecutive FDPs in an unknown state of acclimatisation after which the FCM must have an adaptation period sufficient to become reacclimatised in accordance with paragraph 7.4 at the beginning of this CAO.

### **4 Increase in FDP limits by split duty**

4.1 Subject to subclause 4.4, where an FDP contains a split-duty rest period of at least 4 consecutive hours with access to suitable sleeping accommodation, the

- maximum FDP worked out under clause 2 or 3 may be increased by up to 4 hours, provided the new maximum under clause 2 or 3 does not then exceed 16 hours.
- 4.2 After an FDP mentioned in subclause 4.1, the first 4 hours of the split-duty rest period may be reduced by 2 hours in determining the subsequent off-duty period or cumulative duty time under clause 10 or 12 of this Appendix.
  - 4.3 Subject to subclause 4.4, where an FDP contains a split-duty rest period of at least 2 consecutive hours with access to suitable resting accommodation, the FDP limits under subclause 2.1 or 3.1 may be increased by half the duration of the split-duty rest period, provided the increase is not more than 2 hours.
  - 4.4 If a split-duty rest period includes any period between the hours of 2300 to 0529:
    - (a) acclimatised time; or
    - (b) if the FCM is in an unknown state of acclimatisation — local time;then:
    - (c) the split-duty rest period must be for a consecutive period of at least 7 hours with access to suitable sleeping accommodation; and
    - (d) the maximum FDP may be increased to 16 hours (if not already permitted); and
    - (e) the reduction in the subsequent off-duty period and cumulative duty time, provided for in subclause 4.2, does not apply.
  - 4.5 Any remaining portion of an FDP following a split-duty rest period must be no longer than 6 hours.

## **5 Increase in FDP and flight time limits in an augmented crew operation**

- 5.1 An acclimatised FCM in an augmented crew operation may be assigned an FDP that is no longer than the number of hours specified in Table 5.1 in this clause, as determined by the acclimatised time at the start of the FDP, the class of crew rest facility available, and the number of additional FCMs — but only if the conditions in subclause 5.3 are met.
- 5.2 An FCM in an unknown state of acclimatisation in an augmented crew operation may be assigned an FDP that is no longer than the number of hours specified in Table 5.2 in this clause, as determined by the duration of the off-duty period immediately before the FDP, the class of crew rest facility available, and the number of additional FCMs — but only if the conditions in subclause 5.3 are met.
- 5.3 For subclauses 5.1 and 5.2, the conditions are as follows:
  - (a) the AOC holder's operations manual must have procedures for augmented crew operations;
  - (b) the FCMs at the end of the FDP for the augmented crew operation must be the same as the FCMs who commenced the first sector of the FDP;  
*Note* For safety reasons, this is a critical condition. If, for example, a medical emergency required the disembarkation of an FCM during the FDP, for the flight to continue all of the FCMs must be replaced with a new augmented crew commencing a new FDP.
  - (c) the FDP must be limited to not more than 3 sectors;
  - (d) the minimum in-flight rest during the FDP must be:
    - (i) for each FCM who will not be at the aircraft controls during the final landing — 1.5 consecutive hours; and
    - (ii) for each FCM who will be at the aircraft controls during the final landing — 2 consecutive hours;
  - (e) the in-flight rest must be planned for the cruise phase of the flight;

- (f) if an assigned FDP is to exceed 14 hours, then:
  - (i) not more than 2 sectors may be assigned; and
  - (ii) where 2 sectors are assigned, either:
    - (A) each FCM who will be at the aircraft controls during the landing at the end of the second sector must have had an in-flight rest period of at least 2 consecutive hours within the 8-hour period that ends at the scheduled time of the landing; or
    - (B) the scheduled flight time of the second sector must be at least 9 hours;
- (g) if an assigned FDP is to exceed 16 hours, then:
  - (i) only 1 sector may be assigned; and
  - (ii) the minimum in-flight rest during the FDP must be:
    - (A) for each FCM who will not be at the aircraft controls during the final landing — 2 consecutive hours; and
    - (B) for each FCM who will be at the aircraft controls during the final landing — 3 consecutive hours.

*Note* The minimum in-flight rest specified may not provide adequate rest to ensure alertness for the remainder of the FDP. Guidance on the use of in-flight rest is contained in CAAP 48-01.

5.4 To apply Table 5.1 for an FCM who is acclimatised, first, choose the appropriate acclimatised time at which his or her FDP is to start, then choose the class of crew rest facility available and within the class choose the number of additional FCMs. The maximum FDP for the acclimatised FCM is the number under the chosen number of additional FCMs under the chosen class that corresponds to the acclimatised time at which the FDP for the FCM is to start.

**Table 5.1 Maximum FDP (in hours) for an acclimatised FCM in an augmented crew operation according to class of crew rest facility, number of additional FCMs and acclimatised time at the start of the FDP**

Acclimatised time at start of FDP	Maximum FDP according to class of crew rest facility and number of additional FCMs					
	Class 1		Class 2		Class 3	
	1	2	1	2	1	2
<b>0700-1059</b>	16	18	15	16.5	14	15
<b>1100-1559</b>	16	18	15	16.5	13	14
<b>1600-0459</b>	16	18	15	16.5	12	13
<b>0500-0659</b>	16	18	15	16.5	13	14

*Note* To determine an FCM’s acclimatised time, refer to subsection 7 at the beginning of this CAO.

5.5 To apply Table 5.2 to an FCM who is in an unknown state of acclimatisation, first, choose the appropriate off-duty period that is immediately before his or her FDP, then choose the class of crew rest facility available and within the class choose the number of additional FCMs. The maximum FDP for the FCM is the number under the chosen number of additional FCMs under the chosen class that corresponds to the off-duty period.

**Table 5.2 Maximum FDP (in hours) for an FCM in an unknown state of acclimatisation in an augmented operation according to class of crew rest facility, number of additional FCMs and duration of off-duty period immediately before the FDP**

Duration of off-duty period immediately before the FDP	Maximum FDP according to class of crew rest facility and number of additional FCMs					
	Class 1		Class 2		Class 3	
<i>Additional FCMs</i>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>
<b>Less than 30 hours</b>	16	18	15	16.5	12	13
<b>30 hours or more</b>	16	18	15	16.5	14	15

*Note* These are the maximum FDP and flight time limits under this Appendix unless, for any particular FCM, other provisions have the effect of reducing these limits (for example, subsections 14 and 15 of this CAO).

## 6 Delayed reporting time

### *Delays without operations manual procedures*

- 6.1 Subclauses 6.2 to 6.4 apply to an AOC holder if the operations manual does not have procedures for delays.
- 6.2 The AOC holder may:
- only delay an FCM's reporting time (the ***original reporting time***) if the FCM is first informed of the delay at least 10 hours before the reporting time; and
  - if paragraph (a) applies — consider the period between the original reporting time and the new reporting time (the ***period of the delay***) to be an off-duty period; and
  - if paragraph (b) applies — at the end of the off-duty period, assign an FDP to the FCM subject to the applicable limits set out in this Appendix or another Appendix of this CAO.
- 6.3 If the AOC holder:
- delays the FCM's original reporting time; and
  - does not inform the FCM of the delay at least 10 hours before the original reporting time;
- then the FCM's FDP is taken to commence at the original reporting time.
- 6.4 If subclause 6.3 applies, the off-duty period requirements of this Appendix apply to the FCM whether or not the flight occurs.

### *Delays under operations manual procedures*

- 6.5 Subclauses 6.6 to 6.13 apply to an AOC holder if the operations manual has procedures for 1 or more delays.
- 6.6 If an AOC holder's operations manual has procedures for delays, the AOC holder may delay an FCM's original reporting time if the AOC holder informs the FCM of the new reporting time as follows:
- if the FCM is at home base:
    - at least 2 hours before the original reporting time; and
    - at least 2 hours before each new reporting time; or



- (b) if the FCM is not at home base:
    - (i) at least 1 hour before the time the FCM would normally have had to leave his or her accommodation in order to report in a timely way for duty at the original reporting time; and
    - (ii) at least 1 hour before each new time the FCM would normally have had to leave his or her accommodation in order to report in a timely way for duty at the reporting time.
- 6.7 If an FCM is informed of a delay in accordance with subclause 6.6, the period between the original reporting time and the final new reporting time is deemed to be standby.
- Note* The period mentioned in subclause 6.7 is deemed to be standby whether or not subparagraph (b) of the definition of *standby* is met.
- 6.8 If an FCM is not informed of a delay in accordance with subclause 6.6, the FCM's FDP is taken to commence at whichever of the following is the later:
- (a) the original reporting time;
  - (b) the last new reporting time following a delay of which the FCM was informed in accordance with subclause 6.6.
- 6.9 If subclause 6.8 applies, the off-duty period requirements of this Appendix apply to the FCM whether or not the flight occurs.

***A single delay of at least 10 hours under operations manual procedures***

- 6.10 Despite subclause 6.7, if the period of any single delay to an FCM's FDP is at least 10 hours, the AOC holder may:
- (a) consider the period of the delay to be an off-duty period; and
  - (b) at the end of the off-duty period, assign an FDP to the FCM subject to the applicable limits set out in this Appendix or another Appendix of this CAO.

***Maximum FDP after delay under operations manual procedures***

- 6.11 Subject to subclause 6.13, if:
- (a) an FCM's FDP is delayed under subclause 6.6; and
  - (b) the FDP commences at a new reporting time that is within 4 hours of the original reporting time;
- then the maximum FDP must be based on whichever of the following is the more limiting in calculating the FDP:
- (c) the original reporting time;
  - (d) the new reporting time.
- 6.12 Subject to subclause 6.13, if:
- (a) the FCM's FDP is delayed under subclause 6.6; and
  - (b) the FDP commences at a new reporting time that is at least 4 hours after the original reporting time;
- then:
- (c) the FDP is taken to have commenced 4 hours after the original reporting time; and
  - (d) the maximum FDP must be based on whichever of the following is the more limiting in calculating the FDP:
    - (i) the original reporting time;

- (ii) the time at which the FDP is taken to have commenced in accordance with paragraph (c).
- 6.13 The combined duration of 1 or more delays and the immediately following FDP must not exceed 16 hours unless the FDP:
  - (a) is an augmented crew operation;
  - (b) contains a split-duty rest period.

***Cancellations — with or without operations manual procedures for delays***

- 6.14 If:
  - (a) an FCM's FDP is delayed under subclause 6.2 or 6.6; and
  - (b) the AOC holder informs the FCM that the flight will not occur (***cancellation***);then, the FCM must have an off-duty period of at least 10 consecutive hours, commencing from the time he or she is informed of the cancellation, before again being assigned an FDP in accordance with this Appendix or another Appendix of this CAO.

***Meaning of "informed"***

- 6.15 In this clause:  
***informed*** means informed by the AOC holder in accordance with procedures in the holder's operations manual for communicating information between the holder and an FCM.

## **7 Reassignment and extension**

- 7.1 After an FCM's assigned FDP commences, the AOC holder may reassign to the FCM a modified FDP and number of sectors to be flown (***a reassignment***), provided that each of the following applies:
  - (a) subject to subclause 7.3 — the modified FDP and flight time does not exceed the limits in the holder's operations manual for the new number of sectors;
  - (b) the FCM has confirmed that he or she is fit for the reassignment.  
*Note* Fitness in this context is based on the FCM's self-assessment. An FCM has an obligation under paragraph 16.1 of this CAO not to carry out any task for a flight if, due to fatigue, the FCM is, or is likely to become, unfit for the task. If such circumstances apply, the FCM must decline the reassignment.
- 7.2 If subclause 7.1 applies, the FCM may continue in the modified FDP in accordance with subclause 7.1.
- 7.3 Despite the FDP limits provided in the operations manual, in unforeseen operational circumstances at the discretion of the pilot in command:
  - (a) the FDP limits in the operations manual may be extended by up to:
    - (i) 1 hour; or
    - (ii) for an augmented crew operation under clause 5 — 2 hours; and
  - (b) the sectors for the FDP limits may be increased by 1 more than would otherwise be the case for the FDP.
- 7.4 Before exercising the discretion under subclause 7.3 to extend the FDP limit of an FCM, the pilot in command must:
  - (a) do the following:
    - (i) consult each FCM who is a crew member on the aircraft;
    - (ii) be satisfied that each FCM considers himself or herself fit for the extension; and

- (b) if the FCM whose FDP would be extended is the pilot in command — do the following:
  - (i) consult each FCM who is a crew member on the aircraft;
  - (ii) be satisfied that, as pilot in command, he or she is fit for the extension.
- 7.5 Despite the limits provided in the operations manual, the flight time limit for an FDP may be extended by not more than 30 minutes if:
  - (a) it is operationally necessary in order to complete the duty;
  - (b) the FCM, or each FCM, considers himself or herself fit for the extension.
- 7.6 An FDP limit must not be reassigned or extended under this clause if it would cause an FCM to exceed the cumulative flight time limits in clause 11 or the cumulative duty time limits in clause 12.
- 7.7 Despite any limit or number under this Appendix, if:
  - (a) unforeseen operational circumstances arise after take-off on the final sector of an FDP; and
  - (b) the unforeseen operational circumstances would cause an FCM to exceed any limit or number permitted under this Appendix;
 then the flight may continue to the planned destination or alternate at the discretion of the pilot in command.

*Note 1* Under regulation 91.215 of CASR, the pilot in command of an aircraft is responsible for the conduct and safety of members of the crew on the aircraft and, therefore, has a discretion to not permit an extension to occur even if otherwise permissible under this clause.

