

Fatigue Risk Management Systems [FRMS].

The 'new' CAO 48.1 Instrument 2019

SOME DEFINITIONS FROM CAO 48.1 Instrument 2019

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.

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 subsections 4 and 5, is also taken to include the holder of a Part 141 certificate to whom this CAO applies.

Note See also paragraph 6.4.

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 same meaning as in the Regulations.

Note Under regulation 2 of CAR, **crew member** means a person assigned by an operator for duty on an aircraft during flight time, and any reference to **crew** has a corresponding meaning.

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:

- (a) until immediately before 1 September 2014 — has the meaning given in subregulation 2 (1) of CAR; and
- (b) on and from 1 September 2014 — means a flight crew licence within the meaning of regulation 61.010 of CASR.

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 aircraft operation to herd or otherwise control livestock, and includes the following:

- (a) aerial mustering within the meaning of CAO 29.10;
- (b) aerial livestock spotting;
- (c) aerial livestock culling;
- (d) 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 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.

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 subsections 4 and 5:
- (a) a reference to an AOC is taken to include a Part 141 certificate; and
 - (b) a reference to an AOC holder, or a holder, is taken to include 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 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

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

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 ***commercial 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 commercial 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* commercial 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 commercial flight is conducted during the FDP; and
 - (ii) the private flight is conducted *after* the commercial 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 commercial flight is conducted during the FDP; and
 - (ii) the private flight is conducted *after* the last commercial 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.

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 224 of CAR, 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 1 SUMMARY



FDP AND FLIGHT TIME LIMITS.

A FDP must not start before 0700 or BOD which ever is earlier.

A FDP must not end later than 0100.

A flight duty period must not exceed 9 hours.

If the start is before 0600 (where 0600 is after BOD), the FDP must not exceed 8 hours.

If the start is after 1400, the FDP must not exceed 8 hours.

If the start is after 1700, the FDP must be less than 8 hours (because of the 0100 finish requirement).

No more than three late finishes (after 2200 in any one week - 168 hours).

No flying training permitted beyond the first 7 hours of the FDP.

EXTENSIONS

A FDP already commenced may be extended by up to one hour if it is due to unforeseen circumstances, is operationally necessary and the FCM is happy with it.

Extra flying training of up to 30 minutes in excess of the 7 hours in the circumstances given above.

These extensions must not result in the FCM exceeding any of the cumulative flight time limits in para 5.

Except that, if unforeseen circumstances arise after take-off on the final leg of a FDP, the flight may continue to the destination even if limits are exceeded.

OFF DUTY PERIOD LIMITS

A FCM must have 12 consecutive hours off duty in any 24 hours.

The FCM must not commence a FDP unless, in the 168 hours (week) prior to the projected end of that FDP, he/she has had at least 36 hours including 2 local nights off duty and at least 6 days off duty in the 28 days prior to the commencement of the FDP.

If a FDP commenced under this appendix is followed by a FDP under any another appendix, you must have 12 hours off before commencing the second FDP.

LIMIT ON CUMULATIVE FLIGHT TIME.

You cannot fly more than 100 hours in any 28 day period.

You cannot fly more than 1000 hours in any 365 day period.

APPENDIX 1 RESEARCH QUESTIONS.

Question No 1 (Appendix 1 para 2.3)

Your company operates under CAO 48.1 Instrument 2019 Appendix 1. You are to begin a FDP at 0530 LMT. If beginning of morning civil twilight is 0500 and no extensions are made, the maximum FDP that may be assigned to you as a pilot is ----

- (a) 7 hours
- (b) 9 hours
- (c) 12 hours
- (d) 8 hours

Question No 2 (Appendix 1 para 2.5)

Your company operates under CAO 48.1 Instrument 2019 Appendix 1. You finished a FDP after 10pm last night. The maximum number of FDP's that finish after 10pm in the next 6 days is ----

- (a) 1
- (b) 2
- (c) 3
- (d) 4

Question No 3 (Appendix 1 para 2.6 and para 2.2)

Your company operates under CAO 48.1 Instrument 2019 Appendix 1. As a flight instructor, you commenced a FDP at 0900 LMT. The latest time at which you can conduct flying training with a student is ----

- (a) 7 hours after the commencement of the flight time
- (b) 7 hours after the commencement of the FDP.
- (c) 1800 LMT
- (d) 1700 LMT

Question No 4 (Appendix 1 para 2.4)

Your company operates under CAO 48.1 Instrument 2019 Appendix 1. As a flying instructor you started an FDP of night flying with students at 1900 LMT. The maximum duration permitted for this FDP is ----

- (a) 7 hours
- (b) 6 hours
- (c) 9 hours
- (d) 5 hours

Question No 5 (Appendix 1 para 3.1)

Your company operates under CAO 48.1 Instrument 2019 Appendix 1. You commenced a FDP at 1000 LMT. At one of the landing aerodromes you punctured a nose wheel tyre. You arrange to have it replaced. The latest time at which you can return to base, assuming you do not exceed any cumulative flight time limits, is ----

- (a) 1900 LMT
- (b) 1930 LMT
- (c) 2000 LMT
- (d) 2100 LMT

Question No 6(Appendix 1 para 3.4)

Your company operates under CAO 48.1 Instrument 2019 Appendix 1. During a FDP, you have departed the last intermediate landing point and are heading back to base. During this sector, it becomes necessary to divert off track to avoid a large bush fire. This diversion will result in the maximum FDP being exceeded. Which of the following applies ----

