
Consultation - Modernising Australia's fatigue rules - proposed CAO 48.1 Instrument 2019 - (CD 1811OS)

Overview

CASA's [response](http://www.casa.gov.au/sites/g/files/net351/f/modernising-australia-fatigue-rules-casa-response-to-independent-review-recommendations.pdf) <<http://www.casa.gov.au/sites/g/files/net351/f/modernising-australia-fatigue-rules-casa-response-to-independent-review-recommendations.pdf>> to the independent review of fatigue rules identified 54 actions to address the review team's recommendations. The proposed Civil Aviation Order (CAO) 48.1 Instrument 2019, aims to address 12 of these actions to support the transition of high capacity regular public transport operators to the new rules by 30 September 2019. A further amendment to the rules may be required in 2019 to support the transition of other operators to the new rules by 26 March 2020.

The proposed instrument applies to Air Operator's Certificate holders, Part 141 certificate holders and flight crew licence holders. Changes from the current rules include:

- Revised prescriptive limits to more closely align with international averages
- Removal of daily flight time limits for most operations
- Revised augmented crew limits
- Replacement of late-night operations restrictions with new restrictions based on infringement of the window of circadian low
- Revised standby limits based on US Federal Aviation Regulations short call reserve provisions
- Replacing the prescriptive approach to re-assignment of flight duty with an outcome-based approach
- Revising FRMS change management processes and other provisions to reflect an outcome-based approach
- Permitting aerial application operators to operate in accordance with Subpart 137.Q of CASR.
- Incorporating all new fatigue rules into a single instrument.
- Updating provisions related to shared responsibility between operators and flight crew members in line with proposed Part 91 of CASR.

The proposed CAO 48.1 Instrument 2019 will repeal and replace CAO 48.1 Instrument 2013, CAO 48.1 Amendment Instrument 2016 (No 1) and the older fatigue rules. The proposed instrument provides transitional provisions allowing operators to conduct operations in accordance with their current rules until the applicable transition date.

There are no proposed changes for flight crew licence holders when operating in a private capacity. Paragraph 16.1 of the proposed instrument applies, in line with the current rules.

Why we are consulting

As part of modernising Australia's fatigue rules, we are consulting with the aviation community to ensure the rules will work in practice as they are intended.

We understand that regulations can be difficult to read, so we've made it easier for you to have your say by highlighting the key issues that have changed. CASA will continue to look at ways to make the rules easier to read and understand before they are introduced.

The consultation will ask you questions on the proposed changes to CAO 48.1. Each question will include the relevant section of the amended rules. At the bottom of this page, we have attached all the documents that relate to the consultation—you do not have to read them in full.

You may comment on as many, or as few of these changes as you like and provide general comments.

Recent industry feedback

The independent review team, assembled by Dédale Asia Pacific, delivered its final report in March 2018. The report confirmed the need to modernise Australia's fatigue rules and provided 24 recommendations to improve the rules.

The recommendations were published by CASA for public consultation between 21 March and 22 April 2018. Twenty-six responses were received from industry, including major airlines, operator associations, pilot associations and individuals, and CASA staff. Where permission was granted, responses were published on CASA's Consultation Hub.

Subsequently, the [Aviation Safety Advisory Panel](https://www.casa.gov.au/rules-and-regulations/standard-page/aviation-safety-advisory-panel) <<https://www.casa.gov.au/rules-and-regulations/standard-page/aviation-safety-advisory-panel>> (ASAP) appointed a Technical Working Group (TWG), to review industry feedback and CASA's proposed responses to the feedback in July 2018. TWG comprised representatives from operators, pilot associations, industry associations and academia.

Industry feedback and the TWG broadly supported the need to modernise Australia's fatigue rules along with the review team's recommendations and CASA's proposed response. However, there were dissenting views on some issues.

CASA's response to the [Independent review of aviation fatigue rules](https://www.casa.gov.au/files/independent-review-aviation-fatigue-rules-operators-and-pilots) <<https://www.casa.gov.au/files/independent-review-aviation-fatigue-rules-operators-and-pilots>> considered feedback from the public consultation, TWG and ASAP. This proposal seeks to achieve 12 of the actions identified in CASA's response.

The proposed CAO 48.1 Instrument 2019 has been reviewed by an industry TWG and feedback has been incorporated into the current draft and consultation questions.

Documents for review

A copy of the *Summary of proposed change CD 1811OS* and other documents related to this consultation are provided below in the 'Related Documents' section. This includes a downloadable MSWord and PDF copy of this consultation for ease of distribution and feedback within your organisation.

For your convenience and for ease of identification of the changes, the Exposure Draft CAO 48.1, is accompanied by a copy of the exposure draft containing the 'track changes' of the proposed updates to the CAO.

What happens next

Once this consultation has closed, we will register and review each submission received through this online response form. Unless you have requested that your submission remain confidential, we will make all submissions publicly available here on the Consultation Hub. We will also publish a summary of consultation which will summarise the feedback received.

Before the rules are finalised the ASAP will consider how CASA has incorporated feedback and will provide us with further advice. We will consider feedback from public consultation and advice from the ASAP prior to finalising proposed CAO 48.1 Instrument 2019.

To address the remaining actions identified in our response to the independent review, a further proposed amendment may be developed and publicly consulted.

Consultation contents

CAO 48.1 Instrument 2019 retains the majority of rules in CAO 48.1 Instrument 2013 as amended by CAO 48.1 Amendment Instrument 2016 (No 1).

The first three sections below are about the consultation and ask you for some information about yourself.

The next eleven sections relate to the changes to the rules. The last three sections are about the changes more generally and your priorities.

Unless an answer is required or mandatory, you can answer as few or as many of the questions as you like.

When you have completed the consultation, click the '*Finish*' button at the bottom right of this page.

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PAGE 1: About this consultation

This consultation asks for your feedback on the *proposed CAO 48.1 Instrument 2019 - (CD 1811OS)*.

We will ask you for:

- **personal information**, such as your name, any organisation you represent, and your email address
- **your consent** to publish your submission
- **your responses** to the proposed changes in the regulations
- **any comments** you may want to provide
- **demographic information** to help us understand your interest in the regulations

Should you wish, an option is available to upload a file containing your additional feedback on the

General comments page within this survey. Our website contains more information on making a submission and what we do with your feedback.

PAGE 2: Personal information

First name

(Required)

Last name

(Required)

Email

(Required)

If you enter your email address, then you will automatically receive an acknowledgement email when you submit your response.

Do your views officially represent those of an organisation?

(Required)

Please select only one item

☐ Yes

☐ No

If yes, please specify the name of the organisation.

Where do you live or in which area do you operate?

Postcode

PAGE 3: Consent to publish your submission

In order to promote debate and transparency, we intend to publish all responses to this consultation. This may include both detailed responses/submissions in full and aggregated data drawn from the responses received.

Where you consent to publication, we will include:

- your name, if the submission is made by you as an individual or the name of the organisation on whose behalf the submission has been made
- your responses and comments

We will not include any other personal or demographic information in a published response.