*Note 2* Guidance on the assessment of individual cognitive and physical fitness is contained in CAAP 48-01.

## 8 Standby limits and standby-like arrangements

- 8.1 An AOC holder must not require an FCM to be on continuous standby for a period longer than 14 hours.
- 8.2 The maximum allowable FDP after a call out from standby must be decreased by the number of hours by which the standby exceeds 4 hours.
- 8.3 If an FCM is called out, the maximum combined duration of standby and the subsequent FDP is 16 hours, except where the subsequent FDP:
  - (a) is an augmented crew operation; or
  - (b) includes a split-duty rest period, in suitable sleeping accommodation, of at least 4 consecutive hours.
- 8.4 A standby which is completed without a call out must be followed by an off-duty period of at least 10 consecutive hours.
- 8.5 To remove any doubt, the period of time in which an FCM is held in a standby-like arrangement must be treated as a duty period for the purposes of this CAO.

*Note* For example, the period spent in a standby-like arrangement must be included as part of a following FDP assigned to the FCM or added to the preceding FDP when determining minimum off-duty periods under clause 10.

## 9 Positioning

On completion of assigned flight duties in an FDP (the *relevant FDP*), an FCM may position to a suitable location as required by the AOC holder.

*Note* As with any duty, the time spent in positioning after completion of the FDP must be added to the relevant FDP when determining minimum off-duty periods under clause 10.

## 10 Off-duty period limits

### *Off-duty period following an FDP*

- 10.1 If the sum of an FCM's FDP, and his or her duty time (if any) after completion of the FDP but before commencement of the following off-duty period, does not exceed 12 hours, his or her following off-duty period must be at least as follows:
- (a) if the FCM is acclimatised and undertaking the off-duty period away from home base — the sum of:
    - (i) 10 hours; and
    - (ii) the amount that the displacement time exceeds 3 hours if travelling west, or 2 hours if travelling east;
  - (b) if the FCM is acclimatised and undertaking the off-duty period at home base — the sum of:
    - (i) 12 hours; and
    - (ii) the amount that the displacement time exceeds 3 hours if travelling west, or 2 hours if travelling east;
  - (c) if the FCM is in an unknown state of acclimatisation — the sum of:
    - (i) 14 hours; and
    - (ii) the amount of the displacement time.
- 10.2 If the sum of an FCM's FDP, and his or her duty time (if any) after completion of the FDP but before commencement of the following off-duty period (***other duty time***), exceeds 12 hours, his or her following off-duty period must be at least as follows:
- (a) if the FCM is acclimatised — 12 hours, plus the sum of:
    - (i) 1.5 times the time that the FDP and the other duty time exceeded 12 hours; and
    - (ii) the amount that the displacement time exceeds 3 hours if travelling west, or 2 hours if travelling east;
  - (b) if the FCM is in an unknown state of acclimatisation — 14 hours, plus the sum of:
    - (i) 1.5 times the time that the FDP and the other duty time exceeded 12 hours; and
    - (ii) the amount of the displacement time.

### *Reduction in off-duty period*

- 10.3 Despite subclause 10.1, if the sum of an FCM's FDP (the ***last FDP***), and his or her duty time (if any) after completion of the FDP but before commencement of the following off-duty period, does not exceed 10 hours, his or her following off-duty period (***ODP 2***), may be reduced to not less than 9 hours provided that:
- (a) the off-duty period undertaken immediately before the last FDP was at least 12 hours, including a local night; and
  - (b) the FCM is acclimatised at the commencement of the ODP 2; and
  - (c) the ODP 2 is undertaken over a local night; and
  - (d) the ODP 2 is not undertaken at home base; and
  - (e) the off-duty period following the FDP after ODP 2 is at least 12 hours, including a local night.

- 10.4 Despite subclauses 10.1 and 10.2, if, after an FDP (the **first FDP**) but before the next FDP (the **second FDP**), the off-duty period calculated under this clause is more than 14 hours, the off-duty period may be reduced to not less than 14 hours, provided that:
- (a) the reduced off-duty period is undertaken away from home base; and
  - (b) the first FDP was not extended past the FDP limit as provided for under the AOC holder's operations manual; and
  - (c) the FCM commences the second FDP in an acclimatised state; and
  - (d) the off-duty period following the second FDP is of at least 36 consecutive hours and includes 2 local nights.

***Off-duty periods for cumulative fatigue recovery***

- 10.5 Before beginning an FDP or standby, an FCM must have had at least 36 consecutive hours off-duty, including 2 local nights, in the 168 hours before the projected end time of the assigned FDP or assigned standby.
- 10.6 Before beginning an FDP or standby, an FCM must have had at least 6 days off-duty in the 28 consecutive days before the standby or FDP commences.

**11 Limit on cumulative flight time**

- 11.1 The cumulative flight time accrued by an FCM during any consecutive 28-day period must not exceed 100 hours.
- 11.2 The cumulative flight time accrued by an FCM during any consecutive 365-day period must not exceed 1 000 hours.

**12 Limit on cumulative duty time**

- 12.1 The cumulative duty accrued by an FCM during any consecutive 168-hour period must not exceed 60 hours.
- 12.2 The cumulative duty accrued by an FCM during any consecutive 336-hour period must not exceed 100 hours.

*Note* 168 hours is the number of hours in a 7-day period, and 336 hours is the number of hours in a 14-day period.

**13 Limits on infringing the WOCL and early starts**

- 13.1 Subject to subclause 13.3, an FCM must not be assigned more than 3 consecutive early starts.
- 13.2 Subject to subclause 13.3, an FCM, whose duties have already infringed 3 consecutive WOCLs, must not be assigned an FDP that would again infringe the WOCL without at least an intervening off-duty period that includes a local night.
- Note* See paragraph 6.2 of this CAO for duties that infringe a WOCL.
- 13.3 Despite subclauses 13.1 and 13.2, the FCM may have a 4<sup>th</sup>, or a 4<sup>th</sup> and a 5<sup>th</sup>, consecutive early start (whether or not the start infringes the WOCL) if:
- (a) the maximum FDP permissible on the day of the 4<sup>th</sup> early start is reduced by 2 hours; and
  - (b) the maximum FDP permissible on the day of the 5<sup>th</sup> early start is reduced by 4 hours.

**14 Maximum durations must not be exceeded**

Unless an extension is permitted under clause 7, in performing duty an FCM must not exceed the following:

- (a) the maximum duration of the FDP specified for the FCM in the AOC holder's operations manual;
- (b) the maximum flight time specified for the FCM in the AOC holder's operations manual.

## APPENDIX 3 MULTI-PILOT OPERATIONS EXCEPT COMPLEX OPERATIONS AND FLIGHT TRAINING

*Note* Multi-pilot operations (other than flight training) that do not cross time zones, or involve augmented crew operations, may find Appendix 3 more suitable than Appendix 2 because it has the same limitations but is less complex.

### 1 Sleep opportunity before an FDP or standby

- 1.1 An FCM must not be assigned or commence an FDP or standby commencing away from home base unless he or she has at least 8 consecutive hours' sleep opportunity within the 10 hours immediately before:
  - (a) if the commencement of the FDP has not been delayed — commencing the FDP; or
  - (b) subject to paragraph (c), if the commencement of the FDP has been delayed — the original reporting time for the FDP; or
  - (c) if the commencement of the FDP has been delayed by a single delay of 10 hours or more — commencing the FDP following the delay; or
  - (d) for a standby — commencing the standby.
- 1.2 An FCM must not be assigned or commence an FDP or standby commencing at home base unless he or she has at least 8 consecutive hours' sleep opportunity within the 12 hours immediately before:
  - (a) if the commencement of the FDP has not been delayed — commencing the FDP; or
  - (b) subject to paragraph (c), if the commencement of the FDP has been delayed — the original reporting time for the FDP; or
  - (c) if the commencement of the FDP has been delayed by a single delay of 10 hours or more — commencing the FDP following the delay; or
  - (d) for a standby — commencing the standby.

*Note* See subsection 6 of this CAO for the definition of *sleep opportunity*, where it is defined as occurring during an off-duty period.

### 2 FDP and flight time limits

- 2.1 An FCM must not be assigned an FDP longer than the number of hours specified in Table 2.1 in this clause (the **FDP limit**), as determined by the local time at the start of the FDP and the number of sectors to be flown.
- 2.2 An FCM must not be assigned flight time longer than 10.5 hours.
- 2.3 In applying Table 2.1, first, choose the appropriate local time at which the FDP for the FCM is to start, then choose the number of sectors which are to be flown. The maximum FDP for the FCM is the number under the chosen number of sectors that corresponds to the chosen local time at which the FDP for the FCM is to start.

**Table 2.1 Maximum FDP (in hours) for an FCM according to number of sectors and local time at the start of the FDP**

Local time at start of FDP	Maximum FDP hours according to sectors to be flown					
	1-3	4	5	6	7	8+
<b>0000-0459</b>	10	9.5	9	8.5	8	7.5
<b>0500-0559</b>	11	10.5	10	9.5	9	8.5
<b>0600-0659</b>	12	11.5	11	10.5	10	9.5
<b>0700-1259</b>	13	12.5	12	11.5	11	10.5
<b>1300-1359</b>	12	11.5	11	10.5	10	9.5
<b>1400-1459</b>	11	10.5	10	9.5	9	8.5
<b>1500-2359</b>	10	9.5	9	8.5	8	7.5

### **3 Increase in FDP limits by split duty**

- 3.1 Subject to subclause 3.4, where an FDP contains a split-duty rest period of at least 4 consecutive hours with access to suitable sleeping accommodation, the maximum FDP worked out under clause 2 may be increased by up to 4 hours, provided the new maximum under clause 2 does not then exceed 16 hours.
- 3.2 After an FDP mentioned in subclause 3.1, the first 4 hours of the split-duty rest period may be reduced by 2 hours in determining the subsequent off-duty period or cumulative duty time under clause 8 or 10 of this Appendix.
- 3.3 Subject to subclause 3.4, where an FDP contains a split-duty rest period of at least 2 consecutive hours with access to suitable resting accommodation, the FDP limits under subclause 2.1 may be increased by half the duration of the split-duty rest period, provided the increase is not more than 2 hours.
- 3.4 If a split-duty rest period includes any period between the hours of 2300 to 0529 local time, then:
  - (a) the split-duty rest period must be for a consecutive period of at least 7 hours with access to suitable sleeping accommodation; and
  - (b) the maximum FDP may be increased to 16 hours (if not already permitted); and
  - (c) the reduction in the subsequent off-duty period and cumulative duty time, provided for in subclause 3.2, does not apply.
- 3.5 Any remaining portion of an FDP following a split-duty rest period must be no longer than 6 hours.

### **4 Delayed reporting time**

#### *Delays without operations manual procedures*

- 4.1 Subclauses 4.2 to 4.4 apply to an AOC holder if the operations manual does not have procedures for delays.
- 4.2 The AOC holder may:
  - (a) only delay an FCM's reporting time (the **original reporting time**) if the FCM is first informed of the delay at least 10 hours before the reporting time; and



- (b) if paragraph (a) applies — consider the period between the original reporting time and the new reporting time (the *period of the delay*) to be an off-duty period; and
  - (c) if paragraph (b) applies — at the end of the off-duty period, assign an FDP to the FCM subject to the applicable limits set out in this Appendix or another Appendix of this CAO.
- 4.3 If the AOC holder:
- (a) delays the FCM’s original reporting time; and
  - (b) does not inform the FCM of the delay at least 10 hours before the original reporting time;
- then, the FCM’s FDP is taken to commence at the original reporting time.
- 4.4 If subclause 4.3 applies, the off-duty period requirements of this Appendix apply to the FCM whether or not the flight occurs.

***Delays under operations manual procedures***

- 4.5 Subclauses 4.6 to 4.13 apply to an AOC holder if the operations manual has procedures for 1 or more delays.
- 4.6 If an AOC holder’s operations manual has procedures for delays, the AOC holder may delay an FCM’s original reporting time if the AOC holder informs the FCM of the new reporting time as follows:
- (a) if the FCM is at home base:
    - (i) at least 2 hours before the original reporting time; and
    - (ii) at least 2 hours before each new reporting time;
  - (b) if the FCM is not at home base:
    - (i) at least 1 hour before the time the FCM would normally have had to leave his or her accommodation in order to report in a timely way for duty at the original reporting time; and
    - (ii) at least 1 hour before each new time the FCM would normally have had to leave his or her accommodation in order to report in a timely way for duty at the reporting time.
- 4.7 If an FCM is informed of a delay in accordance with subclause 4.6, the period between the original reporting time and the final new reporting time is deemed to be standby.

*Note* The period mentioned in subclause 4.7 is deemed to be standby whether or not paragraph (b) of the definition of *standby* is met.

- 4.8 If an FCM is not informed of a delay in accordance with subclause 4.6, the FCM’s FDP is taken to commence at whichever of the following is the later:
- (a) the original reporting time;
  - (b) the last new reporting time following a delay of which the FCM was informed in accordance with subclause 4.6.
- 4.9 If subclause 4.8 applies, the off-duty period requirements of this Appendix apply to the FCM whether or not the flight occurs.

***A single delay of at least 10 hours under operations manual procedures***

- 4.10 Despite subclause 4.7, if the period of any single delay to an FCM’s FDP is at least 10 hours, the AOC holder may:
- (a) consider the period of the delay to be an off-duty period; and

- (b) at the end of the off-duty period, assign an FDP to the FCM subject to the applicable limits set out in this Appendix or another Appendix of this CAO.