- (a) you may disregard any FDP limits as required at your discretion.
- (b) you may extend your original FDP by up to 1 hour.
- (c) you may exceed the FDP limit but you must declare an emergency.
- (d) you may extend your original FDP by up to 30 minutes

Question No 7(Appendix 1 para 3.2)

Your company operates under CAO 48.1 Instrument 2019 Appendix 1. As a flying instructor you may extend the flying training content of your original FDP by up to 30 minutes providing ----

- (a) it becomes necessary after the commencement of the FDP, and was not planned before hand
- (b) it is operationally necessary to extend the flying training period
- (c) you consider yourself fit for the extended flight instruction time
- (d) all of the above conditions are met

Question No 8(Appendix 1 para 4.2 (a))

Your company operates under CAO 48.1 Instrument 2019 Appendix 1. Any given week must contain an off-duty period of ----

- (a) 36 hours including a day, the intervening night and the following night
- (b) any 24 hours
- (c) 36 hours including a night, the following day and the following night
- (d) any 36 hour period

Question No 9 (Appendix 1 para 4.2 (b))

Your company operates under CAO 48.1 Instrument 2019 Appendix 1. You are required to commence a FDP on 30 September. To do this, you must have had 6 days off duty since ----

- (a) 10th September
- (b) 15th September
- (c) 30th August
- (d) 1st September

Question No 10 (Appendix 1 para 5.1)

Your company operates under CAO 48.1 Instrument 2019 Appendix 1. You have logged 95 hours since the 1st March. Today is the 27th March and you have been assigned a FDP commencing at 0900 LMT. The maximum flight time you can log in this FDP is ----

- (a) 9 hours
- (b) 8 hours
- (c) 10 hours
- (d) 5 hours

Answers

Question No 1 (d)	Question No 2 (b)	Question No 3(c)	Question No 4 (b)
Question No 5 (c)	Question No 6 (a)	Question No 7 (d)	Question No 8 (c)
Question No 9 (d)	Question No 10 (d)		

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

Local time at start of FDP	Maximum FDP
0500 – 0559	9
0600 – 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, 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 224 of CAR, 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.

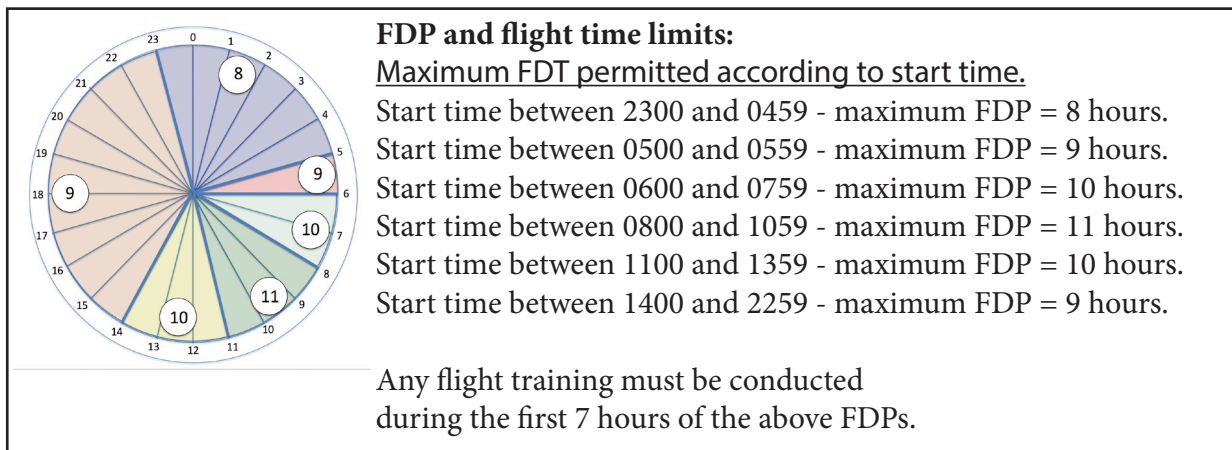
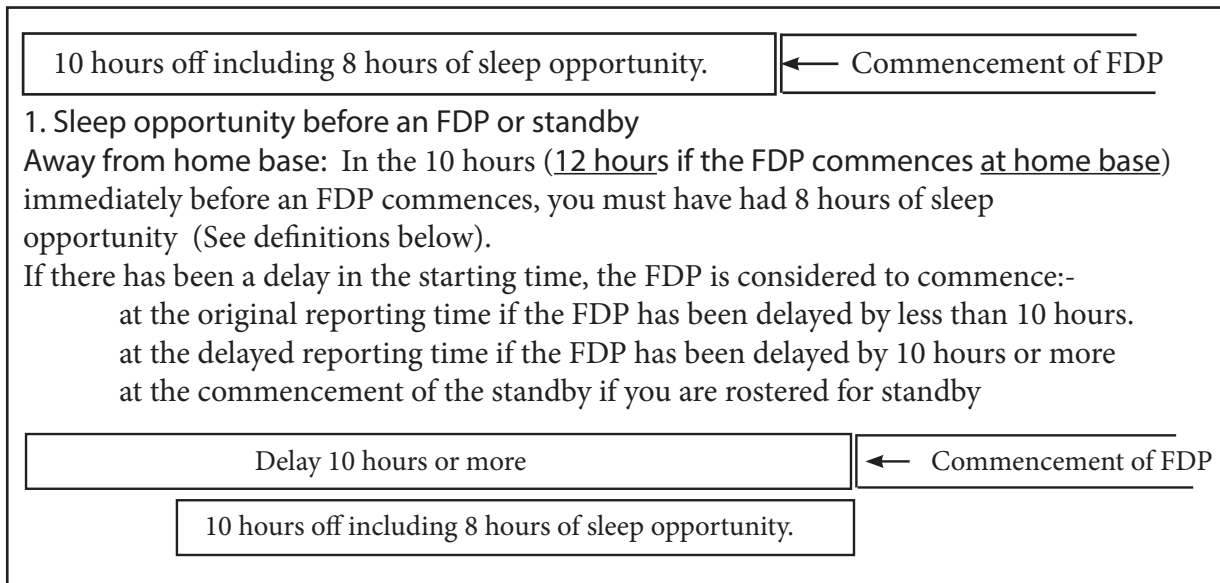
- 11.3 Despite subclauses 11.1 and 11.2, the FCM may have a 4th, or a 4th and a 5th, consecutive early start (whether or not the start infringes the WOCL) if:
 - (a) the maximum FDP permissible on the day of the 4th early start is reduced by 2 hours; and
 - (b) the maximum FDP permissible on the day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

