

APPENDIX 2 – MULTI-PILOT OPERATIONS EXCEPT FLIGHT TRAINING

This appendix sets out the requirements for all multi-crew operations except for flight training.

This appendix would suit interstate or international multi-pilot operations where acclimatisation and crew augmentation are factors to be considered.



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

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Planning/rostering

Limit on cumulative duty time and flight time (11) (12)

	7 days	14 days	28 days	365 days
Maximum duty	60 hours	100 hours		
Maximum flight time			100 hours	1,000 hours

Sleep opportunity before an FDP or standby period (1)

You must have at least an 8-hour sleep opportunity when:

- › at home base – within 12 hours of commencing your FDP or standby
- › away from home base – within 10 hours of commencing your FDP or standby.

Note: Refer to the definition of sleep opportunity, as it occurs in an off-duty period.

Off-duty period limits (10)

Off-duty periods for cumulative fatigue recovery

Time period	Off-duty period minima
7 days	Minimum of 36 hours off duty over 2 local nights before the projected end of the FDP or standby
28 days	Minimum of 6 days (cumulatively) off duty before commencing the FDP or standby

Off-duty period following an FDP



See [Figure 15](#) for components of the duty period.

Acclimatised

FDP less than or equal to 12 hours

Where your duty period does not exceed 12 hours, your following off-duty period must be at least:

- › if away from home base – 10 hours, or
- › if at home base – 12 hours, plus the amount of time that any displacement exceeds:
 - » 3 hours if travelling west, or
 - » 2 hours if travelling east.

FDP exceeds 12 hours

Where your duty period exceeds 12 hours, your following off-duty period must be at least 12 hours, plus:

- › 1.5 times the time that the duty period exceeded 12 hours
- › the time that the displacement time exceeds:
 - » 3 hours if travelling west, or
 - » 2 hours if travelling east.

Unknown acclimatisation

FDP less than or equal to 12 hours

Where your duty period does not exceed 12 hours, your following off-duty period must be at least:

- › 14 hours
- › the amount of the displacement time (above).

FDP exceeds 12 hours

Where your duty period exceeds 12 hours, your following off-duty period must be 14 hours, plus:

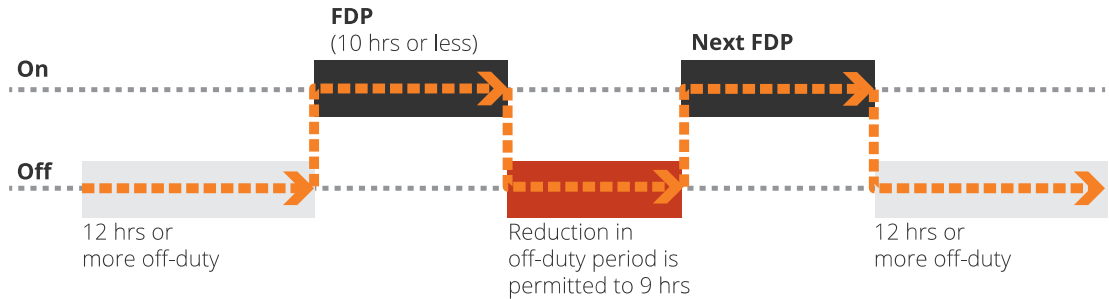
- › 1.5 times the time that the duty period exceeded 12 hours
- › the amount of the displacement time (above).

Reduction in off-duty period

If your FDP is less than 10 hours (see [Figure 4](#)) and you complete the FDP away from home base, your ODP may be reduced to 9 hours over a local night provided you are acclimatised for the ODP, and:

- › the off-duty period immediately before your FDP was at least 12 hours, and included a local night
- › the off-duty period following your next FDP will be at least 12 hours, including a local night.

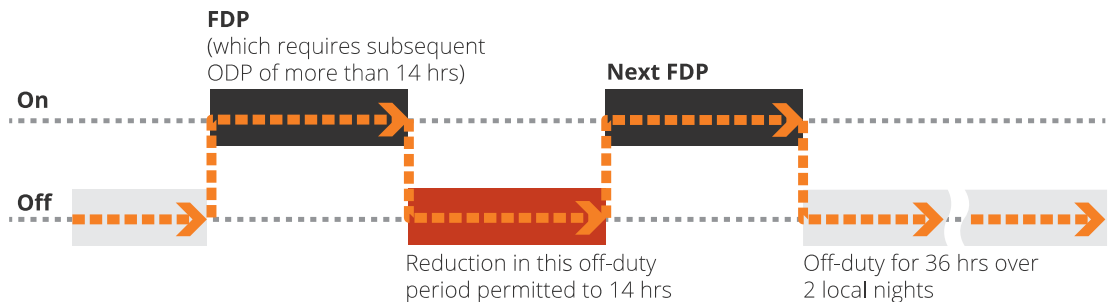
Figure 4: Reduction in ODP to 9 hours away from home base



If the calculated off-duty period is more than 14 hours (see Figure 5), the off-duty period may be reduced to 14 hours, if:

- › the reduced off-duty period is undertaken away from home base
- › the FDP was not extended past the FDP limit provided for under an operations manual
- › you commence the next FDP in an acclimatised state
- › the off-duty period following the next FDP is of at least 36 hours and includes 2 local nights.