***Maximum FDP after delay under operations manual procedures***

4.11 Subject to subclause 4.13, if:

- (a) an FCM's FDP is delayed under subclause 4.6; and
- (b) the FDP commences at a new reporting time that is within 4 hours of the original reporting time;

then the maximum FDP must be based on whichever of the following is the more limiting in calculating the FDP:

- (c) the original reporting time;
- (d) the new reporting time.

4.12 Subject to subclause 4.13, if:

- (a) the FCM's FDP is delayed under subclause 4.6; and
- (b) the FDP commences at a new reporting time that is at least 4 hours after the original reporting time;

then:

- (c) the FDP is taken to have commenced 4 hours after the original reporting time; and
- (d) the maximum FDP must be based on whichever of the following is the more limiting in calculating the FDP:
  - (i) the original reporting time;
  - (ii) the time at which the FDP is taken to have commenced in accordance with paragraph (c).

4.13 The combined duration of 1 or more delays and the immediately following FDP must not exceed 16 hours unless the FDP contains a split-duty rest period.

***Cancellations — with or without operations manual procedures for delays***

4.14 If:

- (a) an FCM's FDP is delayed under subclause 4.2 or 4.6; and
- (b) the AOC holder informs the FCM that the flight will not occur (***cancellation***);

then the FCM must have an off-duty period of at least 10 consecutive hours, commencing from the time he or she is informed of the cancellation, before again being assigned an FDP in accordance with this Appendix or another Appendix of this CAO.

***Meaning of "informed"***

4.15 In this clause:

***informed*** means informed by the AOC holder in accordance with procedures in the holder's operations manual for communicating information between the holder and an FCM.

## 5 Reassignment and extension

- 5.1 After an FCM's assigned FDP commences, the AOC holder may reassign to the FCM a modified FDP and number of sectors to be flown (a *reassignment*), provided that each of the following applies:
- (a) subject to subclause 5.3 — the modified FDP does not exceed the limits in the holder's operations manual for the new number of sectors;
  - (b) the FCM has confirmed that he or she is fit for the reassignment.
- Note* Fitness in this context is based on the FCM's self-assessment. An FCM has an obligation under paragraph 16.1 of this CAO not to carry out any task for a flight if, due to fatigue, the FCM is, or is likely to become, unfit for the task. If such circumstances apply, the FCM must decline the reassignment.
- 5.2 If subclause 5.1 applies, the FCM may continue in the modified FDP in accordance with subclause 5.1.
- 5.3 Despite the FDP limits provided in the operations manual, in unforeseen operational circumstances at the discretion of the pilot in command:
- (a) the FDP limits in the operations manual may be extended by up to 1 hour; and
  - (b) the sectors for the FDP limits may be increased by 1 more than would otherwise be the case for the FDP.
- 5.4 Before exercising the discretion under subclause 5.3 to extend the FDP limit of an FCM, the pilot in command must:
- (a) do the following:
    - (i) consult each FCM who is a crew member on the aircraft;
    - (ii) be satisfied that each FCM considers himself or herself fit for the extension; and
  - (b) if the FCM whose FDP would be extended is the pilot in command — do the following:
    - (i) consult each FCM who is a crew member on the aircraft;
    - (ii) be satisfied that, as pilot in command, he or she is fit for the extension.
- 5.5 Despite the limits provided in the operations manual, the flight time limit for an FDP may be extended by not more than 30 minutes if:
- (a) it is operationally necessary in order to complete the duty; and
  - (b) the FCM, or each FCM, considers himself or herself fit for the extension.
- 5.6 An FDP limit must not be reassigned or extended under this clause if it would cause an FCM to exceed the cumulative flight time limits in clause 9 or the cumulative duty time limits in clause 10.
- 5.7 Despite any limit or number under this Appendix, if:
- (a) unforeseen operational circumstances arise after take-off on the final sector of an FDP; and
  - (b) the unforeseen operational circumstances would cause an FCM to exceed any limit or number permitted under this Appendix;
- then the flight may continue to the planned destination or alternate at the discretion of the pilot in command.

*Note 1* Under regulation 91.215 of CASR, the pilot in command of an aircraft is responsible for the conduct and safety of members of the crew on the aircraft and, therefore, has a discretion to not permit an extension to occur even if otherwise permissible under this clause.

*Note 2* Guidance on the assessment of individual cognitive and physical fitness is contained in CAAP 48-01.

## 6 Standby limits and standby-like arrangements

- 6.1 An AOC holder must not require an FCM to be on continuous standby for a period longer than 14 hours.
- 6.2 The maximum allowable FDP after a call out from standby must be decreased by the number of hours by which the standby exceeds 4 hours.
- 6.3 If an FCM is called out, the maximum combined duration of standby and the subsequent FDP is 16 hours except where the subsequent FDP includes a split-duty rest period, in suitable sleeping accommodation, of at least 4 consecutive hours.
- 6.4 A standby which is completed without a call out must be followed by an off-duty period of at least 10 consecutive hours.
- 6.5 To remove any doubt, the period of time in which an FCM is held in a standby-like arrangement must be treated as a duty period for the purposes of this CAO.

*Note* For example, the period spent in a standby-like arrangement must be included as part of a following FDP assigned to the FCM or added to the preceding FDP when determining minimum off-duty periods under clause 8.

## 7 Positioning

On completion of assigned flight duties in an FDP (the **relevant FDP**), an FCM may position to a suitable location as required by the AOC holder.

*Note* As with any duty, the time spent in positioning after completion of the FDP must be added to the relevant FDP when determining minimum off-duty periods under clause 8.

## 8 Off-duty periods

### *Off-duty period following an FDP*

- 8.1 If the sum of an FCM's FDP, and his or her duty time (if any) after completion of the FDP but before commencement of the following off-duty period, does not exceed 12 hours, his or her following off-duty period must be at least as follows:
  - (a) if the FCM is undertaking the off-duty period away from home base — 10 hours;
  - (b) if the FCM is undertaking the off-duty period at home base — 12 hours.
- 8.2 If the sum of an FCM's FDP, and his or her duty time (if any) after completion of the FDP but before commencement of the following off-duty period (**other duty time**), exceeds 12 hours, his or her following off-duty period must be at least the sum of:
  - (a) 12 hours; and
  - (b) 1.5 times the time that the FDP and the other duty time exceeded 12 hours.

### *Reduction in off-duty period*

- 8.3 Despite subclause 8.1, if the sum of an FCM's FDP (the **last FDP**), and his or her duty time (if any) after completion of the FDP but before commencement of the following off-duty period (**other duty time**), does not exceed 10 hours, his or her following off-duty period (**ODP 2**), may be reduced to not less than 9 hours provided that:
  - (a) the off-duty period undertaken immediately before the last FDP was at least 12 hours, including a local night; and
  - (b) the ODP 2 is undertaken over a local night; and
  - (c) the ODP 2 is not undertaken at home base; and

- (d) the off-duty period following the FDP after ODP 2 is at least 12 hours, including a local night.
- 8.4 Despite subclause 8.2, if, after an FDP (the *first FDP*) but before the next FDP (the *second FDP*), the off-duty period calculated under this clause is more than 14 hours, the off-duty period may be reduced to not less than 14 hours, provided that:
- (a) the reduced off-duty period is undertaken away from home base; and
  - (b) the first FDP was not extended past the FDP limit provided for under the AOC holder's operations manual; and
  - (c) the off-duty period following the second FDP is of at least 36 consecutive hours and includes 2 local nights.

#### *Off-duty periods for cumulative fatigue recovery*

- 8.5 Before beginning an FDP or standby, an FCM must have had at least 36 consecutive hours off-duty, including 2 local nights, in the 168 hours before the projected end time of the assigned FDP or assigned standby.
- 8.6 Before beginning an FDP or standby, an FCM must have had at least 6 days off-duty in the 28 consecutive days before the standby or FDP commences.

### **9 Limit on cumulative flight time**

- 9.1 The cumulative flight time accrued by an FCM during any consecutive 28-day period must not exceed 100 hours.
- 9.2 The cumulative flight time accrued by an FCM during any consecutive 365-day period must not exceed 1 000 hours.

### **10 Limit on cumulative duty time**

- 10.1 The cumulative duty accrued by an FCM during any consecutive 168-hour period must not exceed 60 hours.
- 10.2 The cumulative duty accrued by an FCM during any consecutive 336-hour period must not exceed 100 hours.

*Note* 168 hours is the number of hours in a 7-day period, and 336 hours is the number of hours in a 14-day period.

### **11 Limits on infringing the WOCL and early starts**

- 11.1 Subject to subclause 11.3, an FCM must not be assigned more than 3 consecutive early starts.
- 11.2 Subject to subclause 11.3, an FCM, whose duties have already infringed 3 consecutive WOCLs, must not be assigned an FDP that would again infringe the WOCL without at least an intervening off-duty period that includes a local night.
- Note* See paragraph 6.2 of this CAO for duties that infringe a WOCL.
- 11.3 Despite subclauses 11.1 and 11.2, the FCM may have a 4<sup>th</sup>, or a 4<sup>th</sup> and a 5<sup>th</sup>, consecutive early start (whether or not the start infringes the WOCL) if:
- (a) the maximum FDP permissible on the day of the 4<sup>th</sup> early start is reduced by 2 hours; and
  - (b) the maximum FDP permissible on the day of the 5<sup>th</sup> early start is reduced by 4 hours.

## **12 Maximum durations must not be exceeded**

Unless an extension is permitted under clause 5, in performing duty an FCM must not exceed the following:

- (a) the maximum duration of the FDP specified for the FCM in the AOC holder's operations manual;
- (b) the maximum flight time specified for the FCM in the AOC holder's operations manual.

## APPENDIX 4 ANY OPERATIONS

*Note* This Appendix would generally be used by an AOC holder conducting single-pilot air transport operations. However, it may also be used by an operator conducting multi-pilot operations, aerial work operations, flight training, or any combination of operations. The enhanced fatigue management obligations set out in subsection 15 of this CAO apply to an AOC holder operating under this Appendix.

### 1 Sleep opportunity before an FDP or standby

- 1.1 An FCM must not be assigned or commence an FDP or standby commencing away from home base unless he or she has at least 8 consecutive hours' sleep opportunity within the 10 hours immediately before:
  - (a) if the commencement of the FDP has not been delayed — commencing the FDP; or
  - (b) subject to paragraph (c), if the commencement of the FDP has been delayed — the original reporting time for the FDP; or
  - (c) if the commencement of the FDP has been delayed by a single delay of 10 hours or more — commencing the FDP following the delay; or
  - (d) for a standby — commencing the standby.
- 1.2 An FCM must not be assigned or commence an FDP or standby commencing at home base unless he or she has at least 8 consecutive hours' sleep opportunity within the 12 hours immediately before:
  - (a) if the commencement of the FDP has not been delayed — commencing the FDP; or
  - (b) subject to paragraph (c), if the commencement of the FDP has been delayed — the original reporting time for the FDP; or
  - (c) if the commencement of the FDP has been delayed by a single delay of 10 hours or more — commencing the FDP following the delay; or
  - (d) for a standby — commencing the standby.

*Note* See subsection 6 of this CAO for the definition of *sleep opportunity*, where it is defined as occurring during an off-duty period.

### 2 FDP and flight time limits

- 2.1 An FCM must not be assigned an FDP longer than the number of hours specified in Table 2.1 in this clause (the **FDP limit**), as determined by the local time at the start of the FDP.
- 2.2 An FCM must not be assigned or commence flight time for flight training during an FDP unless the flight training is conducted during the first 7 hours of the FDP's flight time.
- 2.3 In applying Table 2.1, first, choose the appropriate local time at which the FDP for the FCM is to start. The maximum FDP for the FCM is the number that corresponds to the chosen local time at which the FDP for the FCM is to start.

**Table 2.1 Maximum FDP (in hours) according to local time at start of FDP**

<b>Local time at start of FDP</b>	<b>Maximum FDP</b>
<b>0500 – 0559</b>	9
<b>0600 – 0759</b>	10
<b>0800 – 1059</b>	11
<b>1100 – 1359</b>	10
<b>1400 – 2259</b>	9
<b>2300 – 0459</b>	8

### **3 Increase in FDP limits by split duty**

- 3.1 Subject to subclause 3.4, where an FDP contains a split-duty rest period of at least 4 consecutive hours with access to suitable sleeping accommodation, the maximum FDP worked out under clause 2 may be increased by up to 4 hours.
- 3.2 After an FDP mentioned in subclause 3.1, the first 4 hours of the split-duty rest period may be reduced by 2 hours for the purpose of determining the subsequent off-duty period or cumulative duty time under clause 8 or 10 of this Appendix.
- 3.3 Subject to subclause 3.4, where an FDP contains a split-duty rest period of at least 2 consecutive hours with access to suitable resting accommodation, the FDP limits under subclause 2.1 may be increased by half the duration of the split-duty rest period, provided the increase is not more than 2 hours.
- 3.4 If a split-duty rest period includes any period between the hours of 2300 to 0529 local time, then:
- (a) the split-duty rest period must be for a consecutive period of at least 7 hours with access to suitable sleeping accommodation; and
  - (b) the maximum FDP may be increased to 15 hours (if not already permitted); and
  - (c) the reduction in the subsequent off-duty period and cumulative duty time, provided for in subclause 3.2, does not apply.
- 3.5 Any remaining portion of an FDP following a split-duty rest period must be no longer than 5 hours.

*Note* These are the maximum FDP and flight time limits under this Appendix unless, for any particular FCM, other provisions have the effect of reducing these limits (for example, subsections 14 and 15 of this CAO).