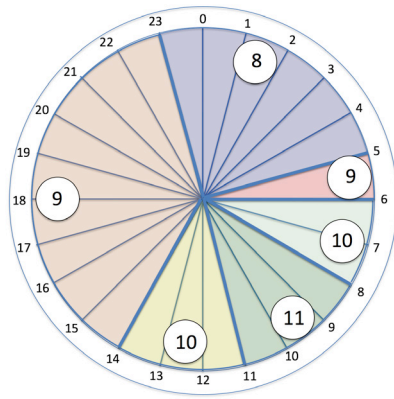


<p>Suitable sleeping accommodation: (see definitions)</p>  <p>Comfortable room, apartment or facility with a bed. Single occupancy if desired. Clean, tidy and hygienic facilities, including toilet and hand-wash basin.</p> <p>Minimum noise levels and control of light temperature and ventilation and adequate sustenance.</p>	<p>Suitable resting accommodation: (see definitions)</p>  <p>Comfortable resting area.</p> <p>Comfortable temperature and noise levels.</p> <p>Access to food and drinks.</p>
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Delayed reporting time (when procedures are prescribed in the company operations manual)

If the delay is longer than 10 hours, then your boss may call the delay off-duty time and require you to commence a new FDP according to the usual rules.

If the new reporting time places you within a new reporting time sector (see “FDP and flight time limits” diagram below), then the FDP limit becomes the lowest figure of the two sectors.



FDP and flight time limits

If delay is 4 hours or more, the FDP is considered to commence 4 hours after the original reporting time and the FDP limit is to be based on the least of-
the FDP associated with the original reporting time, sector or
the FDP associated with the new reporting time sector (see “FDP and flight time limits” diagram at left).

The combined duration of all delays prior to the commencement of a FDP must not exceed 16 hours unless the FDP contains a split-duty rest period.

If a delay leads to a cancellation of the FDP, the FCM must be given 10 hours off-duty from the time at which the FCM was informed of the cancellation.

3. Reassignment and extension

After the commencement of your FDP, your boss may reassign you to a modified FDP that differs from the original. However, this can only be done if the company operations manual permits it and you have indicated that you are happy with the new FDP.

If unforeseen circumstances arise during a FDP the FCM may, at his/her discretion, extend the FDP by up to 1 hour.

The 7 hour limitation on flying training may be extended by up to 30 minutes, providing in is operationally necessary due to unforeseen circumstances and the FCM considers him/herself fit for that extension.

The above extensions are not permitted if it would cause the FCM to exceed any of the cumulative flight or duty times contained in Clause 9 and 10 of this instrument.

An exception to the above applies if, due to unforeseen circumstances arising **on the final sector of an FDP.**

In that case, the flight may continue at the discretion of the pilot in command even if any of the above limits is exceeded.

4. Standby limits and standby-like arrangements

A standby period must not exceed 14 hours.

The FDP following a call out from a standby period must be reduced by the number of hours by which a standby period exceeds 4 hours. (If you were called out after 10 hours on stand by, the subsequent FDP must be reduced by $10 - 4 = 6$ hours).

A standby which is completed without a call out must be followed by 10 hours off-duty, (In other words, if you are on stand by you are still considered to be on-duty).

5. Positioning

If a pilot is required to undertake a positioning flight (that is as a passenger, not a FCM), the duration of the positioning flight is to be included in the FDP before or after the positioning flight.

6. Off-duty periods

Off duty period following a FDP.

Note: A duty period is the time spent carrying out duties such as updating documents or general duties that do not include flying.

6.1 If the sum of a FDP and any duty period immediately before or after that flight duty period is

12 hours or less, the following off-duty period must be at least-

- (a) 10 hours if the off duty period is away from home base plus
- (b) the amount by which the displacement time exceeds 3 hours if traveling west or 2 hours if traveling east

6.2 If the sum of a FDP and any duty period immediately before or after that flight duty period is 12 hours or less, the following off-duty period must be at least-

- (a) 12 hours if the off duty period is at home base plus
- (b) the amount by which the displacement time exceeds 3 hours if traveling west or 2 hours if traveling east

Definition of 'displacement time-

The difference in LMT between the place where the FDP commenced and the place where the FDP ends.