Information about how we consult and how to make a confidential submission is available on the **CASA website** <<https://www.casa.gov.au/rules-and-regulations/landing-page/consultation-process>>

Do you give permission for your response to be published? Please tick only one box.

(Required)

Please select only one item

- ☐ Yes - I give permission for my response/submission to be published
- ☐ No - I would like my response/submission to remain confidential but understand that de-identified aggregate data may be published.
- ☐ I am a CASA officer.

Page 4: Maximum flight duty periods

This proposal amends prescriptive limits in Appendices 2 and 3, to better align with international averages.

CASA Action 3-1: CASA will amend the prescriptive flight duty period limits in Appendices 2 and 3 in accordance with Table 1 and provide a single flight time limit for each Appendix in accordance with Table 2.

Background

The independent review of fatigue rules identified that CAO 48.1 prescriptive limits are conservative when compared with similar international jurisdictions and that there are no unique aspects of the Australian operating environment that necessitate a more conservative approach.

We considered the recommendations of the independent review, the results of a survey of over 1,100 Australian pilots, fatigue science and feedback from industry. The proposed limits more closely align with international averages while continuing to address fatigue risks predicted by scientific research.

The flight duty period limits have been modified since we released our response to the independent review. This reflects feedback from the industry technical working group and provides a more consistent approach to increasing numbers of sectors.

The proposed new limits (acclimatised flight crew)

The limits for acclimatised flight crew members are based on the following:

- an acclimatised start time between 0700 and 1259 represents the optimal start time period to minimise fatigue whilst acknowledging a strong passenger demand for early departures. Flight duty periods of up to 13 hours are permitted in this start period.
- once the start time reaches 1300 the maximum flight duty period is reduced to 12 hours because these flights may encroach the window of circadian low (WOCL) and the potential for prolonged wakefulness; this continues until a start time of 1559.
- for start times between 1600 and 2259 the maximum flight duty period is further reduced to 11 hours due to the compounding effects of WOCL encroachment, likely prolonged wakefulness and a reduced propensity, quality and quantity of sleep during the day.
- flight duty periods commencing between 2300 and 0459 present the greatest fatigue risk due to increasing effects of WOCL encroachment, prolonged wakefulness and a reduced propensity, quality and quantity of sleep. These flight duty periods are limited to a maximum of 10 hours.
- maximum flight duty period increases by one hour at 0500 and a further 30 minutes at 0600 due to the improving opportunity to achieve sleep prior to the duty.
- the maximum flight duty period reduces, for periods with more than 3 sectors, by 30 minutes per sector to address the additional physical and cognitive fatigue associated with multiple approaches and departures.

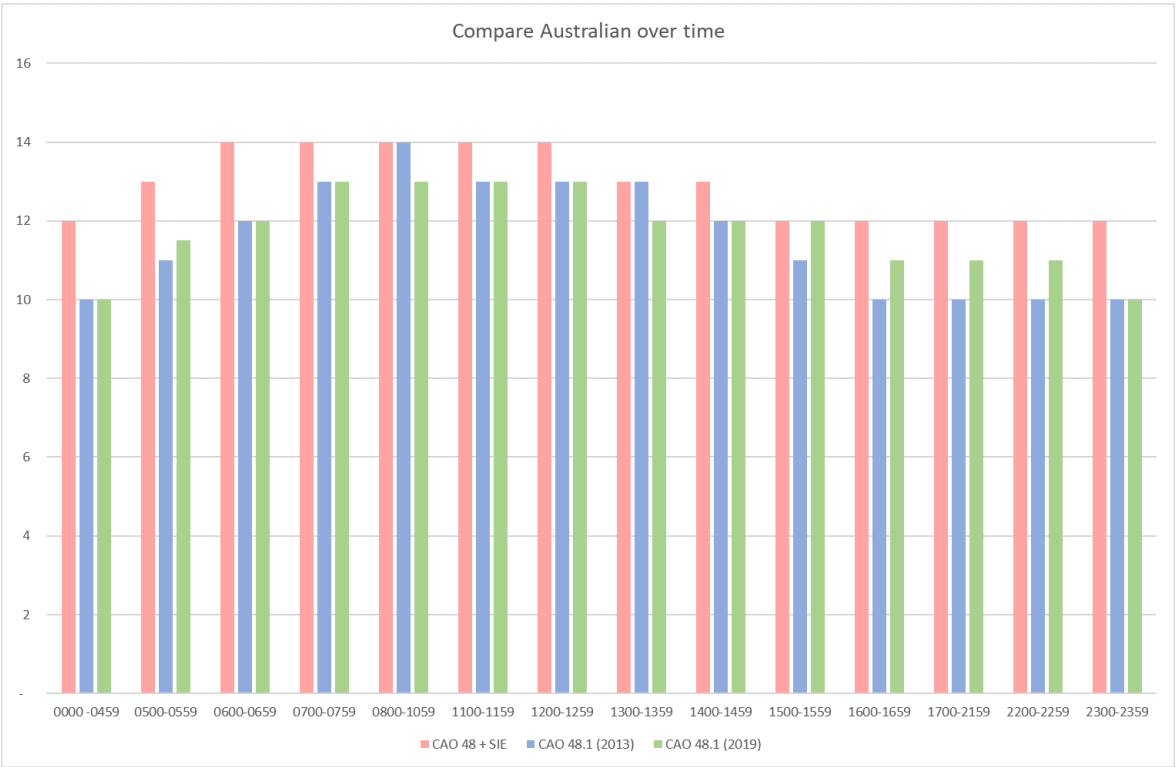
Fact Bank: Table 1 revised flight duty period limits

Table 1 (below) provides the maximum flight duty period according to acclimatised start time and sectors to be flown. This table has additional detail compared to the table in the draft CAO, including hour by hour detail showing the end of duty time for a maximum flight duty period, with shading to demonstrate where the duty encroaches the WOCL.

Maximum FDP according to sectors to be flown								
Acclimatised Start time	1-2	3	4	5	6	7	8	Max FDP end time
0000-0059	10	10	9.5	9	8.5	8	7.5	1000-1059
0100-0159	10	10	9.5	9	8.5	8	7.5	1100-1159
0200-0259	10	10	9.5	9	8.5	8	7.5	1200-1259
0300-0359	10	10	9.5	9	8.5	8	7.5	1300-1359
0400-0459	10	10	9.5	9	8.5	8	7.5	1400-1459
0500-0559	11.5	11.5	11	10.5	10	9.5	9	1630-1729
0600-0659	12	12	11.5	11	10.5	10	9.5	1800-1859
0700-0759	13	13	12.5	12	11.5	11	10.5	2000-2059
0800-0859	13	13	12.5	12	11.5	11	10.5	2100-2159
0900-0959	13	13	12.5	12	11.5	11	10.5	2200-2259
1000-1059	13	13	12.5	12	11.5	11	10.5	2300-2359
1100-1159	13	13	12.5	12	11.5	11	10.5	0000-0059
1200-1259	13	13	12.5	12	11.5	11	10.5	0100-0159
1300-1359	12	12	11.5	11	10.5	10	9.5	0100-0159
1400-1459	12	12	11.5	11	10.5	10	9.5	0200-0259
1500-1559	12	12	11.5	11	10.5	10	9.5	0300-0359
1600-1659	11	11	10.5	10	9.5	9	8.5	0300-0359
1700-1759	11	11	10.5	10	9.5	9	8.5	0400-0459
1800-1859	11	11	10.5	10	9.5	9	8.5	0500-0559
1900-1959	11	11	10.5	10	9.5	9	8.5	0600-0659
2000-2059	11	11	10.5	10	9.5	9	8.5	0700-0759
2100-2159	11	11	10.5	10	9.5	9	8.5	0800-0859
2200-2259	11	11	10.5	10	9.5	9	8.5	0900-0959
2300-2359	10	10	9.5	9	8.5	8	7.5	0900-0959