### **4 Delayed reporting time**

#### *Delays without operations manual procedures*

- 4.1 Subclauses 4.2 to 4.4 apply to an AOC holder if the operations manual does not have procedures for delays.
- 4.2 The AOC holder may:
- (a) only delay an FCM's reporting time (the **original reporting time**) if the FCM is first informed of the delay at least 10 hours before the reporting time; and
  - (b) if paragraph (a) applies — consider the period between the original reporting time and the new reporting time (the **period of the delay**) to be an off-duty period; and



- (c) if paragraph (b) applies — at the end of the off-duty period, assign an FDP to the FCM subject to the applicable limits set out in this Appendix or another Appendix of this CAO.
- 4.3 If the AOC holder:
- (a) delays the FCM’s original reporting time; and
  - (b) does not inform the FCM of the delay at least 10 hours before the original reporting time;
- then the FCM’s FDP is taken to commence at the original reporting time.
- 4.4 If subclause 4.3 applies, the off-duty period requirements of this Appendix apply to the FCM whether or not the flight occurs.

***Delays under operations manual procedures***

- 4.5 Subclauses 4.6 to 4.13 apply to an AOC holder if the operations manual has procedures for 1 or more delays.
- 4.6 If an AOC holder’s operations manual has procedures for delays, the AOC holder may delay an FCM’s original reporting time if the AOC holder informs the FCM of the new reporting time as follows:
- (a) if the FCM is at home base:
    - (i) at least 2 hours before the original reporting time; and
    - (ii) at least 2 hours before each new reporting time; or
  - (b) if the FCM is not at home base:
    - (i) at least 1 hour before the original reporting time; and
    - (ii) at least 1 hour before each new reporting time.
- 4.7 If an FCM is informed of a delay in accordance with subclause 4.6, the period between the original reporting time and the final new reporting time is deemed to be standby.

*Note* The period mentioned in subclause 4.7 is deemed to be standby whether or not subparagraph (b) of the definition of ***standby*** is met.

- 4.8 If an FCM is not informed of a delay in accordance with subclause 4.6, the FCM’s FDP is taken to commence at whichever of the following is the later:
- (a) the original reporting time; or
  - (b) the last new reporting time following a delay of which the FCM was informed in accordance with subclause 4.6.
- 4.9 If subclause 4.8 applies, the off-duty period requirements of this Appendix apply to the FCM whether or not the flight occurs.

***A single delay of at least 10 hours under operations manual procedures***

- 4.10 Despite subclause 4.7, if the period of any single delay to an FCM’s FDP is at least 10 hours, the AOC holder may:
- (a) consider the period of the delay to be an off-duty period; and
  - (b) at the end of the off-duty period, assign an FDP to the FCM subject to the applicable limits set out in this Appendix or another Appendix of this CAO.

***Maximum FDP after delay under operations manual procedures***

- 4.11 Subject to subclause 4.13, if:
- (a) an FCM’s FDP is delayed under subclause 4.6; and

- (b) the FDP commences at a new reporting time that is within 4 hours of the original reporting time;
- then the maximum FDP must be based on whichever of the following is the more limiting in calculating the FDP:
- (c) the original reporting time;
  - (d) the new reporting time.
- 4.12 Subject to subclause 4.13, if:
- (a) the FCM's FDP is delayed under subclause 4.6; and
  - (b) the FDP commences at a new reporting time that is at least 4 hours after the original reporting time;
- then:
- (c) the FDP is taken to have commenced 4 hours after the original reporting time; and
  - (d) the maximum FDP must be based on whichever of the following is the more limiting in calculating the FDP:
    - (i) the original reporting time;
    - (ii) the time at which the FDP is taken to have commenced in accordance with paragraph (c).
- 4.13 The combined duration of 1 or more delays and the immediately following FDP must not exceed 16 hours unless the FDP contains a split-duty rest period.

***Cancellations — with or without operations manual procedures for delays***

- 4.14 If:
- (a) an FCM's FDP is delayed under subclause 4.2 or 4.6; and
  - (b) the AOC holder informs the FCM that the flight will not occur (***cancellation***);
- then the FCM must have an off-duty period of at least 10 consecutive hours, commencing from the time he or she is informed of the cancellation, before again being assigned an FDP in accordance with this Appendix or another Appendix of this CAO.

***Meaning of "informed"***

- 4.15 In this clause:
- informed*** means informed by the AOC holder in accordance with procedures in the holder's operations manual for communicating information between the holder and an FCM.

**5 Reassignment and extension**

- 5.1 After an FCM's assigned FDP commences, the AOC holder may reassign to the FCM a modified FDP (a ***reassignment***), provided that each of the following applies:
- (a) subject to subclause 5.3 — the modified FDP does not exceed the applicable limits in the holder's operations manual;
  - (b) the FCM has confirmed that he or she is fit for the reassignment.

*Note* Fitness in this context is based on the FCM's self-assessment. An FCM has an obligation under paragraph 16.1 of this CAO not to carry out any task for a flight if, due to fatigue, the FCM is, or is likely to become, unfit for the task. If such circumstances apply, the FCM must decline the reassignment.

- 5.2 If subclause 5.1 applies, the FCM may continue in the modified FDP in accordance with subclause 5.1.
- 5.3 Despite the FDP limits provided in the operations manual, in unforeseen operational circumstances at the discretion of the pilot in command, the FDP limits in the operations manual may be extended by up to 1 hour.
- 5.4 Before exercising the discretion under subclause 5.3 to extend the FDP limit, the pilot in command must be satisfied that he or she is fit for the extension.
- 5.5 Flight training for up to 30 minutes may be conducted after the first 7 hours of the FDP's flight time if:
- (a) unforeseen operational circumstances arise after the commencement of the FDP; and
  - (b) it is operationally necessary in order to complete the duty; and
  - (c) the FCM considers himself or herself fit for the extension.
- 5.6 An FDP limit must not be reassigned or extended under this clause if it would cause an FCM to exceed the cumulative flight time limits in clause 9 or the cumulative duty time limits in clause 10.
- 5.7 Despite any limit or number under this Appendix, if:
- (a) unforeseen operational circumstances arise after take-off on the final sector of an FDP; and
  - (b) the unforeseen operational circumstances would cause an FCM to exceed any limit or number permitted under this Appendix;

then the flight may continue to the planned destination or alternate at the discretion of the pilot in command.

*Note 1* Under regulation 91.215 of CASR, the pilot in command of an aircraft is responsible for the conduct and safety of members of the crew on the aircraft and, therefore, has a discretion to not permit an extension to occur even if otherwise permissible under this clause.

*Note 2* Guidance on the assessment of individual cognitive and physical fitness is contained in CAAP 48-01.

## 6 Standby limits and standby-like arrangements

- 6.1 An AOC holder must not require an FCM to be on continuous standby for a period longer than 14 hours.
- 6.2 The maximum allowable FDP after a call out from standby must be decreased by the number of hours by which the standby exceeds 4 hours.
- 6.3 A standby which is completed without a call out must be followed by an off-duty period of at least 10 consecutive hours.
- 6.4 To remove any doubt, the period of time in which an FCM is held in a standby-like arrangement must be treated as a duty period for the purposes of this CAO.

*Note* For example, the period spent in a standby-like arrangement must be included as part of a following FDP assigned to the FCM or added to the preceding FDP when determining minimum off-duty periods under clause 8.

## 7 Positioning

On completion of assigned flight duties in an FDP (the *relevant FDP*), an FCM may position to a suitable location as required by the AOC holder.

*Note* As with any duty, the time spent in positioning after completion of the FDP must be added to the relevant FDP when determining minimum off-duty periods under clause 8.

## 8 Off-duty periods

### *Off-duty period following an FDP*

- 8.1 If the sum of an FCM's FDP, and his or her duty time (if any) after completion of the FDP but before commencement of the following off-duty period, does not exceed 12 hours, his or her following off-duty period must be at least as follows:
- (a) if the FCM is undertaking the off-duty period away from home base — the sum of:
    - (i) 10 hours; and
    - (ii) the amount that the displacement time exceeds 3 hours if travelling west, or 2 hours if travelling east;
  - (b) if the FCM is undertaking the off-duty period at home base — the sum of:
    - (i) 12 hours; and
    - (ii) the amount that the displacement time exceeds 3 hours if travelling west, or 2 hours if travelling east.
- 8.2 If the sum of an FCM's FDP, and his or her duty time (if any) after completion of the FDP but before commencement of the following off-duty period (***other duty time***), exceeds 12 hours, his or her following off-duty period must be at least 12 hours, plus the sum of:
- (a) 1.5 times the time that the FDP and the other duty time exceeded 12 hours; and
  - (b) the amount that the displacement time exceeds 3 hours if travelling west, or 2 hours if travelling east.

### **Reduction in off-duty period**

- 8.3 Despite subclause 8.1, if the sum of an FCM's FDP (the ***last FDP***), and his or her duty time (if any) after completion of the FDP but before commencement of the following off-duty period, does not exceed 10 hours, his or her following off-duty period (***ODP 2***), may be reduced to not less than 9 hours provided that:
- (a) the off-duty period undertaken immediately before the last FDP was at least 12 hours, including a local night; and
  - (b) the ODP 2 is undertaken over a local night; and
  - (c) the ODP 2 is not undertaken at home base; and
  - (d) the off-duty period following the FDP after ODP 2 is at least 12 hours, including a local night.
- 8.4 Despite subclause 8.2, if, after an FDP (the ***first FDP***), but before the next FDP (the ***second FDP***), the off-duty period calculated under this clause is more than 14 hours, the off-duty period may be reduced to not less than 14 hours, provided that:
- (a) the reduced off-duty period is undertaken away from home base; and
  - (b) the first FDP was not extended past the FDP limit provided for under the AOC holder's operations manual; and
  - (c) the off-duty period following the second FDP is of at least 36 consecutive hours and includes 2 local nights.

### *Off-duty periods for cumulative fatigue recovery*

- 8.5 Before beginning any standby time or FDP, an FCM must have had at least 36 consecutive hours off-duty, including 2 local nights, in the 168 hours before the projected end time of the assigned FDP or assigned standby.
- 8.6 Before beginning any standby time or FDP, an FCM must have had at least 6 days off-duty in the 28 consecutive days before the standby or FDP commences.

## **9 Limit on cumulative flight time**

- 9.1 The cumulative flight time accrued by an FCM during any consecutive 28-day period must not exceed 100 hours.
- 9.2 The cumulative flight time accrued by an FCM during any consecutive 365-day period must not exceed 1 000 hours.

## **10 Limit on cumulative duty time**

- 10.1 The cumulative duty accrued by an FCM during any consecutive 168-hour period must not exceed 60 hours.
- 10.2 The cumulative duty accrued by an FCM during any consecutive 336-hour period must not exceed 100 hours.

*Note* 168 hours is the number of hours in a 7-day period, and 336 hours is the number of hours in a 14-day period.

## **11 Limits on infringing the WOCL and early starts**

- 11.1 Subject to subclause 11.3, an FCM must not be assigned more than 3 consecutive early starts.
- 11.2 Subject to subclause 11.3, an FCM, whose duties have already infringed 3 consecutive WOCLs, must not be assigned an FDP that would again infringe the WOCL without at least an intervening off-duty period that includes a local night.

*Note* See paragraph 6.2 of this CAO for duties that infringe a WOCL.

- 11.3 Despite subclauses 11.1 and 11.2, the FCM may have a 4<sup>th</sup>, or a 4<sup>th</sup> and a 5<sup>th</sup>, consecutive early start (whether or not the start infringes the WOCL) if:
  - (a) the maximum FDP permissible on the day of the 4<sup>th</sup> early start is reduced by 2 hours; and
  - (b) the maximum FDP permissible on the day of the 5<sup>th</sup> early start is reduced by 4 hours.

## **12 Maximum durations must not be exceeded**

Unless an extension is permitted under clause 5, in performing duty an FCM must not exceed the following:

- (a) the maximum duration of the FDP specified for the FCM in the AOC holder's operations manual;
- (b) the maximum flight time specified for the FCM in the AOC holder's operations manual.

## APPENDIX 4A BALLOON OPERATIONS

### 1 Sleep opportunity before an FDP

An FCM must not be assigned or commence an FDP unless he or she has at least:

- (a) 8 consecutive hours' sleep opportunity within the 10 hours immediately before commencing the FDP; or
- (b) 10 hours' sleep opportunity, of which at least 6 must be consecutive, within the 24 hours immediately before commencing the FDP.

*Note* See subsection 6 of this CAO for the definition of *sleep opportunity*, where it is defined as occurring during an off-duty period.

### 2 FDP limits

- 2.1 An FCM must not be assigned an FDP longer than the number of hours specified in Table 2.1 in this clause (the *FDP limit*), as determined by whether or not the FDP contains a split-duty rest period.

**Table 2.1 Maximum FDP (in hours) for an FCM according to whether or not the FDP contains a split-duty rest period**

Does the FDP contain a split-duty rest period?	Maximum FDP (hours)
No	6
Yes	10

- 2.2 An FCM cannot continue in an FDP for longer than 6 hours unless he or she has completed or commenced a split-duty rest period of at least 4 consecutive hours.

### 3 Increase in FDP limits by split duty

- 3.1 Subject to subclause 3.4, where an FDP contains a split-duty rest period of at least 4 consecutive hours with access to suitable sleeping accommodation (the *split-duty rest period*), the maximum FDP may be increased by the duration of the split-duty rest period to a maximum of 15 hours.
- 3.2 After an FDP mentioned in subclause 3.1, the first 4 hours of the split-duty rest period may be reduced by 2 hours for the purpose of determining the subsequent off-duty period or cumulative duty time under clause 5 or 7 of this Appendix.
- 3.3 If a split-duty rest period includes any period between the hours of 2100 to 0329 local time, then:
  - (a) the split-duty rest period must be for a consecutive period of at least 7 hours with access to suitable sleeping accommodation; and
  - (b) subclause 3.2 does not apply.
- 3.4 Any remaining portion of an FDP following a split-duty rest period must be no longer than 5 hours.