If the sum of a FDP and any duty period immediately before or after that flight duty period is exceeds 12 hours, the following off-duty period must be at least 12 hours plus the sum of-

- (a) 1.5 times the amount by which that FDP exceeded 12 hours
and
- (b) the amount by which the displacement time exceeds 3 hours if traveling west or 2 hours if traveling east

You cannot commence a FDP or stand by period unless, prior to the beginning of the proposed FDP or standby period you have had 6 days off duty in the last 28 days.

7. Reduction in off-duty periods

The off duty periods described in 6.1 above may be reduced to 9 hours providing-

- (a) the off-duty period preceding the FDP just completed, (FDP 1), was at least 12 hours including a local night.
- (b) the off-duty period after the FDP 1 contains a local night and is away from home base.
- (c) the off-duty period following the next FDP, (FDP 2) is at least 12 hours including a local night,

If the off duty period described in 6.2 above exceeds 14 hours it may be reduced to 14 hours providing-

- (a) it is taken away from home base and;
- (b) the off-duty period following FDP 2 is at least 36 hours including 2 local nights,

You cannot commence a FDP or stand by period unless, prior to the end of the proposed FDP or standby period you have had 36 hours off duty including 2 local nights in the last 168 hours (let's say 7 days).

(this is a flash way of saying that you must have 2 days off in every 7 days).

8. Limit on cumulative flight time

Your cumulative flight time must not exceed-

- 100 hours in any 28 days.
- 1000 hours in any 365 days.

9. Limit on cumulative duty time

Definition of duty time;

The period of time which starts when the FCM reports for duty and ends when the FCM is free of all duties.

Note: Duty time includes any duty associated with your employment. That includes such things as maintaining records, pilot-permitted maintenance, teaching theory as well as actually flying or positioning.

Your cumulative duty time must not exceed-

- 60 hours in any 7 days (168 hours)
- 100 hours in any fortnight (336 hours)

10. Window of circadian low (WOCL)

This is the period in each 24 hour day when humans are likely to experience a drop physical and/or mental performance due to the circadian rhythms reaching a low point. For domestic pilots, it is taken to be the hours from 2.00am to 6.00am. See definitions in the instrument.

Definition of an early start

For domestic pilots, an early start is considered to be the start of a FDP between the hours of 2.00am and 6.00am. (Officially 0200 to 0559). See para 6.2 of the instrument for details.

You must not have more than 3 consecutive early starts.

If you are required to have another early start, having already had 3 consecutive early starts, the intervening period must include an off-duty period containing a local night.

In spite of the above, you may be required to have a 4th or 5th consecutive early start if the FDP on the 4th early start is reduced by 2 hours and the FDP on the 5th day is reduced by 4 hours.

APPENDIX 4 RESEARCH QUESTIONS.

Question No 1

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. You are required to commence a FDP at home base at 0900 LMT. The off duty period immediately preceding commencement of this FDP must be not less than ----

- (a) 11 hours including 8 hours of sleep opportunity
- (b) 10 hours including 8 hours of sleep opportunity
- (c) 12 hours including 10 hours of sleep opportunity
- (d) 12 hours including 8 hours of sleep opportunity

Question No 2

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. As a flying instructor you are assigned to commence an FDP at midday LMT. Any flying training during this FDP must be completed by ----

- (a) 1700 LMT
- (b) the end of the FDP
- (c) 1900 LMT
- (d) 2000 LMT

Question No 3

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. You were to begin an FDP at home base at 0700 LMT but the start was delayed due to an aircraft maintenance problem. You eventually commenced the FDP at 1100 LMT. The latest time at which you must complete this FDP is ----

- (a) 1700 LMT
- (b) 1800 LMT
- (c) 1600 LMT
- (d) 2100 LMT

Question No 4

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. You are assigned to commence an FDP at 0530 LMT and a 6 hour rest period with sleeping accommodation has been provided after the first 3 hours of the FDP. The latest time at which you must be relieved of duty is ----

- (a) 1430 LMT
- (b) 1130 LMT
- (c) 1530 LMT
- (d) 1830 LMT

Question No 5

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. You have been assigned to commence an FDP at 0900 LMT and a 4 hour rest period with resting accommodation has been provided after the first 4 hours of the FDP. The latest time at which you must be relieved of duty is ----

- (a) 1300 LMT
- (b) 2400 LMT
- (c) 1100 LMT
- (d) 2200 LMT

Question No 6

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. The operations manual of the company you work for has procedures for dealing with delayed start times for FDP's. You are away from home base and are scheduled to commence a FDP at 0830 LMT. At 0700 LMT you are advised that the FDP will now be delayed and the new commencement time will be 1000 LMT. The delayed FDP may now be deemed to commence at ---

- (a) 0700 LMT and the FDP limit is 10 hours
- (b) 0830 LMT and the FDP limit is 11 hours
- (c) 1000 LMT and the FDP limit is 11 hours
- (d) 0830 LMT and the FDP limit is 12 hours 30 minutes

Question No 7

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. The operations manual of the company you work for has procedures for dealing with delayed start times for FDP's. Your original reporting time for a FDP was 0530 LMT but it was delayed until 0900 LMT. The FDP limit that now applies would be ----

- (a) 11 hours
- (b) 10 hours
- (c) 9 hours
- (d) 10 hours 30 minutes.