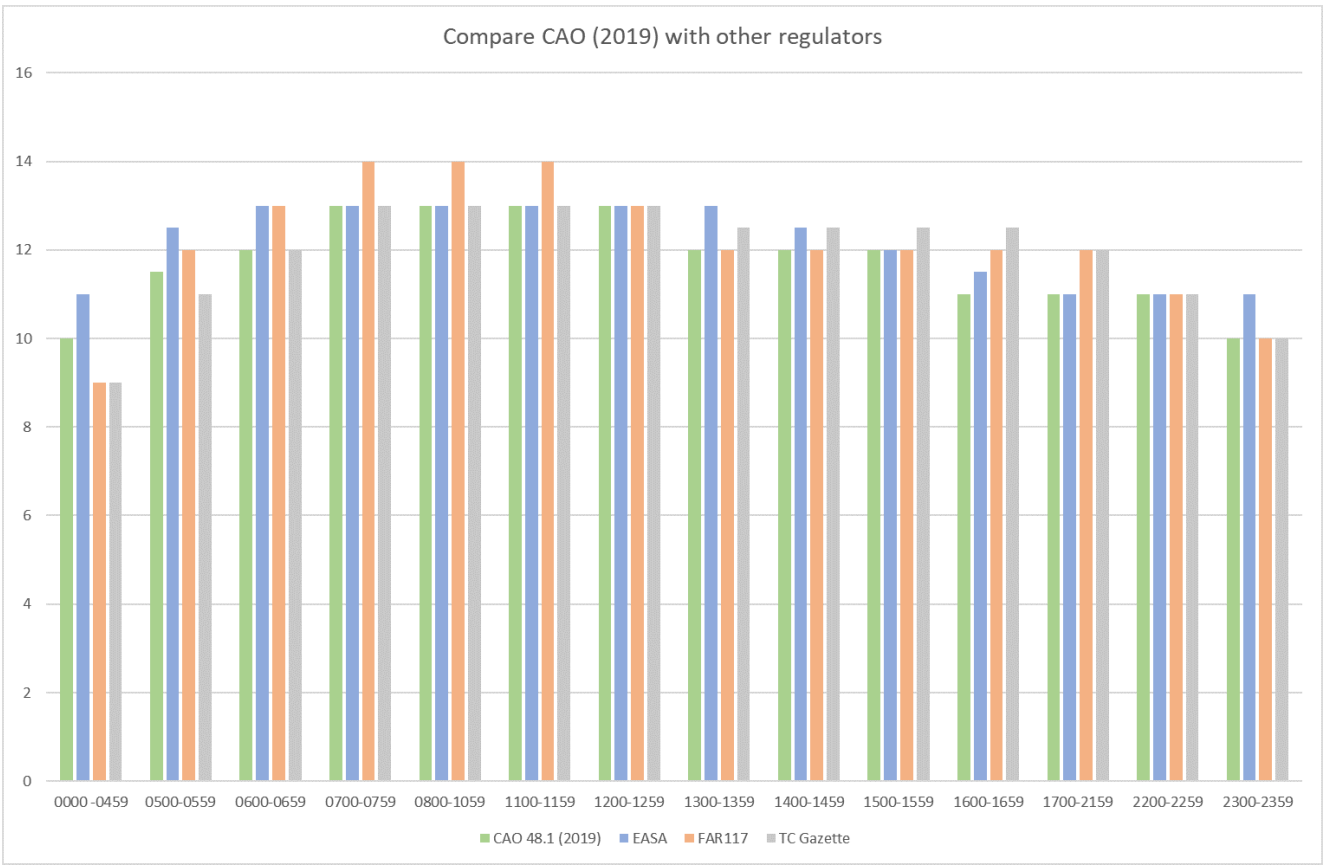
Fact Bank: Comparison with previous limits

This chart shows the proposed limits in comparison with the old Standard Industry Exemption and the current CAO 48.1.



Fact Bank: Comparison with international limits

This chart shows the proposed limits in comparison with other regulators.



Fact Bank: Extracts from consultation draft - Appendix 2 Clause 2 and Table 2.1**APPENDIX 2 — MULTI-PILOT OPERATIONS EXCEPT FLIGHT TRAINING****2 Limits for an acclimatised FCM**

- 2.1 Subject to clause 5, an acclimatised FCM must not be assigned an FDP longer than the number of hours specified in Table 2.1 in this clause (the *FDP limit*), as determined by the acclimatised time at the start of the FDP and the number of sectors to be flown.
- 2.2 For an FDP that involves only 1 sector, an acclimatised FCM must not be assigned flight time longer than 10.5 hours.
- 2.3 In applying Table 2.1, first, choose the appropriate acclimatised time at which the FDP for the FCM is to start, then choose the number of sectors which are to be flown. The maximum FDP for the acclimatised FCM is the number under the chosen number of sectors that corresponds to the chosen acclimatised time at which the FDP for the FCM is to start.

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

Acclimatised time at start of FDP	Maximum FDP hours according to sectors to be flown						
	1-2	3	4	5	6	7	8+
0000-0459	10	10	9.5	9	8.5	8	7.5
0500-0559	11.5	11.5	11	10.5	10	9.5	9
0600-0659	12	12	11.5	11	10.5	10	9.5
0700-1259	13	13	12.5	12	11.5	11	10.5
1300-1559	12	12	11.5	11	10.5	10	9.5
1600-2259	11	11	10.5	10	9.5	9	8.5
2300-2359	10	10	9.5	9	8.5	8	7.5

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

See also:

Appendix 3 Clause 2 and table 2.1

The flight duty period limits for flight crew members in an unknown state of acclimatisation, have been updated to align with Table 1.

Limits for crew members with less than 30 hours prior off-duty period, match the worst case acclimatised limits (2300-0459) reflecting the additional fatigue risk associated with time zone change.

Limits for crew members with more than 30 hours prior off-duty period, match the acclimatised limits for a start time of 0600-0659 limits, to reflect an improved ability to optimise sleep during an extended off-duty period whilst still reflecting the fatigue risk associated with time zone changes.