Figure 5: Reduction in ODP to 14 hours away from home base



WOCL infringement and early start limits (13)

Early starts (0500–0659)

You may be assigned up to 5 consecutive duty periods with early starts (0500–0659) provided:

- › the FDP limit in [Table 2](#) on the 4th day is reduced by 2 hours
- › the FDP limit in [Table 2](#) on the 5th day is reduced by 4 hours.



In this appendix, if an FCM is in an unknown state of acclimatisation, the WOCL and early start period is based on the time at the location where the FCM was last acclimatised.

WOCL infringement (0200–0559)

After 3 consecutive WOCL infringements, you must have an off-duty period over a local night. You are permitted to infringe the WOCL more than 3 times only in accordance with the early start provisions above.


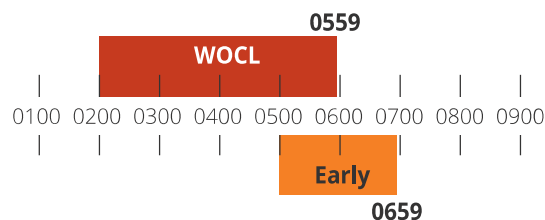
 *A duty that falls within any part of the WOCL means the WOCL is infringed.*

Figure 6: WOCL and early start periods



Conditions for augmented crew operation (5)

In order to increase FDP and flight time limits as set out in Tables 3 and 4, the following conditions apply:

- › the operations manual must have procedures for augmented crew operations
- › the FCMs at the end of the FDP for the augmented crew operation must be the same as those who commenced the first sector of the FDP

Note: For safety reasons, this is a critical condition. If, for example, a medical emergency required the disembarkation of an FCM during the FDP, for the flight to continue all the FCMs must be replaced with a new augmented crew commencing a new FDP.

- › the FDP must be limited to 3 sectors
- › the minimum in-flight rest period during the FDP must be:
 - » 1.5 hours for each FCM who will not be at the aircraft controls during the final landing
 - » 2 hours for each FCM who will be at the aircraft controls during the final landing
- › the in-flight rest period must be planned for the cruise phase of the flight

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

Note: The minimum in-flight rest period specified may not provide adequate rest to ensure alertness for the remainder of the FDP. Guidance on the use of in-flight rest is contained in [CAAP 48-01](#).

FDP and flight time limits for an acclimatised FCM (2)

Non-augmented crew operations

You must not be assigned a duty with a flight time that exceeds 10.5 hours. However, if you are acclimatised, you must not be assigned an FDP that exceeds the limits in Table 2.

Table 2: Non-augmented, acclimatised FDP and flight time limits

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

Augmented crew operations (5)

If you are acclimatised, you must not be assigned an FDP that exceeds the limits in Table 3.

Table 3: Augmented, acclimatised FDP and flight time limits

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

Note: Refer to definitions to determine an FCM's acclimatised time.



Refer to the hypothetical scenarios regarding acclimatisation and adaptation in CAAP 48.01 Appendix D.

FDP and flight time limits for an FCM in an unknown state of acclimatisation (3)

Non-augmented crew operations

You may only be assigned 4 consecutive FDPs while in an unknown state of acclimatisation, after which you must have an adaptation period sufficient to become reacclimatised. Refer to the definition of acclimatisation.

You must not be assigned a duty with a flight time that exceeds 10.5 hours. However, if your acclimatisation is unknown, you must not be assigned an FDP that exceeds the limits in Table 4.

Table 4: Non-augmented FDP and flight time limits – unknown acclimatisation

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

Augmented crew operations (5)

If your acclimatisation is unknown, you must not be assigned an FDP that exceeds limits in Table 5.

Table 5: Augmented FDP and flight time limits – unknown acclimatisation

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

Increase in FDP limits by split-duty (4)

The portion of a split FDP that follows a split-duty rest period, either in resting or sleeping accommodation, must be no longer than 6 hours.

For non-augmented crew operations, either acclimatised or in an unknown state of acclimatisation, an FDP limit that contains a split-duty rest period of at least 2 hours with access to suitable sleeping accommodation may be increased by half the duration of the split-duty rest period, but by no more than 2 hours.

Where an FDP contains a split-duty rest period of at least 4 hours with access to suitable sleeping accommodation, an FDP may be increased by up to 4 hours to 16 hours, and:

- › the first 4 hours of the split-duty rest period may be reduced by 2 hours when determining the subsequent off-duty period or cumulative duty time.

Whenever a split-duty rest period includes any period between the hours of 2300 and 0529, being the acclimatised time or local time (if the FCM acclimatisation is unknown), then:

- › the split-duty rest period must be for a period of at least 7 hours, with access to suitable sleeping accommodation
- › the maximum FDP is 16 hours, but
- › no reduction in the subsequent off-duty period and cumulative duty time provisions is permitted.

Standby limits and standby-like arrangements (8)

An operator must not require you to be on standby for longer than 14 hours.