*Note* These are the maximum FDP and flight time limits under this Appendix unless, for any particular FCM, other provisions have the effect of reducing these limits (for example, subsections 14 and 15 of this CAO).

## 4 Extensions

- 4.1 Despite the FDP limits provided in the operations manual, in unforeseen operational circumstances at the discretion of the pilot in command, the FDP limits in the operations manual may be extended up to a maximum of 1 hour if:
- (a) the FDP has commenced; and
  - (b) the FCM considers himself or herself fit for the extension.
- 4.2 An FDP limit must not be extended under this clause if it would cause an FCM to exceed the cumulative flight time limits in clause 6 or the cumulative duty time limits in clause 7.
- 4.3 Despite any limit or number under this Appendix, if:
- (a) unforeseen operational circumstances arise after take-off on the final sector of an FDP; and
  - (b) the unforeseen operational circumstances would cause an FCM to exceed any limit or number permitted under this Appendix;

then the flight may continue to the planned destination at the discretion of the pilot in command.

*Note 1* Under regulation 91.215 of CASR, the pilot in command of an aircraft is responsible for the conduct and safety of members of the crew on the aircraft and, therefore, has a discretion to not permit an extension to occur even if otherwise permissible under this clause.

*Note 2* Guidance on the assessment of individual cognitive and physical fitness is contained in CAAP 48-01.

## 5 Off-duty periods

- 5.1 Following an FDP, an FCM must have an off-duty period of at least 10 consecutive hours.
- 5.2 Despite subclause 5.1, an FCM may take 2 off-duty periods of not less than 4 consecutive hours each, with an intervening duty period of not more than 2 hours, provided the total duration of the 2 off-duty periods is not less than 13 hours.

*Note* The sleep opportunity requirements in clause 1 continue to apply. For example, if the use of 2 off-duty periods does not allow for a single period of 8 consecutive hours prior sleep opportunity, then paragraph 1.1 (b) of this Appendix provides for the option of using 2 or more periods to achieve a prior sleep opportunity of 10 hours, provided 1 of the periods is a minimum of 6 consecutive hours.

- 5.3 Before beginning any FDP, an FCM must have had at least 2 full days (consecutively or otherwise) off-duty in the 14 consecutive days before the projected end time of the assigned FDP.
- 5.4 For subclause 5.3, a **full day** means the period between 2 consecutive midnights.

## 6 Limit on cumulative flight time

The cumulative flight time accrued by an FCM during any consecutive 28-day period must not exceed 50 hours.

## 7 Limit on cumulative duty time

- 7.1 The cumulative duty accrued by an FCM during any consecutive 168-hour period must not exceed 45 hours.
- 7.2 The cumulative duty accrued by an FCM during any consecutive 336-hour period must not exceed 84 hours.

*Note* 168 hours is the number of hours in a 7-day period, and 336 hours is the number of hours in a 14-day period.

## APPENDIX 4B MEDICAL TRANSPORT OPERATIONS AND EMERGENCY SERVICE OPERATIONS

### 1 FDP and flight time limits

- 1.1 An FCM must not be assigned an FDP longer than the number of hours specified in Table 1.1 in this clause (the **FDP limit**), as determined by the local time at the start of the FDP and, for a multi-pilot operation, the number of sectors to be flown.

**Table 1.1 Maximum FDP (in hours) for an FCM according to local time at the start of the FDP**

Local time at start of FDP	Maximum FDP		
	Single-pilot operation	Multi-pilot operation	
		1-2 sectors	3+ sectors
<b>0500 – 0559</b>	11	12	12
<b>0600 – 0659</b>	11.5	13	12.5
<b>0700 – 1159</b>	12	14	13
<b>1200 – 1459</b>	11	13	12
<b>1500 – 1559</b>	10.5	12	11.5
<b>1600 – 0459</b>	10	11	11

FDP limit may be increased twice per 168-hour period

- 1.2 Despite subclause 1.1, the FDP limit for an FCM may be increased to not more than the following limits (an **increased FDP**) provided the conditions in subclause 1.3 are complied with:

- (a) for a single-pilot operation — 12 hours;
- (b) for any multi-pilot operation — 14 hours.

- 1.3 For subclause 1.2:

- (a) there must be no more than 2 increased FDPs in any 168 consecutive hour period; and
- (b) the off-duty period before commencing an increased FDP must be not less than 12 hours; and
- (c) an increased FDP must be followed by an off-duty period of not less than 12 hours; and
- (d) an increased FDP must not be further increased by a split-duty rest period under clause 2, but it may be extended under clause 3.

*Note* Clause 5 also requires that an FCM who conducts an increased FDP under this clause has an off-duty period of at least 36 hours, including 2 local nights, during the 168 consecutive hour period.

- 1.4 An FCM must not be assigned or commence flight time for flight training during an FDP unless the flight training is conducted during the first 7 hours of the FDP's flight time.

*Note* Subclause 1.4 does not apply to a flight review or a proficiency check because these are not flight training as defined in paragraph 6.1 of this CAO.



- 1.5 If, in the 8 hours immediately before an FDP (the **8-hour period**), an FCM performed duties other than conducting a flight in an aircraft (**non-flying duties**) the maximum permissible duration of the FDP must be decreased by the greater of:
  - (a) 30 minutes; or
  - (b) the total duration of the non-flying duties performed during the 8-hour period.
- 1.6 An FCM must not exceed an FDP limit set out in the AOC holder's operations manual in accordance with this CAO.

## **2 Increase in FDP limits by split duty**

- 2.1 Subject to subclauses 2.2 and 2.6, if an FDP contains a split-duty rest period of at least 2 consecutive hours with access to suitable sleeping accommodation, the FDP worked out under clause 1 may be increased by the duration of the split-duty rest period.
- 2.2 For subclause 2.1, the remaining length of the FDP resumed at the time the split-duty rest period ends (the **resumption time**) must not be greater than the FDP limit that would apply under Table 1.1 to an FCM who commenced a new FDP at the resumption time.
- 2.3 After an FDP mentioned in subclause 2.1, the duration of the split-duty rest period may be reduced by 50% in determining the subsequent off-duty period under subclause 5.1 or cumulative duty time under clause 7.
- 2.4 Subject to subclause 2.6, if an FDP contains 1 or 2 split-duty rest periods, each of at least 2 consecutive hours with access to suitable resting accommodation, the maximum FDP worked out under clause 1 may be increased by half the duration of the split-duty rest period or periods up to a total of 2 hours.
- 2.5 The requirements of subclause 5.1 are taken to be met if an FDP contains a split-duty rest period with access to suitable sleeping accommodation, and the split-duty rest period is:
  - (a) of at least 10 consecutive hours, plus the number of hours difference in local time between the location where the FDP commenced and the location where the split-duty rest period is undertaken; and
  - (b) undertaken over a local night.
- 2.6 An FDP that includes a split-duty rest period must not exceed 16 hours.

*Note* For any particular FCM, other provisions of this CAO may have the effect of reducing maximum FDP limits under this Appendix (see, for example, subsections 14 and 15 of this CAO).

## **3 Extensions**

- 3.1 Subject to subclause 3.3, in unforeseen operational circumstances, at the discretion of the FCM, an FDP may be extended, by up to a maximum of 2 hours for a multi-pilot operation, or 1 hour for a single-pilot operation, beyond:
  - (a) the FDP limit specified in Table 1.1 (including that limit as increased under subclause 1.2); or
  - (b) the FDP limit specified in Table 1.1 as increased by a split-duty rest period under clause 2, provided the extended FDP does not exceed 16 hours.
- 3.2 Subject to subclause 3.3, if:
  - (a) an AOC holder has urgent operations procedures in the operations manual; and

- (b) an operation is deemed to be urgent in accordance with the manual; then at the discretion of the FCM, an FDP containing an urgent operation may be extended by up to a maximum of 4 hours beyond:
  - (c) the FDP limit specified in Table 1.1 (including that limit as increased under subclause 1.2), provided the extended FDP does not exceed 16 hours; or
  - (d) the FDP limit specified in Table 1.1 as increased by a split-duty rest period under clause 2, provided the extended FDP does not exceed 16 hours.
- 3.3 Before exercising the discretion under subclause 3.1 or 3.2 to extend the FDP limit of an FCM, the pilot in command of a multi-pilot operation must:
- (a) do the following:
    - (i) consult each FCM who is a crew member on the aircraft;
    - (ii) be satisfied that each FCM considers himself or herself fit for the extension;
  - (b) if the FCM whose FDP would be extended is the pilot in command — do the following:
    - (i) consult each FCM who is a crew member on the aircraft;
    - (ii) be satisfied that, as pilot in command, he or she is fit for the extension.
- Note* Due to the nature of medical transport operations and emergency service operations, for urgent operations extensions may be permitted in operational circumstances where the operator and the flight crew are satisfied the safety of the flight will not be impacted by fatigue.
- 3.4 Despite the limits provided in the operations manual, the flight time limit for an FDP may be extended by not more than 30 minutes if:
- (a) it is operationally necessary in order to complete the duty; and
  - (b) the FCM, or each FCM, considers himself or herself fit for the extension.
- 3.5 Flight training for up to 30 minutes may be conducted after the first 7 hours of the FDP's flight time if:
- (a) unforeseen operational circumstances arise after the commencement of the FDP; and
  - (b) it is operationally necessary in order to complete the duty; and
  - (c) the FCM considers himself or herself fit for the extension.
- 3.6 An FDP limit must not be extended under this clause if it would cause an FCM to exceed the cumulative flight time limits in clause 7.
- 3.7 Despite any limit or number under this Appendix, if:
- (a) unforeseen operational circumstances arise after take-off on the final sector of an FDP; and
  - (b) the unforeseen operational circumstances would cause an FCM to exceed any limit or number permitted under this Appendix;

then the flight may continue to the planned destination or alternate at the discretion of the pilot in command.

*Note 1* Under regulation 91.215 of CASR, the pilot in command of an aircraft is responsible for the conduct and safety of members of the crew on the aircraft and, therefore, has a discretion to not permit an extension to occur even if otherwise permissible under this clause.

*Note 2* Guidance on the assessment of individual cognitive and physical fitness is contained in CAAP 48-01.

## 4 Standby

- 4.1 An FCM may be placed on standby.
- 4.2 If an FCM is called out from standby to commence an FDP (which may include a split-duty rest period), the FDP must be followed by an off-duty period in accordance with clause 5.
- 4.3 If an FCM is called out to commence duties other than flying duties, the FCM may return to standby following that duty period. However, subclause 1.6 applies to a subsequent FDP.

## 5 Off-duty period limits

### *Off-duty period following an FDP*

- 5.1 Immediately after an FDP, an FCM must have an off-duty period of at least the following consecutive hours, during which there must be access to suitable sleeping accommodation for at least 8 consecutive hours:
  - (a) if the off-duty period includes the period between 2300 and 0559 hours local time — the sum of:
    - (i) 8 hours; and
    - (ii) the amount of time that the FDP exceeds 12 hours (provided the excess is not due to an extension mentioned in subparagraph (iv)); and
    - (iii) the amount of displacement time of the FDP; and
    - (iv) 1 hour for every 30 minutes, or part of 30 minutes, that the FDP was extended beyond the FDP limit;
  - (b) if the off-duty period does not include the period between 2300 and 0559 hours local time — the sum of:
    - (i) 10 hours; and
    - (ii) the amount of time that the FDP exceeds 12 hours (provided the excess is not due to an extension mentioned in subparagraph (iv)); and
    - (iii) the amount of displacement time of the FDP; and
    - (iv) 1 hour for every 30 minutes, or part of 30 minutes, that the FDP was extended beyond the FDP limit.

### *Reduction in off-duty period*

- 5.2 If an off-duty period calculated under subclause 5.1 is greater than 12 hours, the off-duty period may be reduced to not less than 12 hours provided that:
  - (a) the next FDP is conducted under this Appendix; and
  - (b) the off-duty period following the next FDP is at least 24 hours.

### *Off-duty periods for cumulative fatigue recovery*

- 5.3 If, in any consecutive 168-hour period (the *period*), an FCM conducts either:
  - (a) 3 or more FDPs, each of which involves a late-night operation; or
  - (b) an increased FDP in accordance with subclause 1.2;then the FCM must have an off-duty period of at least 36 consecutive hours, including 2 local nights during the period.

- 5.4 Before beginning an FDP or standby, an FCM must have had at least 1 of the following:
- (a) in any consecutive 336-hour period before the projected end of the assigned FDP or standby — 1 off-duty period of at least 36 consecutive hours, including 2 local nights;
  - (b) in any consecutive 504-hour period before the projected end of the assigned FDP or assigned standby — 1 off-duty period of at least 72 consecutive hours, including 3 local nights.

*Note* 336 hours is the number of hours in a 14-day period, and 504 hours is the number of hours in a 21-day period.

## **6 Limit on cumulative flight time**

- 6.1 The cumulative flight time accrued by an FCM during any consecutive 28-day period must not exceed 100 hours.
- 6.2 The cumulative flight time accrued by an FCM during any consecutive 365-day period must not exceed 1 000 hours.