Question No 8

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. Providing it is operationally necessary due to unforeseen operational circumstances arising after an FDP has commenced and the FCM considers him/herself fit for the extension, the 7 hour limitation on flying training during a FDP may ----

- (a) be extended by up to 30 minutes
- (b) be extended by up to 1 hour
- (c) not be extended under any circumstances
- (d) by less than 4 hours

Question No 9

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. Providing it is operationally necessary due to unforeseen circumstances after takeoff on the final sector of a FDP and the FCM considers him/herself fit for the extension, the limit on FDP may be extended ----

- (a) by up to 4 hours
- (b) by 30 minutes
- (c) by 1 hour with the agreement with the company chief pilot
- (d) at the discretion of the pilot in command without regard for limits

Question No 10

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. You are required to report for a two and a half hour positioning flight as a passenger prior to a FDP that is due to commence at 1100 LMT. The latest time by which the FDP must be completed is ----

- (a) 2100 LMT
- (b) 1930 LMT
- (c) 2000 LMT
- (d) 1830 LMT

Question No 11

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. You have been called out at 1200 LMT from standby to commence a FDP at 1430 LMT. If you commenced the standby period at 0700 LMT, the latest time at which the FDP must be completed is ----

- (a) 2330 LMT
- (b) 2000 LMT
- (c) 1800 LMT
- (d) 2200 LMT

Question No 12

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. You have been assigned a FDP today commencing at 1600 LMT. In the last 27 days you have logged 95 hours of flight time. The maximum flight time you can fly today is ----

- (a) 7 hours
- (b) 9 hours
- (c) 5 hours
- (d) 11 hours

Question No 13

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. You have commenced a FDP at 3am on Tuesday and another at 5am on Wednesday. If no reductions are made, the maximum number of FDPs commencing between 2am and 6am before the next Tuesday is---

- (a) 1
- (b) 2
- (c) 3
- (d) 4

Question No 14

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. You have commenced a FDP of 9 hours at 2000 LMT. You have been allocated a split duty rest period during this FDP starting at 2400 LMT. The minimum duration of this split duty rest period must be not less than ----

- (a) 4 hours
- (b) 7 hours
- (c) 9 hours
- (d) 12 hours

Question No 15

Your company operates under CAO 48.1 Instrument 2019 Appendix 4. The sum of the FDP and the rest period described in Question No 14 must not exceed ----

- (a) 12 hours
- (b) 10 hours
- (c) 15 hours
- (d) 18 hours

Answer to Question No 1 (d) (Appendix 4 para 1.2)

The required off duty period is 10 hours if you are away from home base and 12 hours if you are at home base. In both cases, the off duty period must contain 8 hours of sleep opportunity.

Answer to Question No 2 (b) (Appendix 4 para 2.2 and table 2.1)

If your flight time exceeds 7 hours in a FDP and you provide flight instruction, then that flight instruction must be provided during the first 7 hours of your flight time, and not the first 7 hours of your FDP. So if you start an FDP at midday LMT, you can be assigned and work the entire FDP of 10 hours

Answer to Question No 3 (a) (Appendix 4 para 1.2)

The maximum permitted duration for a FDP commenced at 0700 LMT is 10 hours. If the original commencement time was 0700 and you actually began duty at 1100, the delay was 4 hours. That's less than 10 hours so the FDP is deemed to commence at the original start time of 0700. You must finish duty by 1700 LMT. i.e. your actual duty time has been reduced to 6 hours.

Answer to Question No 4 (d) (Appendix 4 para 3.1)

The maximum FDP for a 0530 LMT start is 9 hours. Even though you have been given a 6 hour split duty rest period, the maximum extension permitted is 4 hours. $0530 + 9 + 4$ so that's a 1830 LMT finish time.

Answer to Question No 5 (d) (Appendix 4 para 3.3)

The maximum FDP for a 0930 start is 11 hours. You were given a split duty rest period of 4 hours, however only resting accommodation was available. You can extend by only half that split duty rest period. $0900 + 11 + 2 = 2200$ LMT

Answer to Question No 6 (c) (Appendix 4 para 4,6 (b))

Your company Operations Manual has prescribed procedures for dealing with delays and you are away from home base, so you must be given at least 1 hour notice of the delay. You were given 1 hour 30 minutes notice so that's OK. You may commence the FDP at the delayed time of 1000 and the normal FDP limit of 11 hours applies. The period of the delay may be counted as off duty.

Answer to Question No 7 (c) (Appendix 4 para 4.11 (b))

If a delay in the start time of a FDP causes the new start time to occur in a different FDP start time segment, the FDP limit becomes the lesser of the two FDP limits.

Answer to Question No 8 (a) (Appendix 4 para 5.5)

If your flight time exceeds 7 hours in a FDP and you provide flight instruction, then that flight instruction must be provided during the first 7 hours of flight time, but that may be extended by up to 30 minutes provided it is operationally necessary due to unforeseen circumstances and you consider yourself fit for that extension.

Answer to Question No 9 (d) (Appendix 4 para 5.7)

Providing it occurs after takeoff on the final sector of the FDP, the pilot in command may exceed any FDP or flight time limit at his/her own discretion.

Answer to Question No 10 (b) (Appendix 4 para 6.3)

In the FRMS, a person is positioned, and not an aircraft. A person who is an FCM repositioning an aircraft commences his FDP at the time the aircraft positioning commences, and in the question, the answer of 1930 is obtained by start of FDP being 0830. So, by reference to App 4. Table 2.1, the FDP can be 11 hours and end at 1930

Answer to Question No 11 (b) (Appendix 4 para 6)

The FDP must be reduced by the amount by which the standby time already completed exceeded 4 hours. You have been on standby since 0700 and you were called out at 1230 so you have been on standby for 7 hours 30 minutes. That has exceeded 4 hours by 3 hour 30 minutes. So your normal FDP must be reduced by 3 hour 30 minutes. 9 hours - 3 hour 30 minutes = 5 hours 30 minutes. Latest completion time is 1430 LMT + 5 hours 30 minutes = 2000 LMT

Answer to Question No 12 (c) (Appendix 4 para 9)

The limit on cumulative flight time is 100 hours in any 28 day period. You can fly only 5 hours today.