Fact Bank: Extracts from consultation draft - Appendix 2 Clause 3 and Table**3.1 APPENDIX 2 — MULTI-PILOT OPERATIONS EXCEPT FLIGHT TRAINING****3 Limits for an FCM in an unknown state of acclimatisation**

- 3.1 Subject to clause 5, an FCM in an unknown state of acclimatisation must not be assigned an FDP longer than the number of hours specified in Table 3.1 in this clause, as determined by duration of the off-duty period immediately before the FDP and the number of sectors to be flown.
- 3.2 For an FDP that involves only 1 sector, an FCM in an unknown state of acclimatisation must not be assigned flight time longer than 10.5 hours.
- 3.3 In applying Table 3.1, first, choose the appropriate duration of off-duty period before the FDP for the FCM, then choose the number of sectors which are to be flown. The maximum FDP for the appropriate off-duty period for the FCM is the number under the chosen number of sectors that corresponds to the chosen off-duty period.

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

Duration of off-duty period immediately before the FDP	Maximum FDP hours according to sectors to be flown						
	1-2	3	4	5	6	7	8+
Less than 30 hours	10	10	9.5	9	8.5	8	7.5
30 hours or more	12	12	11.5	11	10.5	10	9.5

Fact Bank: Action 3-1: CASA response to recommendation 3

See Page 6-9 - CASA's [response](http://www.casa.gov.au/sites/g/files/net351/f/modernising-australia-fatigue-rules-casa-response-to-independent-review-recommendations.pdf) <<http://www.casa.gov.au/sites/g/files/net351/f/modernising-australia-fatigue-rules-casa-response-to-independent-review-recommendations.pdf>>

Fact Bank: Independent review report recommendation 3**Finding**

The Review Team finds that the prescriptive limits in some areas of CAO 48.1 are conservative when compared to corresponding provisions in other international jurisdictions. Appendix 2 operations are comparable with other international operations, and not necessarily specific to Australia, so the FDP limits seem inconsistent with other 'science based' limits. Table 4 above illustrates the comparative limits and indicates where the conservatism is most prevalent.

There are also disparities in single-pilot FDP's across several appendices. The reason for these, which in some cases allow longer FDP limits for more complex operations, is unclear. Adding an explanatory note to CAAP 48-1 which outlines the relationship between operating risk, public risk, and fatigue management, and which provides some clarity for the reasons behind disparities between FDP limits in single pilot operations, across Appendices 4, 4B, 5A, and 6, would be beneficial for operators seeking to better understand the FDP limits.

Recommendation 3

That, notwithstanding any challenges the Australian operating environment may present, CASA adopts prescriptive FDP limits that are more closely aligned with international averages for similar types of operation.

Does this proposal achieve the intended Action 3-1?

Please select only one item

- ☐ yes
- ☐ some change/s required (please specify below)
- ☐ no (please specify below)
- ☐ not applicable

Are there additional factors that CASA should consider in implementing this change?

PAGE 5: Flight time limits

This proposal simplifies management of daily flight time limits.

CASA Action 3-1: *CASA will amend the prescriptive flight duty period limits in Appendices 2 and 3 in accordance with Table 1 and provide a single flight time limit for each Appendix in accordance with Table 2.*

The research regarding daily flight time limits is scarce. However, there is general consensus that flight time is the most fatiguing aspect of a flight duty period. Whilst EASA and Transport Canada have removed limits for daily flight time, the FAA still prescribes daily limits for flight time. We identified in our response to the independent review, that we would simplify the management of flight time by removing flight time limits from the prescriptive limit tables and establishing a single flight time for each appendix.

After further consideration, we have determined that flight duty period limits do not need to be supplemented by daily flight time limits except in the following cases:

- Two pilot single sector - 10.5 hours to mitigate the effect of prolonged attention and monitoring
- Flight training - 7 hours to reflect the additional task demands of flight training.

The two pilot single sector limit is further reduced, depending on start time as the flight duty period becomes the more limiting factor.

We have not included a single pilot, single sector limit, as aircraft endurance is more limiting in single pilot aircraft.

Fact Bank: Extracts from consultation draft Appendix 2 sub-clause 2.2 and Appendix 6 sub-clause 2.2

APPENDIX 2 — MULTI-PILOT OPERATIONS EXCEPT FLIGHT TRAINING

2.2 For an FDP that involves only 1 sector, an acclimatised FCM must not be assigned flight time longer than 10.5 hours.

APPENDIX 6 — FLIGHT TRAINING

2.2 For any FDP, an FCM must not be assigned flight time longer than 7 hours.

See also:

Consultation draft Appendix 2 sub-clauses 3.2, 5.1, 5.2, 5.4 and Tables 5.1 and 5.2.

Consultation draft Appendix 3 sub-clauses 2.3, 3.2 and Table 2.1

Consultation draft Appendix 4 sub-clause 2.2 and Table 2.1

Consultation draft Appendix 4b sub-clause 1.2 and Table 1.1

Consultation draft Appendix 6 sub-clause 2.2 and Table 2.1

Fact Bank: CASA response to recommendation 3

See Page 6-9 - CASA's [response](http://www.casa.gov.au/sites/g/files/net351/f/modernising-australia-fatigue-rules-casa-response-to-independent-review-recommendations.pdf) <<http://www.casa.gov.au/sites/g/files/net351/f/modernising-australia-fatigue-rules-casa-response-to-independent-review-recommendations.pdf>>

Does this proposal achieve the intended Action 3-1?

Please select only one item

- ☐ yes
- ☐ some change/s required (please specify below)
- ☐ no (please specify below)
- ☐ not applicable

Are there additional factors that CASA should consider in implementing this change?

PAGE 6: Augmented crew limits

This proposal revises the approach and limits for augmented crew operations.

CASA Action 25-5: CASA will review augmented crew flight duty limits and seek Technical Working Group feedback. Following feedback, amendments to the augmented crew limits may be proposed.

CASA reviewed the augmented crew limits with an industry technical working group. Appendix 2 Tables 5.1 and 5.2 have been amended to reflect a revised approach to augmented crew operations.

Class 1 and 2

Class 1 and 2 crew rest facilities are intended to be fit-for-purpose to achieve sleep. This allows flight crew members to plan their sleep both pre-flight and in-flight, to mitigate the effects of fatigue. The impacts of flight duty period start time are mitigated by the crew augmentation in conjunction with the related in-flight rest rules.

The revised flight duty period limits at Table 1 below, were derived by starting with a 13 hour maximum for two pilot operations and increasing the maximum duty period, depending on the class of rest facility and number of additional crew. This reflects research that the type of rest facility impacts both the quality and quantity of in-flight sleep. The class 1 and 2 augmented crew limits are the same for flight crew members in unknown states of acclimatisation.

This approach is similar to the approach of other regulators.

Flight duty periods in excess of 18 hours require specific risk mitigation within a CASA approved fatigue risk management system.

Fact Bank: Table 1 Augmented crew limits class 1 and 2

Class	Class 1		Class 2	
Additional FCM	+1 FCM	+2 FCM	+1 FCM	+2 FCM
FDP limit	16	18	15	16.5

Class 3

Studies have shown that sleep quality and quantity is reduced in class 3 crew rest facilities; however, restorative rest can even be achieved in a cockpit environment with significant improvements in alertness and psychomotor performance. The additional flight crew members help to offset the worst effects of start times and extended duty periods.