## **7 Limit on cumulative duty time**

- 7.1 The cumulative duty time accrued by an FCM during any consecutive 168-hour period (the *period*) must not exceed:
- (a) if an FCM has not had at least 1 off-duty period of at least 36 hours, including 2 local nights during the period — 40 hours; and
  - (b) if an FCM has had at least 1 off-duty period of at least 36 hours, including 2 local nights during the period — 60 hours.

*Note* 168 hours is the number of hours in a 7-day period and 336 hours is the number of hours in a 14-day period.

- 7.2 The cumulative duty accrued by an FCM during any consecutive 336-hour period must not exceed 100 hours.

## **8 Limit on late-night operations**

- 8.1 In any period of 168 consecutive hours, an FCM must not be assigned, or conduct, more than 4 FDPs involving late-night operations.
- 8.2 If in any period of 168 consecutive hours (the *period*) an FCM conducts 3 or more FDPs involving late-night operations, the FCM is limited to 40 hours cumulative duty time during the period.

*Note* See also subclause 5.3 which requires that an FCM must have an off-duty period of at least 36 consecutive hours, including 2 local nights if 3 or more late-night operations are conducted during any 168 consecutive hour period.

## **9 Maximum durations must not be exceeded**

Unless an extension is permitted under clause 3, in performing duty an FCM must not exceed the following:

- (a) the maximum duration of the FDP specified for the FCM in the AOC holder's operations manual;
- (b) the maximum flight time specified for the FCM in the AOC holder's operations manual.

## APPENDIX 5 AERIAL WORK OPERATIONS AND FLIGHT TRAINING ASSOCIATED WITH AERIAL WORK

### 1 FDP limits

- 1.1 An FCM must not be assigned an FDP longer than the number of hours specified in Table 1.1 in this clause, as determined by:
- the local time at the start of the FDP; and
  - whether the operation is a single-pilot operation or a multi-pilot operation; and
  - for a multi-pilot operation — whether the number of sectors is 1 or 2, or 3 or more.

*Note* Aerial work operations captured by this Appendix are widely varied. Therefore, operators are reminded to limit FDP in accordance with their operator obligations, and include FDP limits in their operations manual.

- 1.2 An FCM must not be assigned or commence flight time for flight training during an FDP unless the flight training is conducted during the first 7 hours of the FDP's flight time.

**Table 1.1 Maximum FDP (in hours) for an FCM according to local time at the start of the FDP**

Local time at start of FDP	Maximum FDP (hours)		
	Single-pilot operation	Multi-pilot operation	
		For 1 or 2 sectors	For 3 or more sectors
<b>0500 – 0559</b>	11	12	12
<b>0600 – 0659</b>	11.5	13	12.5
<b>0700 – 1159</b>	12	14	13
<b>1200 – 1459</b>	11	13	12
<b>1500 – 1559</b>	10.5	12	11.5
<b>1600 – 0459</b>	10	11	11

*FDP limit may be increased twice per 168-hour period*

- 1.3 Despite subclause 1.1, the FDP limit for an FCM may be increased to not more than the following limits (an **increased FDP**) provided the conditions in subclause 1.4 are complied with:
- for a single-pilot operation — 12 hours;
  - for any multi-pilot operation — 14 hours.
- 1.4 For subclause 1.3:
- there must be no more than 2 increased FDPs in any 168 consecutive hour period; and
  - the off-duty period before commencing an increased FDP must be not less than 12 hours; and
  - an increased FDP must be followed by an off-duty period of not less than 12 hours; and

- (d) an increased FDP must not be further increased by a split-duty rest period under clause 2, but it may be extended under clause 3.

*Note* Clause 5 also requires that an FCM who conducts an increased FDP under this clause has an off-duty period of at least 36 hours, including 2 local nights, during the 168 consecutive hour period.

- 1.5 If, in the 8 hours immediately before an FDP (the **8-hour period**), an FCM performed duties other than conducting a flight in an aircraft (**non-flying duties**) the maximum permissible duration of the FDP must be decreased by the greater of:
  - (a) 30 minutes; or
  - (b) the total duration of the non-flying duties performed during the 8-hour period.
- 1.6 In any 168 consecutive hours, an FCM must not be assigned, or conduct, more than 4 FDPs which include any time between midnight and 0459 local time.
- 1.7 An FCM must not exceed an FDP limit set out in the AOC holder's operations manual in accordance with this CAO.

## **2 Increase in FDP limits by split duty**

- 2.1 If an FDP contains a split-duty rest period of at least 3 consecutive hours at suitable sleeping accommodation, the maximum FDP worked out under clause 1 may be increased by the duration of the split-duty rest period.
- 2.2 Where an FDP contains a split-duty rest period of at least 2 consecutive hours with access to suitable resting accommodation, the maximum FDP worked out under subclause 1.1 may be increased by half the duration of the split-duty rest period, provided the increase is not more than 2 hours.
- 2.3 Any portion of an FDP remaining after a split-duty rest period must be no longer than the sum of 6 hours and any permitted extension under clause 3.

*Note* These are the maximum FDP limits under this Appendix unless, for any particular FCM, other provisions have the effect of reducing these limits (for example, subsections 14 and 15 of this CAO).

## **3 Extensions**

- 3.1 Subject to subclause 3.2, at the discretion of the FCM, an FDP may be extended by up to a maximum of 2 hours beyond:
  - (a) the FDP limit specified in Table 1.1, including that limit as increased under subclause 1.3; or
  - (b) the FDP limit specified in Table 1.1 only, as increased by a split-duty rest period under clause 2.

*Note* Due to the nature of aerial work operations, extensions are permitted in operational circumstances where the FCM is satisfied that the safety of the flight will not be impacted by fatigue.

- 3.2 Before deciding to extend an FDP under subclause 3.1, the pilot in command of a multi-pilot operation must:
  - (a) do the following:
    - (i) consult each FCM who is a crew member on the aircraft;
    - (ii) be satisfied that each FCM considers himself or herself fit for the extension; and
  - (b) if the FCM whose FDP would be extended is the pilot in command — do the following:
    - (i) consult each FCM who is a crew member on the aircraft;
    - (ii) be satisfied that, as pilot in command, he or she is fit for the extension.

- 3.3 Flight training for up to 30 minutes may be conducted after the first 7 hours of the FDP's flight time if:
- (a) unforeseen operational circumstances arise after the commencement of the FDP; and
  - (b) it is operationally necessary in order to complete the duty; and
  - (c) the FCM considers himself or herself fit for the extension.
- 3.4 Subject to subclause 3.5, any extension over the FDP limit requires the off-duty period required by subclause 5.1 to be increased by 1 hour for every 30 minutes, or part of 30 minutes, that the FDP is extended beyond the FDP limit.
- 3.5 If an off-duty period calculated under subclause 3.2 is greater than 12 hours, the off-duty period may be reduced to not less than 12 hours provided that:
- (a) the next FDP is conducted under this Appendix; and
  - (b) the off-duty period following the next FDP is at least 36 hours, including 2 local nights.
- 3.6 An FDP limit must not be extended under this clause if it would cause an FCM to exceed the cumulative flight time limits in clause 6.
- 3.7 Despite any limit or number under this Appendix, if:
- (a) unforeseen operational circumstances arise after take-off on the final sector of an FDP; and
  - (b) the unforeseen operational circumstances would cause an FCM to exceed any limit or number permitted under this Appendix;

then the flight may continue to the planned destination or alternate at the discretion of the pilot in command.

*Note 1* Under regulation 91.215 of CASR, the pilot in command of an aircraft is responsible for the conduct and safety of members of the crew on the aircraft and, therefore, has a discretion to not permit an extension to occur even if otherwise permissible under this clause.

*Note 2* Guidance on the assessment of individual cognitive and physical fitness is contained in CAAP 48-01.

## **4 Standby**

- 4.1 An FCM may be placed on standby.
- 4.2 If an FCM is called out from standby to commence an FDP (which may include a split-duty rest period), the FDP must be followed by an off-duty period in accordance with clause 5.
- 4.3 If an FCM is called out to commence duties other than flying duties, the FCM may return to standby following that duty period. However, subclause 1.5 applies to a subsequent FDP.

## **5 Off-duty period limits**

### *Off-duty period following an FDP*

- 5.1 Immediately after an FDP, an FCM must have an off-duty period of at least the following number of consecutive hours, during which there must be access to suitable sleeping accommodation for at least 8 consecutive hours:
- (a) if the off-duty period includes the period between 2300 and 0559 hours local time — 8;
  - (b) if the off-duty period does not include the period between 2300 and 0559 hours local time — 10.

*Note* Under subclause 3.2 of this Appendix the off-duty period is increased by 1 hour for every 30 minutes, or part of 30 minutes, that the FDP is extended beyond the FDP limit.

### ***Off-duty periods for cumulative fatigue recovery***

- 5.2 Before beginning an FDP or standby, an FCM must have had at least 1 of the following:
- (a) in any consecutive 336-hour period before the projected end of the assigned FDP or standby — 1 off-duty period of at least 36 consecutive hours, including 2 local nights;
  - (b) in any consecutive 504-hour period before the projected end of the assigned FDP or assigned standby — 1 off-duty period of at least 72 consecutive hours, including 3 local nights.

*Note* 336 hours is the number of hours in a 14-day period, and 504 hours is the number of hours in a 21-day period.

- 5.3 If, in any consecutive 168-hour period (the *period*), an FCM conducts 1 or 2 increased FDPs in accordance with subclause 1.3, the FCM must have an off-duty period of at least 36 consecutive hours, including 2 local nights during the period.

## **6 Limit on cumulative flight time**

- 6.1 The cumulative flight time accrued by an FCM during any consecutive 168-hour period must not exceed 50 hours.
- 6.2 Subject to subclause 6.4, the cumulative flight time accrued by an FCM during any consecutive 28-day period must not exceed 170 hours.
- 6.3 Subject to subclause 6.4, the cumulative flight time accrued by an FCM during any consecutive 90-day period must not exceed 450 hours.
- 6.4 The cumulative flight time limits in subclauses 6.2 and 6.3 may be reset to zero immediately after the FCM is provided with at least 5 consecutive days off-duty.
- 6.5 Subject to subclause 6.6, the cumulative flight time accrued by an FCM during any consecutive 365-day period must not exceed 1 200 hours.
- 6.6 The cumulative flight time limit in subclause 6.5 may be reset to zero if the FCM is provided with at least 28 consecutive days off-duty.

*Note* These cumulative flight time limits are designed to mitigate the effects of cumulative fatigue. AOC holders are reminded, first, of the emotional, cognitive and physical effects of workload on the performance of FCMs in addition to fatigue and, secondly, that these limits are for optimal circumstances and may not be achievable due to hazard identification and other procedures required under subsection 15 of this CAO.

## **7 Maximum durations must not be exceeded**

Unless an extension is permitted under clause 3, in performing duty an FCM must not exceed the following:

- (a) the maximum duration of the FDP specified for the FCM in the AOC holder's operations manual;
- (b) the maximum flight time specified for the FCM in the AOC holder's operations manual.



## APPENDIX 5A DAYLIGHT AERIAL WORK OPERATIONS AND FLIGHT TRAINING ASSOCIATED WITH AERIAL WORK

### 1 Sleep opportunity before an FDP

An FCM must not be assigned or commence an FDP at a location unless he or she:

- (a) has had at least 8 consecutive hours' sleep opportunity within the 10 hours immediately before commencing the FDP; and
- (b) on each of the 3 local nights immediately before commencing the FDP, has not carried out any duties during the 8 hours prior to 30 minutes before morning civil twilight at the location.

*Note* The intent of paragraph (b) is to prohibit an FCM from undertaking an FDP under Appendix 5A if they have undertaken any duties on the 3 nights immediately before the FDP.

### 2 FDP and flight time limits

2.1 An FCM must not be assigned or commence an FDP that:

- (a) begins more than 30 minutes before the beginning of morning civil twilight at the location at which the FDP commences; or
- (b) ends later than the end of evening civil twilight at the location at which the FDP commences.

*Note* This subclause does not affect other legislative requirements that limit Day VFR operations.

2.2 An FCM may only be assigned an FDP with a total duration no longer than 14 hours in any 1 day (the **FDP limit**).

2.3 An FCM must not be assigned or commence flight time for flight training during an FDP unless the flight training is conducted during the first 7 hours of the FDP's flight time.

*Note* Subclause 2.3 does not apply to a flight review or a proficiency check because these are not flight training as defined in paragraph 6.1 of this CAO.

### 3 Extensions

3.1 Subject to subclause 3.2, at the discretion of the FCM, an FDP may be extended up to a maximum of 1 hour beyond the FDP limit in subclause 2.2, provided the FCM considers himself or herself fit for the extension.

3.2 An FDP must not be extended beyond the end of evening civil twilight, unless this is necessary to complete the duties associated with the last daylight flight.

3.3 Flight training for up to 30 minutes may be conducted after the first 7 hours of the FDP's flight time if:

- (a) unforeseen operational circumstances arise after the commencement of the FDP; and
- (b) it is operationally necessary in order to complete the duty; and
- (c) the FCM considers himself or herself fit for the extension.

### 4 Off-duty period limits

4.1 Following an FDP, an FCM must have an off-duty period of at least 10 consecutive hours.

4.2 An FCM must, in any consecutive 384-hour period, have a period of at least 2 consecutive days off-duty.

*Note* 384 hours is the number of hours in a 16-day period.