The maximum FDP after a call out from standby must be decreased by the number of hours by which the standby exceeded 4 hours.

From a standby call out, the maximum combined standby and subsequent FDP is 16 hours, except where the subsequent FDP:

- › is an augmented crew operation, or
- › includes a split-duty rest period, in suitable sleeping accommodation, of at least 4 hours.

A standby completed without a call out must be followed by an off-duty period of at least 10 hours.

To remove any doubt, the time you are held in a standby-like arrangement must be treated as a duty period for the purposes of the CAO.

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

Positioning (9)

On completion of your assigned FDP, you may position to a suitable location as required by an operator.

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.

Variations

Delayed reporting time (6)

Sleep opportunity before an FDP or standby period (1)

Where there is a delay to the commencement of your FDP:

- › of less than 10 hours, the sleep opportunity period is based on the reporting time of the original FDP, but
- › in a single period of 10 hours or more, the sleep opportunity period is based on the new FDP commencement time.

Operations manual without procedures for delays

An operator may only delay your assigned reporting time if you are informed of the new reporting time at least 10 hours in advance.

The operator may:

- › consider the period between the original and the new reporting time (the period of the delay) to be off duty
- › at the end of this off-duty period, assign a new FDP subject to the applicable limits set out in this appendix or another appendix that the operator has specified in their operations manual.

If an operator delays your original reporting time and does not inform you of the delay at least 10 hours in advance, then your FDP is taken to commence at the original reporting time and the off-duty requirements of this appendix apply whether or not the flight occurs.

Operations manual with procedures for delays

If the operations manual has procedures for delays, your original reporting time may be delayed if you are informed:

- › at your home base:
 - » at least 2 hours before the original reporting time
 - » at least 2 hours before each new reporting time
- › away from your home base:
 - » at least 1 hour before you would have had to leave your accommodation to achieve the original (or new) reporting time in a timely manner.



For example, if there is an expected 30 minute travel time to the airport, advice of the delay would have to be provided 90 minutes before reporting time.

If you are informed (as described above) of a delay, the period between the original and the new reporting time is deemed to be a standby duty, whether the definition of standby regarding suitable sleeping accommodation is met or not.

If any single delay to your FDP is 10 hours or more, the operator may:

- › consider the period of the delay to be off duty
- › at the end of the off-duty period, assign an FDP subject to the applicable limits set out in this appendix or another appendix under which you operate.

Your FDP is taken to commence at the later of:

- › the original reporting time where you are not informed (as described above) of a delay, or
- › the last notified reporting time where you have been informed (as described above).

The usual off-duty period requirements following completion of the FDP will then apply.

Maximum FDP after delay with operations manual procedures

The combination of one or more delays and the immediately following FDP must not exceed 16 hours unless the FDP is an augmented crew operation or contains a split-duty rest period.

If you have been informed (as described above) of an FDP delay, and the FDP commences at a new reporting time that is within 4 hours of the original, then the maximum FDP must be based on whichever of the following is the more limiting:

- › the original reporting time, or
- › the new reporting time.

For a delay to an FDP (where informed as described above) commencing at least 4 hours after the original reporting time, the maximum FDP must be based on the more limiting of:

- › the original reporting time, or
- › 4 hours after the original reporting time.

Cancellations – with or without operations manual procedures for delays

If your FDP is delayed (whether in accordance with an operations manual procedure or not) and you have been informed the flight has been cancelled, you must have an off-duty period of at least 10 hours from the time you were informed of the cancellation, before again being assigned an FDP in accordance with any appendix.

Reassignment and extension (7)

FDP

You must not be reassigned or extended if it would cause you to exceed the cumulative flight time or cumulative duty time limits.

After your assigned FDP commences, you can be reassigned to a modified FDP allowing you to continue, provided:

- › the modified FDP does not exceed the applicable limits in the operations manual (without limiting the PIC's ability to exercise their discretion to do so if necessary)
- › you have confirmed that you are fit for the reassignment.

Despite any FDP limits in the operations manual, in unforeseen operational circumstances at the discretion of the PIC:

- › the FDP limits in the operations manual may be extended by up to 1 hour (or 2 hours for an augmented crew operation)
- › the applicable sector limit may be increased by one.

Before exercising such discretion, the PIC must:

- › be satisfied that they are fit for the extension
- › consult with each FCM and be satisfied that they consider themselves to be fit for the extension.

Flight time

The flight time limit in the operations manual for an FDP may be extended up to 30 minutes if:

- › it is operationally necessary to complete the duty
- › each FCM considers themselves fit for the extension.

Discretion of PIC (7)

If unforeseen operational circumstances arise after take-off on the final sector of an FDP that will cause a pilot to exceed any limit in this appendix, then the flight may continue to the planned destination or alternate at the discretion of the PIC.



*To comply with the **general** and the **enhanced AOC obligations** to manage fatigue (see pages **11** and **12**) an operator may have to reduce the FDP and flight time limits permitted in an appendix.*

Use sample **operations manual supplements** as a starting point to develop processes, procedures and limits to manage fatigue.