The revised FDP limits for Class 3 crew rest facilities are at Table 2 below and a comparison with unaugmented limits is at Figure 1 below.

Fact Bank: Table 2 Augmented crew limits class 3

Additional FCM/Start time (Class 3)	+1 FCM	+2 FCM	Max FDP end time (+2 FCM)
0000-0459	12	13	1300-1759
0500-0659	13	14	1900-2059
0700-1059	14	15	2200-0059
1100-1559	13	14	0100-0559
1600-2359	12	13	0500-1259

Fact Bank: Figure 1 Comparison of limits class 3

This chart shows that augmented crew provide the most beneficial effect for back of the clock operations , due to the in-flight rest opportunity.



Fact Bank: Extracts from consultation draft - Appendix 2 Clause 5.5.1 and Table 5.1 and sub-clause 5.5 and Table 5.2

APPENDIX 2 — MULTI-PILOT OPERATIONS EXCEPT FLIGHT TRAINING

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

- 5.1 An acclimatised FCM in an augmented crew operation may be assigned an FDP that is no longer than the number of hours specified in Table 5.1 in this clause, as determined by the acclimatised time at the start of the FDP, the class of crew rest facility available, and the number of additional FCMs — but only if the conditions in subclause 5.3 are met.
- 5.2 An FCM in an unknown state of acclimatisation in an augmented crew operation may be assigned an FDP that is no longer than the number of hours specified in Table 5.2 in this clause, as determined by the duration of the off-duty period immediately before the FDP, the class of crew rest facility available, and the number of additional FCMs — but only if the conditions in subclause 5.3 are met.

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

Acclimatised time at start of FDP	Maximum FDP according to class of crew rest facility and number of additional FCMs					
	Class 1		Class 2		Class 3	
<i>Additional FCMs</i>	<i>1</i>	<i>2</i>	<i>1</i>	<i>2</i>	<i>1</i>	<i>2</i>
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 To determine an FCM's acclimatised time, refer to subsection 7 at the beginning of this CAO.

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

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

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

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

Fact Bank: CASA response to independent review report, Page 7

The Technical Working Group discussed start time windows and related limits for augmented crew operations. Some studies have demonstrated a propensity to sleep and wake based on homeostatic drive and societal norms regardless of rostering patterns. Conversely, anecdotal experience indicates that later start time windows might promote improved in flight rest due to alignment with natural circadian lows. CASA will review augmented crew start time windows and duty periods under action 25-5.

Does this proposal achieve the intended Action 25-5?

Please select only one item

- ☐ yes
- ☐ some change/s required (please specify below)
- ☐ no (please specify below)
- ☐ not applicable

Are there additional factors that CASA should consider in implementing this change?

PAGE 7: Disruptive schedule management

This proposal replaces late night operations provisions, with restrictions on consecutive infringement of the WOCL, in response to consultation and TWG feedback.

CASA Action 25-6: *CASA will develop additional mitigations to deal with consecutive early starts using the approach in CAO 48.0 as a starting point and seek Technical Working Group feedback. Following feedback, amendments to the rules may be proposed.*

CASA Action 25-11: *CASA will consider whether there is benefit in explicitly defining a window of circadian low and seek Technical Working Group feedback. Some Technical Working Group members suggested a definition of 0200-0600; however, there was no consensus on the need for a definition, the associated time period or the additional mitigations that should be associated with the definition.*

Background

Surveys of pilots in Australia and internationally have identified consecutive early starts, night operations and alternating early/late schedules as the most fatiguing rosters. We reviewed the management of disruptive schedules with an industry technical working group and explored a number of potential solutions. Consensus was not achieved and further industry input is sought to assist in resolving this issue.

Some members expressed concern that current rosters could not be achieved with the proposed rules and that the rules might drive schedule optimisers to generate alternating early / late patterns which are acknowledged as generating fatigue reports.

Other members expressed concern that the proposed rule does not adequately protect late night operations or alternating early / late patterns.

The current proposal replaces existing late night operations provisions with restrictions on consecutive infringement on the window of circadian low.

The window of circadian low will be defined as 0200-0559 local acclimatised time to align with ICAO definitions.

If a flight duty period infringes the window of circadian low, the next flight duty period must not commence until at least 24 hours after commencement of the first flight duty period. This avoids compounding fatigue risk by compressing the circadian day. The effect of this rule is that a roster cannot rotate backwards e.g., Day 1 – 0530, Day 2 – 0500, Day 3 – 0430.

After three consecutive flight duty periods which infringe the window of circadian low, the maximum flight duty period is reduced for subsequent infringing flight duty periods with a maximum of five consecutive infringing flight duty periods.

Fact Bank: Extracts from consultation draft - Part 1 Clause 6 definition - window of circadian low and Appendix 2 Clause 13

PART 1 GENERAL

6 Definitions

window of circadian low means the period between the hours of 0200 and 0559 local time at the location where an FCM is acclimatised, and duties infringe the window of circadian low if they are performed during all, or any part, of that period.

APPENDIX 2 — MULTI-PILOT OPERATIONS EXCEPT FLIGHT TRAINING

13 Limits on infringing the window of circadian low

- 13.1 If an FCM is assigned duties which infringe the window of circadian low (the *first duty period*), his or her next FDP must not commence until 24 hours or more have elapsed since the commencement of the first duty period.
- 13.2 If an FCM is assigned duties which infringe the window of circadian low on each of 3 consecutive days, and on the next day an FDP infringes the window of circadian low, the relevant limit for that FDP must be reduced by 2 hours.
- 13.3 If an FCM is assigned duties which infringe the window of circadian low on each of 4 consecutive days, and on the next day an FDP infringes the window of circadian low, the relevant limit for that FDP must be reduced by 4 hours.
- 13.4 An FCM must not be assigned an FDP on a day if the FCM had been assigned duties which infringed the window of circadian low on each of the immediately preceding 5 consecutive days.

See also:

Appendix 3 Clause 11

Appendix 6 Clause 10

Fact Bank: CASA response to independent review - Actions 25-6 and 25-11 (Page 7)

Action 25-6 Review consecutive early starts

CASA will develop additional mitigations to deal with consecutive early starts using the approach in CAO 48.0 as a starting point and seek Technical Working Group feedback. Following feedback, amendments to the rules may be proposed.

Action 25-11 Window of circadian low definition

CASA will consider whether there is benefit in explicitly defining a window of circadian low and seek Technical Working Group feedback.

Some Technical Working Group members suggested a definition of 0200-0600; however, there was no consensus on the need for a definition, the associated time period or the additional mitigations that should be associated with the definition.

The Technical Working Group discussed the results of a survey of 1,132 Australian commercial pilots⁴. Consecutive early starts and switching from early to late starts were identified as frequent concerns, which align with scientific understanding of the window of circadian low and circadian dysrhythmia. This issue will be addressed by action 25-6.