## **5 Limit on cumulative flight time**

- 5.1 The cumulative flight time accrued by an FCM during any consecutive 384-hour period must not exceed 100 hours.
- 5.2 If the operation is a mustering operation, the cumulative flight time accrued by the FCM during any consecutive 30-day period must not exceed 120 hours if the combined total of his or her flying time in mustering operations as pilot in command and pilot in command under supervision is less than 500 hours.
- 5.3 The cumulative flight time limits in subclauses 5.1 and 5.2 may be reset to zero immediately after the FCM is provided with at least 5 consecutive days off-duty.
- 5.4 The cumulative flight time accrued by an FCM during any consecutive 365-day period must not exceed 1 200 hours.
- 5.5 The cumulative flight time limit in subclause 5.4 may be reset to zero immediately after the FCM is provided with at least 28 consecutive days off-duty.

*Note 1* 384 hours is the number of hours in a 16-day period.

*Note 2* These cumulative flight time limits are designed to mitigate the effects of cumulative fatigue. AOC holders are reminded, first, of the emotional, cognitive and physical effects of workload on the performance of FCMs in addition to fatigue and, secondly, that these limits are for optimal circumstances and may not be achievable due to hazard identification and other procedures required under subsection 15 of this CAO.

## **6 Maximum durations must not be exceeded**

Unless an extension is permitted under clause 3, in performing duty an FCM must not exceed the following:

- (a) the maximum duration of the FDP specified for the FCM in the AOC holder's operations manual;
- (b) the maximum flight time specified for the FCM in the AOC holder's operations manual.

## APPENDIX 6 FLIGHT TRAINING

*Note* Appendix 6 does not apply to flight training in a flight simulation training device.

### 1 Sleep opportunity before an FDP or standby

An FCM must not be assigned or commence an FDP or standby unless he or she has at least 8 consecutive hours' sleep opportunity within the 12 hours immediately before commencing the FDP or standby.

*Note* See subsection 6 of this CAO for the definition of *sleep opportunity*, where it is defined as occurring during an off-duty period.

### 2 FDP and flight time limits

- 2.1 An FCM must not be assigned an FDP longer than the number of hours specified in Table 2.1 in this clause (the *FDP limit*), as determined by the local time at the start of the FDP.
- 2.2 For any FDP, an FCM must not be assigned flight time longer than 7 hours.
- 2.3 In applying Table 2.1, first, choose the appropriate local time at which the FDP for the FCM is to start. The maximum FDP for the FCM is the number that corresponds to the chosen local time at which the FDP for the FCM is to start.

**Table 2.1 Maximum FDP (in hours) according to local time at start of FDP**

Local time at start of FDP	Maximum FDP
0500 – 0559	9
0600 – 0659	10
0700 – 0759	10
0800 – 1059	11
1100 – 1359	10
1400 – 2259	9
2300 – 0459	8

### 3 Increase in FDP limits by split duty

- 3.1 Subject to subclause 3.4, if an FDP contains a split-duty rest period of at least 4 consecutive hours with access to suitable sleeping accommodation, the maximum FDP worked out under clause 2 may be increased by up to 4 hours.
- 3.2 After an FDP mentioned in subclause 3.1, the first 4 hours of the split-duty rest period may be reduced by 2 hours for the purpose of determining the subsequent off-duty period or cumulative duty time under clause 7 or 9 of this Appendix.
- 3.3 Subject to subclause 3.4, where an FDP contains a split-duty rest period of at least 2 consecutive hours with access to suitable resting accommodation, the FDP limits under subclause 2.1 may be increased by half the duration of the split-duty rest period, provided the increase is not more than 2 hours.
- 3.4 If a split-duty rest period includes any period between the hours of 2300 to 0529 local time, then:
  - (a) the split-duty rest period must be for a consecutive period of at least 7 hours with access to suitable sleeping accommodation; and

- (b) the maximum FDP may be increased to 15 hours (if not already permitted); and
  - (c) the reduction in the subsequent off-duty period and cumulative duty time, provided for in subclause 3.2, does not apply.
- 3.5 Unless the FDP is extended under clause 4, any portion of an FDP remaining after a split-duty rest period must be no longer than 5 hours.

*Note* These are the maximum FDP and flight time limits under this Appendix unless, for any particular FCM, other provisions have the effect of reducing these limits (for example, subsections 14 and 15 of this CAO).

#### **4 Reassignment and extension**

- 4.1 After an FCM's assigned FDP commences, the AOC holder may reassign to the FCM a modified FDP (a *reassignment*), provided that each of the following applies:

- (a) subject to subclauses 4.3 and 4.5 — the modified FDP and flight time does not exceed the applicable limits in the holder's operations manual;
- (b) the FCM has confirmed that he or she is fit for the reassignment.

*Note* Fitness in this context is based on the FCM's self-assessment. An FCM has an obligation under paragraph 16.1 of this CAO not to carry out any task for a flight if, due to fatigue, the FCM is, or is likely to become, unfit for the task. If such circumstances apply, the FCM must decline the reassignment.

- 4.2 If subclause 4.1 applies, the FCM may continue in the modified FDP in accordance with subclause 4.1.
- 4.3 Despite the FDP limits provided in the operations manual, in unforeseen operational circumstances at the discretion of the pilot in command, the FDP limits in the operations manual may be extended by up to 1 hour.
- 4.4 Before exercising the discretion under subclause 4.3 to extend an FDP limit in the operations manual, the pilot in command must be satisfied that he or she, and any other FCM, are fit for the extension.
- 4.5 Despite the limits provided in the operations manual, the flight time limit for an FDP may be extended by not more than 30 minutes if:
- (a) unforeseen operational circumstances arise after the commencement of the FDP; and
  - (b) it is operationally necessary in order to complete the duty; and
  - (c) the FCM considers himself or herself fit for the extension.
- 4.6 An FDP limit must not be reassigned or extended under this clause if it would cause an FCM to exceed the cumulative flight time limits in clause 8 or the cumulative duty time limits in clause 9.
- 4.7 Despite any limit or number under this Appendix, if:
- (a) unforeseen operational circumstances arise after take-off on the final sector of an FDP; and
  - (b) the unforeseen operational circumstances would cause an FCM to exceed any limit or number permitted under this Appendix;
- then the flight may continue to the planned destination or alternate at the discretion of the pilot in command.

*Note 1* Under regulation 91.215 of CASR, the pilot in command of an aircraft is responsible for the conduct and safety of members of the crew on the aircraft and, therefore, has a discretion to not permit an extension to occur even if otherwise permissible under this clause.

*Note 2* Guidance on the assessment of individual cognitive and physical fitness is contained in CAAP 48-01.

## **5 Standby limits and standby-like arrangements**

- 5.1 An AOC holder must not require an FCM to be on continuous standby for a period longer than 14 hours.
- 5.2 The maximum allowable FDP after a call out from standby must be decreased by the number of hours by which the standby exceeds 4 hours.
- 5.3 A standby which is completed without a call out must be followed by an off-duty period of at least 10 consecutive hours.
- 5.4 To remove any doubt, the period of time in which an FCM is held in a standby-like arrangement must be treated as a duty period for the purposes of this CAO.

*Note* For example, the period spent in a standby-like arrangement must be included as part of a following FDP assigned to the FCM or added to the preceding FDP when determining minimum off-duty periods under clause 7.

## **6 Positioning**

On completion of assigned flight duties in an FDP (the *relevant FDP*), an FCM may position to a suitable location as required by the AOC holder.

*Note* As with any duty, the time spent in positioning after completion of the FDP must be added to the relevant FDP when determining minimum off-duty periods under clause 7.

## **7 Off-duty periods**

### *Off-duty period following an FDP*

- 7.1 After an FCM's FDP and any duty time after completion of the FDP but before commencement of the following off-duty period (*other duty time*), his or her following off-duty period must be at least the sum of:
  - (a) 12 hours; and
  - (b) 1.5 times the time that the FDP and the other duty time exceeded 12 hours.

### *Off-duty periods for cumulative fatigue recovery*

- 7.2 Before beginning any standby time or FDP, an FCM must have had at least 36 consecutive hours off-duty, including 2 local nights, in the 168 hours before the projected end time of the assigned FDP or assigned standby.
- 7.3 Before beginning any standby time or FDP, an FCM must have had at least 6 days off-duty in the 28 consecutive days before the standby or FDP commences.

## **8 Limit on cumulative flight time**

- 8.1 The cumulative flight time accrued by an FCM during any consecutive 28-day period must not exceed 100 hours.
- 8.2 The cumulative flight time accrued by an FCM during any consecutive 365-day period must not exceed 1 000 hours.

## **9 Limit on cumulative duty time**

- 9.1 The cumulative duty accrued by an FCM during any consecutive 168-hour period must not exceed 60 hours.
- 9.2 The cumulative duty accrued by an FCM during any consecutive 336-hour period must not exceed 100 hours.

*Note* 168 hours is the number of hours in a 7-day period, and 336 hours is the number of hours in a 14-day period.

## **10 Limits on infringing the WOCL and early starts**

- 10.1 Subject to subclause 10.3, an FCM must not be assigned more than 3 consecutive early starts.
- 10.2 Subject to subclause 10.3, an FCM, whose duties have already infringed 3 consecutive WOCLs, must not be assigned an FDP that would again infringe the WOCL without at least an intervening off-duty period that includes a local night.
- Note* See paragraph 6.2 of this CAO for duties that infringe a WOCL.
- 10.3 Despite subclauses 10.1 and 10.2, the FCM may have a 4<sup>th</sup>, or a 4<sup>th</sup> and a 5<sup>th</sup>, consecutive early start (whether or not the start infringes the WOCL) if:
- (a) the maximum FDP permissible on the day of the 4<sup>th</sup> early start is reduced by 2 hours; and
  - (b) the maximum FDP permissible on the day of the 5<sup>th</sup> early start is reduced by 4 hours.

## **11 Maximum durations must not be exceeded**

Unless an extension is permitted under clause 4, in performing duty an FCM must not exceed the following:

- (a) the maximum duration of the FDP specified for the FCM in the AOC holder's operations manual;
- (b) the maximum flight time specified for the FCM in the AOC holder's operations manual.

## **APPENDIX 7      FATIGUE RISK MANAGEMENT SYSTEM (FRMS)**

### **1      General**

- 1.1 An AOC holder may apply to CASA for:
- (a) a trial FRMS implementation approval, for all or part of its operations; or
  - (b) a full FRMS implementation approval, for all or part of its operations.
- Note* An AOC holder is not eligible for a full implementation approval until the FRMS has been in effective operation for at least 12 months from the date of a trial implementation approval. See clause 9.
- 1.2 For a trial or full FRMS implementation approval, an FRMS must include CASA approval of each of the following elements of the FRMS:
- (a) the policy and objectives, and related documentation, in accordance with clause 2;
  - (b) the practical operating procedures in accordance with clause 3;
  - (c) the hazard identification, risk assessment and mitigation procedures in accordance with clause 4;
  - (d) the safety assurance procedures in accordance with clause 5;
  - (e) the safety promotion procedures in accordance with clause 6;
  - (f) the change management procedures in accordance with clause 7.
- Note 1* Significant changes require CASA approval. See clause 7.
- Note 2* Guidance for the development and implementation of an FRMS is available on the ICAO and CASA websites.
- 1.3 If the AOC holder has an SMS, a trial or full FRMS implementation approval will not be given unless CASA is satisfied that the FRMS is integrated with the SMS.
- 1.4 Before CASA issues a trial FRMS implementation approval, CASA must be satisfied that the AOC holder's FRMS:
- (a) comprises all of the elements mentioned in subclause 1.2; and
  - (b) is a safe, integrated, data-driven, system which appears to be reasonably capable of continuously and effectively monitoring and managing fatigue-related safety risks using scientific principles and knowledge, and operational experience; and
  - (c) will enable the AOC holder to assess the extent to which FCMs and other relevant personnel perform at levels of alertness sufficient to ensure the safety of operations.
- 1.5 Before CASA issues a full FRMS implementation approval, CASA must be satisfied that the AOC holder's FRMS:
- (a) comprises all the elements mentioned in subclause 1.2; and
  - (b) is a safe, integrated, data-driven, system which will continuously and effectively monitor and manage fatigue-related safety risks using scientific principles and knowledge, and operational experience; and
  - (c) will enable the AOC holder to ensure that FCMs and other relevant personnel perform at levels of alertness sufficient to ensure the safety of operations.

### **2      FRMS policy and documentation**

- 2.1 The AOC holder must have an FRMS policy:
- (a) referring to all elements of the FRMS mentioned in subclause 1.2; and
  - (b) if the AOC holder has an SMS — which integrates the FRMS with the SMS.

- 2.2 The policy must require that all operations to which the FRMS applies be clearly defined in the operations manual.
- 2.3 The policy must:
- (a) make it clear that while primary responsibility for the FRMS lies with the AOC holder, its effective implementation requires shared responsibility by management, FCMs, and other relevant personnel; and
  - (b) clearly indicate the safety objectives of the FRMS; and
  - (c) be approved in writing by the Chief Executive Officer; and
  - (d) be accessible to all relevant areas and levels of the organisation in a way that indicates the AOC holder's specific endorsement of the policy; and
  - (e) declare management commitment to:
    - (i) effective safety reporting; and
    - (ii) provision of adequate resources for the FRMS; and
    - (iii) continuous improvement of the FRMS; and
  - (f) require that clear lines of accountability are identified for management, FCMs, and all other relevant personnel; and
  - (g) require periodic reviews to ensure the policy remains relevant and appropriate.
- 2.4 The policy must:
- (a) be in a written statement; and
  - (b) require that each other element of the FRMS mentioned in subclause 1.2 be described in a written statement.
- 2.5 In addition to the requirements under subclause 2.4, and the relevant limits and procedures contained in the operations manual in accordance with this CAO, the FRMS must also be supported by the following documentation, namely, up-to-date identification, description and records of the following:
- (a) the personnel accountabilities, responsibilities and authorities for effective implementation of the FRMS, including the FRMS Manager;
  - (b) the mechanisms for ongoing involvement in fatigue risk management of management, FCMs, and all other relevant personnel;
  - (c) the FRMS training programs, training requirements and records of attendance at training;
  - (d) scheduled and actual flight times, and duty periods and off-duty periods with significant deviations and reasons for deviations noted;
  - (e) the FRMS outputs, including findings from collected data, and recommendations and actions taken.
- 2.6 An AOC holder's exposition or operations manual (as the case requires) must contain the details of the FRMS.