Answer to Question No 13 (c) (Appendix 4 para 3.4(a))

The maximum number of consecutive early starts permitted in any week (168 hours) is 3

Answer to Question No 14 (b) (Appendix 4 para 3.3)

If any portion of a split duty rest period falls between the hours of 2300 LMT and 0600 LMT, the rest period must not be less than 7 hours.

Answer to Question No 15 (c) (Appendix 4 para 3.4(b))

If any portion of a rest period falls between the hours of 2300 LMT and 0600 LMT, the sum of the FDP and the included split duty rest period must not exceed 15 hours.

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:

- (a) the local time at the start of the FDP; and
- (b) whether the operation is a single-pilot operation or a multi-pilot operation; and
- (c) 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
0500 – 0559	11	12	12
0600 – 0659	11.5	13	12.5
0700 – 1159	12	14	13
1200 – 1459	11	13	12
1500 – 1559	10.5	12	11.5
1600 – 0459	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:

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

1.4 For subclause 1.3:

- (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.

- 1.5 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 224 of CAR, 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 5 SUMMARY

1. Flight duty limits

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
0500 – 0559	11	12	12
0600 – 0659	11.5	13	12.5
0700 – 1159	12	14	13
1200 – 1459	11	13	12
1500 – 1559	10.5	12	11.5
1600 – 0459	10	11	11

Any flight training must be conducted during the first 7 hours of the applicable FDP. These FDP limits may, however, be increased to 12 hours for single-pilot ops or 14 hours for multi-pilot ops providing-

- (a) there are no more than two increased FDPs in any 168 hours (week) and;
- (b) the off-duty period before and after each increased FDP is at least 12 hours
- (c) split-duty rest periods cannot be used to create further extensions.

If you were required to perform non-flying duties in the 8 hours before a FDP, the duration of the FDP must be reduced by 30 min or the duration of the non-flying duties if that was greater than 30 min.

No more than 4 FDPs that include any time between midnight and 0459 LMT are permitted in any 168 hours (week). That includes FDPs that end after midnight or begin before 0459.

2. Increase in FDP limits by split duty.

If you are given at least 3 hours off duty with sleeping accommodation during a FDP, the FDP may be increased by the duration of that rest period.

If you are given at least 2 hours off duty with resting accommodation during a FDP, the FDP may be increased by half the duration of that rest period but not more than 2 hours.

The portion of the FDP remaining after a split duty rest period must not exceed the sum of 6 hours plus the duration of any extension (see next paragraph).

3. Extensions

The FDPs determined by Table 1.1 including the 12 and 14 hour extensions or by split duty rest may be extended beyond those limits by up to 2 hours at the discretion of the pilot in command.

Before making any extensions to the FDPs mentioned above, the pilot in command of a multi-crew aircraft must-

- (a) consult each FCM and satisfy him/herself that each FCM considers him/herself fit for the extension.

Flying training for up to 30 minutes may be conducted beyond the first 7 hours of a FDP providing-

- (a) it is due to unforeseen circumstances that have occurred since the commencement of the FDP ; and
- (b) it is operationally necessary; and
- (c) the FCM considers him/herself fit for the extension.

Any extension made to a FDP requires the following off-duty period to be extended by one hour for every 30 minutes or part thereof by which the limit was exceeded.

An off-duty period greater than 12 hours may be reduced to 12 hours providing-

- (a) the next FDP is not extended; and
- (b) the off-duty period following the next FDP is at least 36 hours including 2 local nights

Any extension must take into account that the cumulative flight time limit must not be exceeded.

However, if unforeseen circumstances arise during the final sector of a FDP , any of the limits mentioned above may be exceeded at the discretion of the pilot in command.

4. Standby

If a FCM is called out from standby for a FDP, that FDP must be followed by an off-duty period in accordance with clause 5.

If you are called out from standby to perform duties other than flying duties, you may return to standby after the completion of those duties. However, the duration of the next FDP must be reduced by 30 min or the duration of the non-flying duties if that was greater than 30 min.

5. Off duty period limits

On the completion of a FDP, you must have an off duty period of 8 hours if the off duty period includes the hours from 2300 to 0559 and 10 hours if it does not. Those off duty periods must include at least 8 hours of access to suitable sleeping accommodation.

Before commencing a FDP, you must had at least one of the following-

- (a) in the fortnight before the projected end of the proposed FDP or standby, 36 hours off duty including 2 local nights.

- (b) in the three weeks before the projected end of the proposed FDP or standby, 72 hours off duty including 3 local nights.

If you have had 1 or 2 increased FDPs in any week, that week must contain a continuous 36 hour off duty period including 2 local nights.

6. Limit on cumulative flight time.

You must not fly more than 50 hours in a week (168 hours)

You must not fly more than 170 hours in 28 days (a month)

You must not fly more than 450 hours in a 90 day period (3 months)

You must not fly more than 50 hours in a week (168 hours)

If you have 5 consecutive days off, you can reset those hours to zero.

You must not fly more than 1200 hours in a year (365 days)

If you have 28 consecutive days off, you can reset those hours to zero.