Does this proposal achieve the intended Actions 25-6 and 25-11?

Please select only one item

- ☐ yes
- ☐ some change/s required (please specify below)
- ☐ no (please specify below)
- ☐ not applicable

Are there additional factors that CASA should consider in implementing this change?

PAGE 8: Standby

This proposal amends standby requirements in response to industry feedback.

CASA Action 25-13: *CASA will review the management of standby under CAO 48.1 and seek Technical Working Group feedback on any proposed changes to the rules.*

Background

We reviewed standby provisions with an industry working group and compared the approaches of other regulators. The FAA short call reserve provisions provide a suitable basis to manage fatigue related to standby.

Fact Bank: Extracts from consultation draft - Appendix 2 Clause 8

APPENDIX 2 — MULTI-PILOT OPERATIONS EXCEPT FLIGHT TRAINING

8 Standby limits and standby-like arrangements

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

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

See also:

Appendix 3 clause 6

Appendix 4 clause 6

Appendix 6 clause 5

Fact Bank: CASA response to independent review - Action 25-13

Action 25-13 Standby

CASA will review the management of standby under CAO 48.1 and seek Technical Working Group feedback on any proposed changes to the rules.

Does this proposal achieve the intended Action 25-13?

Please select only one item

- ☐ yes
- ☐ some change/s required (please specify below)
- ☐ no (please specify below)
- ☐ not applicable

Are there additional factors that CASA should consider in implementing this change?

PAGE 9: Reassignment

This proposal replaces the prescriptive approach to re-assignment of flight duty with an outcome-based approach

CASA Action 12-1: *CASA will replace the 4 hour limit in subclause 7.1 of Appendix 2 with a requirement for explicit acknowledgement that flight crew are sufficiently rested before re-assigning a longer flight duty period.*

Explicit acknowledgement that flight crew are sufficiently rested prior to re-assigning longer duty periods is preferable to the prescriptive limit in the current rules.

Fact Bank: Extracts from consultation draft - Appendix 2 sub-clause 7.1

APPENDIX 2 — MULTI-PILOT OPERATIONS EXCEPT FLIGHT TRAINING

- 7.1 After an FCM's assigned FDP commences, the AOC holder may reassign to the FCM a modified FDP and number of sectors to be flown (a *reassignment*), provided that each of the following applies:
- (a) subject to subclause 7.3 — the modified FDP and flight time does not exceed the limits in the holder's operations manual for the new number of sectors;
 - (b) the FCM has confirmed that he or she is fit for the reassignment;
 - (c) the FCM has the right to decline the reassignment because of his or her lack of fitness for it.

Note Fitness in this context is based on the FCM's self-assessment.

See also:

Consultation draft Appendix 3 sub-clause 5.1

Consultation draft Appendix 4 sub-clause 5.1

Consultation draft Appendix 6 sub-clause 4.1

Does this proposal achieve the intended Action 12-1?

Please select only one item

- ☐ yes
- ☐ some change/s required (please specify below)
- ☐ no (please specify below)
- ☐ not applicable

Are there additional factors that CASA should consider in implementing this change?

PAGE 10: Fatigue risk management systems

This proposal amends fatigue risk management system requirements, to achieve a more outcome-based system in response to recommendations 5 and 6.

CASA Action 5-1: CASA will incorporate an FRMS change management process based on the draft Part 119 of CASR significant change process.

CASA Action 6-1: CASA will improve the distinction between legal requirements, guidance material and acceptable means of compliance in CAO 48.1 and supporting guidance material.

Background

This proposed change provides operators enough flexibility to modify their fatigue risk management system in response to data, while ensuring appropriate regulatory oversight for significant changes.

CASA approval will only be required for significant changes such as any proposed increase in maximum flight duty periods, any proposed decrease in minimum off-duty periods and any other change that is not likely to maintain or improve aviation safety.

The distinction between legal requirements and guidance has been improved in several sections. Some material has been removed from the CAO and will be replaced with improved guidance material.

Fact Bank: Extracts from consultation draft - Appendix 7 sub-clause 1.2, Note 1, sub-clauses 7.1 and 7.5 - 7.7

APPENDIX 7 — FATIGUE RISK MANAGEMENT SYSTEM (FRMS)

- 1.2 For a trial or full FRMS implementation approval, an FRMS must include CASA approval of each of the following elements of the FRMS:
- (a) the policy and objectives, and related documentation, in accordance with clause 2;
 - (b) the practical operating procedures in accordance with clause 3;
 - (c) the hazard identification, risk assessment and mitigation procedures in accordance with clause 4;
 - (d) the safety assurance procedures in accordance with clause 5;
 - (e) the safety promotion procedures in accordance with clause 6;
 - (f) the change management procedures in accordance with clause 7.
- Note 1* Significant changes require CASA approval. See clause 7.
- 7.1 For this clause, a **significant change** means:
- (a) any increase to the values required under paragraph 3.2 (a);
 - (b) any decrease to the values required under paragraph 3.2 (b);
 - (c) any other change to any element of the FRMS that does not maintain or improve, or is not likely to maintain or improve, aviation safety.
- 7.5 The AOC holder must not make a significant change to any element of the FRMS unless an application to make the change is approved in writing by CASA.
- 7.6 An application for approval of a significant change must:
- (a) be in writing; and
 - (b) set out the change; and
 - (c) be accompanied by a copy of the part of the AOC holder's FRMS documentation affected by the change, clearly identifying the change.
- 7.7 A change to the FRMS that is not a significant change must be:
- (a) made in accordance with the FRMS change management procedures; and
 - (b) notified in writing to CASA within 7 days after the change is made.

Fact Bank: Extracts from consultation draft - Appendix 7 sub-clauses 2.3(g), 2.5, 2.6, 3.1, 3.3, 4.3, 4.4, 4.6d, 5.1, 5.4b,c, 6.2a

APPENDIX 7 — FATIGUE RISK MANAGEMENT SYSTEM (FRMS)

- 2.3 The policy must:
- (g) require periodic reviews to ensure the policy remains relevant and appropriate.
- 2.5 In addition to the requirements under subclause 2.4, and the relevant limits and procedures contained in the operations manual in accordance with this CAO, the FRMS must also be supported by the following documentation, namely, up-to-date identification, description and records of the following:
- (a) the personnel accountabilities, responsibilities and authorities for effective implementation of the FRMS, including the FRMS Manager;
 - (b) the mechanisms for ongoing involvement in fatigue risk management of management, FCMs, and all other relevant personnel;
 - (c) the FRMS training programs, training requirements and records of attendance at training;
 - (d) scheduled and actual flight times, and duty periods and off-duty periods with significant deviations and reasons for deviations noted;
 - (e) the FRMS outputs, including findings from collected data, and recommendations and actions taken.
- 2.6 For paragraph 215 (3) (a) of CAR, an AOC holder's FRMS must form part of the holder's operations manual.