*Note 1* See also paragraph 6.4 in subsection 6 in relation to references to expositions and operations manuals.

*Note 2* The FRMS may be subject to CASA directions under regulation 11.245 of CASR in the interests of aviation safety — see subclause 7.4 of this Appendix.

### **3 FRMS practical operating procedures**

- 3.1 The FRMS practical operating procedures must, as a minimum:
- (a) incorporate scientific principles and knowledge; and



- (b) identify, on an ongoing basis, fatigue-related safety hazards and the risks that result from them; and
  - (c) ensure that remedial actions necessary to effectively mitigate the risks associated with the hazards are implemented properly; and
  - (d) provide for continuous recording and monitoring of, and regular assessment of:
    - (i) fatigue-related safety hazards; and
    - (ii) relevant remedial actions; and
    - (iii) the extent to which mitigation of fatigue-related risks is achieved by remedial actions; and
  - (e) provide for continuous improvement in the effectiveness of the FRMS.
- 3.2 The FRMS practical operating procedures must set out:
- (a) maximum values for each FCM for the following:
    - (i) flight times;
    - (ii) flight duty periods;
    - (iii) duty periods; and
  - (b) minimum values for each FCM off-duty periods.

*Note* The terms *flight time*, *flight duty period*, *duty period* and *off-duty period* are defined in this CAO.

- 3.3 For subclause 3.2, the values for each FCM must be based on scientific principles and knowledge and subject to safety assurance processes.
- 3.4 Subject to subclause 3.5, where an AOC holder acquires data from an FRMS which indicates that the maximum and minimum values required under paragraphs 3.2 (a) and (b) are too high or too low, respectively, the AOC holder must amend the FRMS to ensure that these values are acceptable.
- 3.5 For subclause 3.4, an amendment may only be made in accordance with clause 7.

#### **4 FRMS hazard identification, risk assessment and mitigation procedures**

##### FRMS hazard identification procedures

- 4.1 FRMS hazard identification procedures must be based on the following processes for fatigue-related hazard identification:
  - (a) the predictive process;
  - (b) the proactive process;
  - (c) the reactive process.
- 4.2 The predictive process must be capable of identifying fatigue-related hazards by examining FCM scheduling and taking into account the following:
  - (a) factors known to affect sleep;
  - (b) factors known to affect fatigue;
  - (c) the effects of the factors mentioned in paragraphs (a) and (b) on FCM performance.
- 4.3 The proactive process must be capable of identifying fatigue-related hazards within current flight operations.
- 4.4 The reactive process must be capable of identifying the contribution of fatigue-related hazards to actual events that could have affected, or did affect,

safety, with a view to determining how the effects of fatigue on each event could have been minimised.

#### **FRMS risk assessment procedures**

- 4.5 FRMS risk assessment procedures must be capable of determining the following:
- (a) the probability of events occurring or circumstances arising that create a fatigue-related hazard;
  - (b) the potential severity of fatigue-related hazards;
  - (c) when the safety risks associated with paragraph (a) or (b) require mitigation.
- 4.6 For subclause 4.5, the FRMS risk assessment procedures must ensure that identified fatigue-related hazards are examined in relation to the following:
- (a) the relevant operational context and procedures in which the identified fatigue-related hazard arose;
  - (b) the probability of the fatigue-related hazard arising in those circumstances;
  - (c) the possible consequences of the fatigue-related hazard in those circumstances;
  - (d) the effectiveness of existing safety procedures and controls.

#### **FRMS risk mitigation procedures**

- 4.7 FRMS risk mitigation procedures for each fatigue-related hazards must be capable of:
- (a) selecting appropriate mitigation strategies for the hazard; and
  - (b) implementing the selected mitigation strategies; and
  - (c) monitoring the implementation and effectiveness of the strategies.

### **5 FRMS safety assurance procedures**

- 5.1 FRMS safety assurance procedures must provide for:
- (a) continuous monitoring of the performance of the FRMS;
  - (b) the analysis of fatigue-related trends;
  - (c) measurements to validate the effectiveness of mitigation strategies.
- 5.2 FRMS safety assurance procedures must include a formal process for the management of changes to the FRMS arising from the following:
- (a) identification of changes in the operational environment that may affect FRMS;
  - (b) identification of changes within the AOC holder's organisation that may affect FRMS.
- 5.3 The FRMS safety assurance procedures must include a formal process to assess:
- (a) what impact a change mentioned in paragraph 5.2 (a) or (b) may have on the effective performance of the FRMS; and
  - (b) for such a change — what amendment, change or modification may be needed to the FRMS to ensure its continued effective performance.
- 5.4 FRMS safety assurance procedures must provide for the continuous improvement of the FRMS, by including the following:
- (a) the elimination or modification of fatigue-related risk controls that:
    - (i) have had unintended negative consequences; or

- (ii) are no longer required because of changes in the AOC holder's operational or organisational environment;
- (b) routine evaluations of facilities, equipment, documentation and procedures to determine their implications for fatigue-related risk management and control;
- (c) identification of emerging fatigue-related risks to allow the introduction of new procedures and procedures to mitigate such risks.

## 6 FRMS safety promotion procedures

- 6.1 FRMS safety promotion procedures for fatigue-related hazards must include training and communication programs capable of supporting and continuously improving all elements of the FRMS in the delivery of optimum safety levels.
- 6.2 For subclause 6.1, FRMS safety promotion procedures must include the following:
  - (a) training programs for management, FCMs, and all other relevant personnel to ensure competency levels commensurate with the role and responsibility of the person under the FRMS;
  - (b) an effective FRMS communication plan that:
    - (i) explains all elements of the FRMS to management, FCMs, and all other relevant personnel; and
    - (ii) describes the communication channels which they must use to gather, disseminate and apply FRMS-related information.

## 7 FRMS change management procedures

- 7.1 For this clause, a *significant change* means:
  - (a) any increase to the values required under paragraph 3.2 (a); and
  - (b) any decrease to the values required under paragraph 3.2 (b); and
  - (c) any other change to any element of the FRMS that does not maintain or improve, or is not likely to maintain or improve, aviation safety.
- 7.2 The FRMS change management procedures must:
  - (a) meet the requirements of this clause; and
  - (b) clearly indicate how the AOC holder will amend, change or modify any element of the FRMS consistently with the requirements of this clause.
- 7.3 The change management procedures set out in this clause apply to:
  - (a) an AOC holder with a trial FRMS implementation approval; and
  - (b) an AOC holder with a full FRMS implementation approval.
- 7.4 After issuing an FRMS implementation approval, CASA may, in writing, direct an AOC holder to amend, change or modify the FRMS (including practices and documents), and the AOC holder must comply within the time specified by CASA in the direction.
 

*Note 1* A failure to comply may result in revocation of the FRMS implementation approval.

*Note 2* CASA's power to direct changes to an FRMS is an emergency power for safety purposes only. It does not relieve any approval holder of their own obligation to improve the performance of their FRMS where this is safe and practicable.
- 7.5 The AOC holder must not make a significant change to any element of the FRMS unless an application to make the change is approved in writing by CASA.
- 7.6 An application for approval of a significant change must:
  - (a) be in writing; and
  - (b) set out the change; and

- (c) be accompanied by a copy of the part of the AOC holder's FRMS documentation affected by the change, clearly identifying the change.
- 7.7 A change to the FRMS that is not a significant change must be:
- (a) made in accordance with the FRMS change management procedures; and
  - (b) notified in writing to CASA within the following period after the change is made:
    - (i) 7 days;
    - (ii) either:
      - (A) if an AOC holder's approved SMS amendment process under Part 82 of the CAOs has a different CASA notification period for SMS amendments — the period specified in the process; or
      - (B) if an AOC holder's exposition change process under the Regulations has a different CASA notification period for non-significant changes — the period specified in the process.

## **8 Trial FRMS implementation approval**

- 8.1 CASA may, on written application, issue an AOC holder with a trial FRMS implementation approval for up to 24 months, if CASA is satisfied that each element of the AOC holder's FRMS:
- (a) complies with and meets the requirements, attributes and characteristics of an FRMS under this Appendix; and
  - (b) is capable of delivering:
    - (i) identified safety outcomes; and
    - (ii) fatigue-risk data and reports; and
    - (iii) continuous improvement in the delivery of safety outcomes.
- 8.2 If an approval was issued under subclause 8.1, CASA may, by issuing a new trial FRMS implementation approval, extend the duration of the approval:
- (a) on the written application of the AOC holder; or
  - (b) on CASA's own initiative if CASA considers that aviation safety requires a longer trial FRMS implementation approval period before a full FRMS implementation approval.

*Note* More than 1 extension is possible if CASA considers it appropriate and trial FRMS implementation approval status could, therefore, be required to last longer than 24 months.

## **9 Full FRMS implementation approval**

- 9.1 CASA may, on written application, issue an AOC holder with a full FRMS implementation approval, if the AOC holder:
- (a) has held a trial FRMS implementation approval for at least 12 consecutive months; and
  - (b) satisfies CASA, through relevant data and reports, that the FRMS:
    - (i) is demonstrably delivering the safety outcomes expected when the trial FRMS implementation approval was given; and
    - (ii) is capable of delivering continuous improvement in the delivery of safety outcomes.
- 9.2 If, for this clause, CASA decides not to issue the AOC holder with a full FRMS implementation approval, the holder may apply again to CASA for a trial FRMS implementation approval and clauses 8 and 9 will apply according to their terms.

- 9.3 For paragraph 9.1 (a), a trial FRMS implementation approval is deemed to include such an approval issued under *Civil Aviation Order 48.1 Instrument 2013* as in force immediately before the commencement of this CAO.

## **10 Expiry, suspension, revocation, surrender of FRMS implementation approval**

- 10.1 An FRMS implementation approval stops having effect if:
- (a) it expires, or it is suspended or revoked in writing by CASA; or
  - (b) the AOC holder tells CASA in writing that the holder wants to surrender the approval.
- 10.2 If the approval is revoked or surrendered, the AOC holder must return the approval instrument to CASA within 14 days.
- 10.3 CASA may revoke or suspend an approval if:
- (a) the AOC holder does not comply with the requirements of this CAO for implementation or use of an FRMS; or
  - (b) CASA considers that continued implementation or use of the FRMS would adversely affect aviation safety; or
  - (c) the AOC holder refuses CASA reasonable access to any information or records produced under or for the FRMS which CASA requests in writing for the purpose of assessing the effectiveness and safety of the FRMS; or
  - (d) for a revocation only — CASA wishes to reissue the approval in a varied form.
- 10.4 To avoid doubt, in this clause, reference to an *FRMS implementation approval* means a trial or full FRMS implementation approval, and includes the approval as varied by CASA.

# Notes to Civil Aviation Order 48.1

## Note 1

The Civil Aviation Order (in force under the *Civil Aviation Act 1988*, *Civil Aviation Regulations 1988* and *Civil Aviation Safety Regulations 1998*) as shown in this compilation comprises *Civil Aviation Order 48.1 Instrument 2019* amended as indicated in the Tables below.

### Table of Orders

Year and number	Date of registration on FRL	Date of commencement	Application, saving or transitional provisions
CAO 48.1 Instrument 2019	15 August 2019 (F2019L01070)	2 September 2019 (see s. 2)	
CAO 48.1 Amdt. Instrument 2019 (No. 1)	18 November 2019 (F2019L01473)	18 November 2019 (see s. 2)	
CAO 48.1 Amdt. Instrument 2020 (No. 1)	26 June 2020 (F2020L00805)	26 June 2020 (see s. 2)	
CAO 48.1 Amdt. Instrument 2021 (No. 1)	25 November 2021 (F2021L01610)	2 December 2021 (see s. 2)	

### Table of Amendments

ad. = added or inserted am. = amended rep. = repealed rs. = repealed and substituted

Provision affected	How affected
subs. 2	rep. <i>Legislation Act 2003</i> , s. 48D
subs. 3	rep. <i>Legislation Act 2003</i> , 48C
subs. 4	am. F2021L01610
subs. 5	am. F2019L01473, F2020L00805 rs. F2021L01610
subs. 5A	ad. F2019L01473
Sub. 5A.2	am. F2021L01610
subs. 5AB	ad. F2020L00805 rep. F2021L01610
subs. 6	am. F2020L00805, F2021L01610
subs. 10	am. F2021L01610
subs. 12	am. F2021L01610
subs. 16	am. F2021L01610
Appendix 1	am. F2021L01610
Appendix 2	am. F2021L01610
Appendix 3	am. F2021L01610
Appendix 4	am. F2021L01610
Appendix4A	am. F2021L01610
Appendix 4B	am. F2021L01610
Appendix 5	am. F2021L01610
Appendix 6	am. F2021L01610

## Table of Amendments

ad. = added or inserted   am. = amended   rep. = repealed   rs. = repealed and substituted

Provision affected	How affected
Appendix 7	am. F2021L01610