APPENDIX 5 RESEARCH QUESTIONS.

Question No 1

Your company operates under CAO 48.1 Instrument 2019 Appendix 5. You are engaged in single pilot operations and are assigned to an FDP according to the FDP Table 1.1. These FDP limits may be increased to 12 hours and one requirement that must be met to permit the increase is ----

- (a) there is no more than one increased FDP in any 168 hours period.
- (b) the off-duty period before and after each FDP is at least 10 hours
- (c) increased FDP does not contain split-duty rest period
- (d) the off-duty period after each FDP must be at least 12 hours

Question No 2

Your company operates under CAO 48.1 Instrument 2019 Appendix 5. You were require to conduct a 2 hour theory class for students three hours before commencing a FDP as a single pilot operation. If the FDP is to commence at 1530 LMT, the latest time at which it may finish is ----

- (a) 2400 LMT
- (b) 0200 LMT on the following day
- (c) 1200 LMT on the following day
- (d) 2300 LMT

Question No 3

You have finished a FDP at 0200 LMT on four occasions in the last four days. The earliest time at which you could commence a FDP tomorrow is-

- (a) 0400 LMT
- (b) 0600 LMT
- (c) 1200 LMT
- (d) 0500 LMT

Question No 4

You have been rostered to an FDP commencing at 1230 LMT with four hours split duty rest with sleeping accommodation commencing at 1530 LMT. The operation is a single pilot operation, The latest time at which this FDP must be completed is-

- (a) 2230 LMT
- (b) 0130 LMT on the next day
- (c) 0300 LMT on the next day
- (d) 2130 LMT

Question No 5

Your company operates under CAO 48.1 Instrument 2019 Appendix 5. You have been rostered for an FDP commencing at 0730 LMT with a six hour split duty rest period with resting accommodation commencing at 1030 LMT. The operation is a single pilot operation and there have been no extensions. The latest time at which this FDP must be completed is -

- (a) 2130 LMT
- (b) 2030 LMT
- (c) 1930 LMT
- (d) 1130 LMT

Question No 6

Your company operates under CAO 48.1 Instrument 2019 Appendix 5. You have been rostered for an FDP commencing at 0630 LMT with a four hour split duty rest period with sleeping accommodation commencing at 0930 LMT. The operation is a single pilot operation and there have been no extensions. The latest time at which this FDP must be completed is ----

- (a) 2200 LMT
- (b) 2000 LMT
- (c) 1800 LMT
- (d) 1930 LMT

Question No 7

Your company operates under CAO 48.1 Instrument 2019 Appendix 5. Under Appendix 5, for single pilot operations on the final sector of an FDP, you may extend any of the limits mentioned so far by ----

- (a) up to 2 hours with the permission of the chief pilot
- (b) up to 2 hours with the written permission of CASA
- (c) as required at the discretion of the pilot in command
- (d) up to 3 hours at the discretion of the pilot in command

Question No 8

Your company operates under CAO 48.1 Instrument 2019 Appendix 5. As a flying instructor, you commenced a FDP at 1220 LMT to conduct a series of training sessions with students. After the third hour, the aircraft becomes unserviceable due to a magneto failure and you have to arrange to change to another aircraft. The instruction flights must be completed by ----

- (a) 2320 LMT
- (b) 1950 LMT
- (c) 1920 LMT
- (d) 1850 LMT

Question No 9

Your company operates under CAO 48.1 Instrument 2019 Appendix 5. You completed an FDP at 2230 LMT last night. The off duty period following that FDP must be at least ----

- (a) 8 hours with resting accommodation only
- (b) 10 hours with sleeping accommodation
- (c) 8 hours with sleeping accommodation
- (d) 12 hours

Question No 10

Your company operates under CAO 48.1 Instrument 2019 Appendix 5. You completed a FDP at 0800 LMT. The off duty period following that FDP must be at least ----

- (a) 8 hours with resting accommodation only
- (b) 10 hours with sleeping accommodation
- (c) 8 hours with sleeping accommodation
- (d) 12 hour

Question No 11

Your company operates under CAO 48.1 Instrument 2019 Appendix 5. You have been called out from standby to spend 2 hours on office administration duties and then return to standby. If your next FDP commences at 1215 LMT, the latest time at which that FDP may end is ----

- (a) 2115 LMT
- (b) 2315 LMT
- (c) 2245 LMT
- (d) 2015 LMT

Question No 12

Your company operates under CAO 48.1 Instrument 2019 Appendix 5. In the fortnight prior to the end of a proposed FDP your off duty periods must include an Off duty period of at least ----

- (a) 36 hours including two consecutive days off plus the intervening night
- (b) 36 hours including two consecutive nights off plus the intervening day
- (c) 24 hours including the hours from 0600 to 1800 LMT
- (d) 12 hours including the hours from 0900 to 1700 LMT

Question No 13

Your company operates under CAO 48.1 Instrument 2019 Appendix 5. The maximum flight time permitted in any one week (168 hours) is ----

- (a) 50 hours
- (b) 30 hours
- (c) 40 hours
- (d) 100 hours

Question No 14

Your company operates under CAO 48.1 Instrument 2019 Appendix 5. If you had 2 increased FDPs in a week, that week must include an off duty period of at least ----

- (a) 48 hours including two local nights
- (b) 36 consecutive hours
- (c) any 2 days
- (d) 36 hours including two local nights

Answer to Question No 1 (c) (Appendix 5 para 1.4 (b) & (c))