- 3.1 The FRMS practical operating procedures must, as a minimum:
- (a) incorporate scientific principles and knowledge; and
 - (b) identify, on an ongoing basis, fatigue-related safety hazards and the risks that result from them; and
 - (c) ensure that remedial actions necessary to effectively mitigate the risks associated with the hazards are implemented properly; and
 - (d) provide for continuous recording and monitoring of, and regular assessment of:
 - (i) fatigue-related safety hazards; and
 - (ii) relevant remedial actions; and
 - (iii) the extent to which mitigation of fatigue-related risks is achieved by remedial actions; and
 - (e) provide for continuous improvement in the effectiveness of the FRMS.
- 3.3 For subclause 3.2, the values for each FCM must be based on scientific principles and knowledge and subject to safety assurance processes.
- 4.3 The proactive process must be capable of identifying fatigue-related hazards within current flight operations.
- 4.4 The reactive process must be capable of identifying the contribution of fatigue-related hazards to actual events that could have affected, or did affect, safety, with a view to determining how the effects of fatigue on each event could have been minimised.
- 4.6 For subclause 4.5, the FRMS risk assessment procedures must ensure that identified fatigue-related hazards are examined in relation to the following:
- (d) the effectiveness of existing safety procedures and controls.
- 5.1 FRMS safety assurance procedures must provide for:
- (a) continuous monitoring of the performance of the FRMS;
 - (b) the analysis of fatigue-related trends;
 - (c) measurements to validate the effectiveness of mitigation strategies.
- 5.4 FRMS safety assurance procedures must provide for the continuous improvement of the FRMS, by means including the following:
- (b) routine evaluations of facilities, equipment, documentation and procedures to determine their implications for fatigue-related risk management and control;
 - (c) identification of emerging fatigue-related risks to allow the introduction of new procedures and procedures to mitigate such risks.
- 6.2 For subclause 6.1, FRMS safety promotion procedures must include the following:
- (a) training programs for management, FCMs, and all other relevant personnel to ensure competency levels commensurate with the role and responsibility of the person under the FRMS;

Fact Bank: Action 5-1: CASA response to independent review recommendation 5

Recommendation 5 - Reduce FRMS level of prescription

That CASA reduces the level of prescription in CAO 48.1 Appendix 7 to align more closely with an outcome-based regulatory philosophy.

Consultation feedback

A majority of respondents supported this recommendation. The industry Technical Working Group discussion of this recommendation resulted in several actions to improve the operation of FRMS. Additional feedback and CASA response is provided below with the related action.

CASA response

CASA will implement several actions to improve operation of FRMS.

Action 5-1 FRMS change management process

CASA will incorporate an FRMS change process based on the draft CASR Part 119 significant change process.

Note: Changes to increase maximum duty limits or decrease off duty periods would be considered a significant change in line with ICAO Standards and Recommended Practices.

Fact Bank: Action 6-1: CASA response to independent review recommendation 6**Recommendation 6 - Distinguish legal requirements and guidance**

That CASA modifies the tone and language used in CAO 48.1 and all supporting documentation to clearly distinguish between legal requirements and guidelines on acceptable means of compliance.

Consultation feedback

A majority of respondents supported this recommendation although one respondent observed that while the CAO 48.1 Instrument rightly contains 'legal' language, the tone of the guidance material was clearly different from the 'legal' language.

The Technical Working Group recommended that CASA should not use internal manuals and handbooks to impose requirements that are not specified in the regulations. The group advised CASA should make it clear that guidance material and acceptable means of compliance represent one way of achieving compliance but that alternative means that meet requirements would also be considered.

CASA response

CASA will publish guidance to industry and inspectors to clarify the meaning of 'may include but not limited to' in contrast to 'must include but not limited to'.

CASA intends to improve the distinction between legal requirements, guidance material and acceptable means of compliance in CAO 48.1 and supporting guidance material. CASA will use equivalent material from the UK CAA and EASA as examples and seek industry feedback on materials to ensure that this recommendation has been achieved.

Action 6-1 Tone and language

CASA will improve the distinction between legal requirements, guidance material and acceptable means of compliance in CAO 48.1 and supporting guidance material.

Fact Bank: Independent review report recommendation 5**Finding**

While CAO 48.1 Appendix 7 is closely aligned with ICAO requirements (International Civil Aviation Organisation, 2013, 2016) the Review Team concurs that Appendix 7 presents as a highly prescriptive approach to the specification of requirements. Given that many operators are already required to manage fatigue-related risk under their safety management system (SMS), using an outcomes-based risk management approach, the high level of prescription appears unwarranted. The overarching goal of each FRMS is to mitigate the risk to flight safety imposed by fatigue. To have overly prescriptive rules for such a wide range of activities within Australian aviation operations could be both counterproductive, and unnecessary.

Recommendation 5

That CASA reduces the level of prescription in CAO 48.1 Appendix 7 to align more closely with an outcomes-based regulatory philosophy.

Fact Bank: Independent review report recommendation 6**Finding**

Some of the language used throughout CAO 48.1, including Appendix 7, and associated guidance documentation (e.g., an operator 'must', 'shall' and 'is required to'), blurs the line between legal requirements and what might be acceptable alternate means of compliance (AMOC) for an operator. This applies to the CAO 48.1 Instrument and associated supporting documentation, including the CAAP 48-01 (Civil Aviation Safety Authority, 2017d), which is intended to provide guidance to operators, and the CASA FRMS Handbook (Civil Aviation Safety Authority, 2013c), which is intended to provide guidance for CASA officers. This is likely to create unnecessary confusion, complexity, and potentially conflict, in CAO 48.1 implementation and audit processes.

Regulatory requirements should be clearly stated using imperative terms such as 'must', 'shall' and 'required'. Where it is appropriate to repeat regulatory requirements in supporting documentation (e.g. Form 817), imperative terms can again be used. However, guidance material contained in supporting documents must be clearly distinguished from requirements, and indicated as such by the use of non-imperative terms. The Review Team also finds the wording used in parts of CAO 48.1 and CAAP 48-1 subjective and therefore ambiguous and unhelpful in establishing standards.

Recommendation 6

That CASA modifies the tone and language used in CAO 48.1 and all supporting documentation to clearly distinguish between legal requirements and guidelines on acceptable means of compliance.

Does this proposal achieve the intended Actions 5-1 and 6-1?

Please select only one item

- ☐ yes
- ☐ some change/s required (please specify below)
- ☐ no (please specify below)
- ☐ not applicable

Comments?

Please provide feedback on specific ways to further improve tone and language in the draft CAO.

Comments

PAGE 11: Aerial application

This proposal permits aerial application (aeroplane) operators to continue operating in accordance with Subpart 137.Q of CASR in response to recommendation 8.