You may have two increased FDPs in any week, so (a) is incorrect. The off-duty period before and after each increased FDP must be at least 12 hours, so (b and (d) are incorrect. The increased FDP does not contain a split-duty rest period

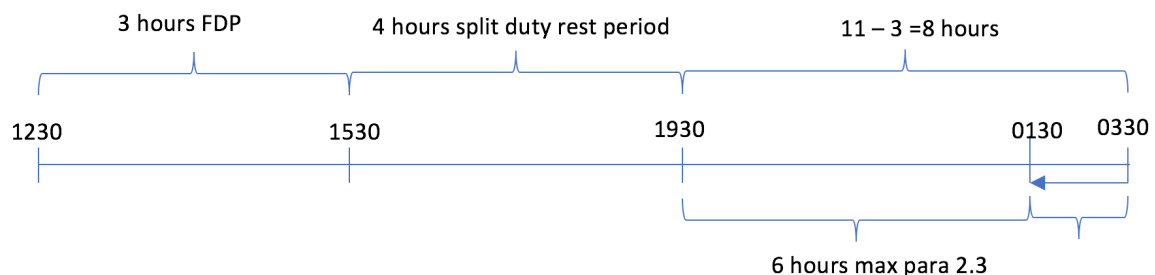
Answer to Question No 2 (c) (Appendix 5 para 1.5)

If the non-flying duties exceeded 30 minutes, the following FDP must be decreased by the duration of the non flying duties, in this case, 2 hours. The commencement time for this FDP is 1530, so the Table 1.1 limit is 10 hours 30 minutes. That must be reduced by 2 hours. So the limit becomes 8 hours 30. Latest finish time is $1530 + 0830 = 2400$ LMT.

Answer to Question No 3 (c) (Appendix 5 para 1.6)

an FDP must be followed by at least 10 consecutive hours off with access to suitable sleeping accommodation for 8 of them. That being so, the earliest time at which a person could commence an FDP the next day is 1200 LMT

Answer to Question No 4 (b) (Appendix 5 para 2.1 and para 2.3)



Three hours before the split duty rest period leaves 8 hours after it. That takes you to 0330 the next day. But para 2.3 says the portion of the FDP remaining after the split duty rest period must not be greater than 6 hours. So the latest time at which the FDP can end is 0130 on the next day.

Answer to Question No 5 (a) (Appendix 5 para 2.2)

With a split duty rest period with resting accommodation, the FDP may be increased by half the rest period but not more than 2 hours. The normal FDP limit for a 0730 LMT start is 12 hours. That may be increased by 2 hours (half the rest period is 3 hours so that's not permitted). Latest time for completion of the FDP is $0730 + 12 + 2 = 2130$ LMT

Answer to Question No 6 (d) (Appendix 5 para 2.3)

From 0630 to 0930 you have completed 3 hours of the allocated 11 hours 30 minutes indicated by Table 1.1. The 4 hours split duty rest period takes you to 1330 LMT. According to Table 1.1, you have 8 hours 30 minutes of flight duty time to complete the 11 hours 30 minutes permitted by Table 1.1. However, the portion of a FDP remaining after a split duty rest period must not exceed 6 hours plus any extension. There have been no extensions, so the latest completion time is $0630 + 3 + 4 + 6 = 1930$.

Answer to Question No 7 (c) (Appendix 5 para 3.7)

It is entirely up to the pilot in command to make the decision to extend any of the prescribed

Answer to Question No 8 (a) (Appendix 5 para 1.2)

If your flight time exceeds 7 hours in a FDP and you provide flight instruction, then that flight instruction must be provided during the first 7 hours of your flight time, and not the first 7 hours of your FDP. So if you start an FDP at 1220 LMT, you can be assigned and work the entire FDP of 11 hours, or until 2320 LMT. NOTE: According to para 5.1, if you finished your FDP at 2320, you also need a minimum of 10 hours off duty of which 8 hours must be access to suitable sleeping accommodation.

Answer to Question No 9 (c) (Appendix 5 para 5.1)

If you completed your FDP at 2230 LMT the following off-duty period will have to extend beyond 2300 LMT. If an off-duty period overlaps into the region between 2300 LMT and 0559 LMT, the off-duty period must be at least 8 hours with access to sleeping accommodation.

Answer to Question No 10 (b) (Appendix 5 para 5.1(b))

If the off-duty period does not include any time between 2300 LMT and 0559 LMT, the required off duty period becomes 10 hours with access to sleeping accommodation. (The reason why its is 8 hours in Question No 9 and 10 hours in this case, is that the off-duty period in Question No 9 is during the period when it is normal to sleep, whereas an off-duty period that commences at 0800 LMT will not include normal sleep time.)

Answer to Question No 11 (a) (Appendix 5 para 1.5 and para 4.3)

If the time spent on non-flying duties during a stand-by period exceeds 30 minutes, the following FDP must be reduced by the duration of the non-flying duties. The FDP limit for a start at 12.15 is 11 hours. This must be reduced by 2 hours. You must complete the following FDP by $1215 + 9 = 2115$ LMT

Answer to Question No 12 (b) (Appendix 5 para 5.3)

You must have 36 hours off including two local nights. That makes the answer (b)

Answer to Question No 13 (a) (Appendix 5 para 6.1)

The limit of cumulative flight time says that you must not fly more than 50 hours per week

Answer to Question No 14 (d) (Appendix 5 para 5.3)

You must have two nights and the intervening day off each week.