CASA Action 8-1: *CASA intends to incorporate the intent of CASA EX92/16 – Exemption CAO 48.1 Instrument 2013 – aerial application operations (in aeroplanes) into an amended CAO 48.1.*

Fact Bank: Extracts from consultation draft - Part 1 Clause 11

PART 1 GENERAL

11 Part 137 operations

- 11.1 Subject to the conditions mentioned in paragraph 11.2, this CAO does not apply to:
- (a) an AOC holder engaged in aerial application operations in aeroplanes under Part 137 of CASR; and
 - (b) an FCM employed by, and undertaking duties for, an AOC holder mentioned in paragraph (a).
- 11.2 The conditions are:
- (a) the AOC holder and FCM must comply with Subpart 137.Q of CASR; and
 - (b) the AOC holder must be satisfied that the FCM has received awareness material, or training, in managing the fatigue-related risks relevant to his or her duties as an FCM.

Fact Bank: Action 8-1: CASA response to independent review recommendation 8

Recommendation 8 - Aerial application limits

That CASA considers removing Part 137 aerial application operations from CAO 48.1 due to the sector's lower relative risk exposures. If it is deemed necessary to include restrictions for aerial application operators in CAO 48.1 then CASA should consider increasing the flexibility of the relevant CAO 48.1 limits to align them with the current provisions of Subpart 137.Q.

Consultation feedback

This recommendation was strongly supported by the aerial application industry with suggestions to further amend Part 137.Q. Suggested changes include adding rotary within Part 137 and allowing the reset of monthly and annual limits by extended rest periods. Some respondents expressed concern that removing limits for aerial application would expose pilots to greater risk within a sector with a relatively high accident rate.

The industry Technical Working Group achieved general consensus endorsing the removal of aerial application operations from CAO 48.1 and retaining the limits in CASR Sub-part 137.Q. The Technical Working Group discussed feedback from the aerial application sector highlighting that environmental factors such as wind speed, dew point and temperature act as additional mitigators that limit flying. These mitigators can't be easily quantified into discrete factors to be incorporated in prescriptive limits. The Technical Working Group noted that the financial incentives for aerial applications pilots to accept additional work are in tension with fatigue risk management and that this supports retaining some form of prescriptive limits until more data is available. The Technical Working Group noted that the Aerial Application Association of Australia is proactively promoting safety initiatives to reduce accident rates.

There was a dissenting view that it was not acceptable to allow a greater likelihood of fatigue in aerial application operations in comparison to passenger carrying operations. The complexity, workload and environmental conditions associated with aerial application operations potentially increase the fatigue risk. The dissenting view noted that accident rates reflect the additional risk in this sector.

CASA response

CASA acknowledges the dissenting view; however, CASA regulates aviation safety to accept lower risks to passenger transport where participants are not reasonably aware of the risk, nor have control over the risk. CASA accepts higher risk for aerial work operations as the crew are informed participants and can reject or cease the tasking if they assess the fatigue risk to be unacceptable. However, CASA acknowledges that commercial pressures and pilot capability to self-assess fatigue support a requirement to have prescriptive limits in place.

Action 8-1 Aerial application limits

CASA intends to incorporate the intent of [CASA EX92/16 – Exemption CAO 48.1 Instrument 2013 – aerial application operations \(in aeroplanes\)](#) into an amended CAO 48.1.

Note: CASA intends to monitor data from fatigue surveys and operator reporting under action 25-8.

Fact Bank: Independent review report recommendation 8

Finding

The Review Team finds that the prescriptive limits applying to aerial application operations within CAO 48.1 are more restrictive than existing arrangements under CAO 48.0 and current exemptions. Other comparable international regulators have recognised that public risk from these types of operations is relatively limited, and have elected to defer or remove restrictive fatigue management limits. Given the sector risk profile (Civil Aviation Safety Authority, 2014c) the Review Team believes that inclusion of aerial application operations within CAO 48.1 may not be warranted. Exclusion would be consistent with the findings of the 2014 Aviation Safety Regulation Review Panel (Australian Government, 2014) regarding adjusting the level of safety oversight so that it is proportional and appropriate to the scope and risk of sector operations.

Recommendation 8

That CASA considers removing Part 137 aerial application operations from CAO 48.1 due to the sector's lower relative risk exposures. If it is deemed necessary to include restrictions for aerial application operators in CAO 48.1, CASA should consider increasing the flexibility of the relevant CAO 48.1 limits to align them with the current provisions of Subpart 137.Q.

Does this proposal achieve the intended Action 8-1?

Please select only one item

- ☐ yes
- ☐ some change/s required (please specify below)
- ☐ no (please specify below)
- ☐ not applicable

Comments?

PAGE 12: Shared responsibility

This proposal aligns the shared responsibility between flight crew and operators in line with proposed measures in Part 91 of CASR, in response to recommendation 9.

CASA Action 9-1: *CASA will update the CAO to reflect the dual responsibility provisions in the consultation draft of Part 91 of CASR.*

Fact Bank: Extracts from consultation draft - sub-clauses 14.1, 14.2, 16.1 and 16.2

PART 1 GENERAL

Fitness for duty

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

Limits

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

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

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

Note Guidance for flight crew members on this obligation is contained in CAAP 48-1.

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

Note An FCM employed by an AOC holder must not exceed any limit specified for the FCM in the AOC holder's operations manual, except where an extension is permitted. See subregulation 215 (9) of CAR concerning FCM compliance with the operations manual.

Fact Bank: Action 9-1: CASA response to independent review recommendation 9

Recommendation 9 - Allowance for individual circumstances

That CASA removes the requirement for operators to make allowance for individual circumstances when assigning work, given the existing requirement for flight crew members to commence flight duty periods fit for duty, and notify the company if they consider themselves unfit for duty at any time.

Consultation feedback

Feedback regarding this recommendation was mixed. Some argued that requiring operators to take individual circumstances into account was unreasonable, others argued that individual circumstances and variation are significant in fatigue risk. Many respondents highlighted the importance of the dual responsibility for both operators and crew members. Some respondents argued that the requirement and ability of a crew member to declare themselves unfit for duty was sufficient and removed the requirement for operators to actively manage individual circumstances.

The industry Technical Working Group recommended that CASA use the dual responsibility provisions in the consultation draft of Part 91 of CASR to address similar responsibilities in the fatigue rules.

Some Technical Working Group members suggested that the use of sick leave to manage fatigue and the remuneration impact of rejecting tasking due to fatigue are safety concerns that should be addressed through regulation. The general consensus was that these issues are important but are best addressed through industrial agreements.

CASA does not intend to regulate these matters at this time. CASA may include consideration of these matters in guidance material.

The Technical Working Group recommended that the 'adverse matters' listed in the current CAO be moved to guidance material, and that CASA provide additional guidance regarding the need to report to work fit for duty and available/standby days regardless of home address and other circumstances.

The guidance material will reflect a continued shared responsibility to manage reasonably foreseeable hazards.

CASA response

CASA will update the rules to reflect the dual responsibility provisions in the consultation draft of Part 91 of CASR.

CASA does not intend to amend regulations in relation to the use of sick leave or remuneration impact of rejected tasking at this time but may include consideration of these matters in guidance material.

CASA will move the 'adverse matters' listed in the current CAO to guidance material and provide additional guidance to reflect a continued shared responsibility to manage reasonably foreseeable hazards.

Action 9-1 Shared responsibility (rules)

CASA will update the CAO to reflect the dual responsibility provisions in the consultation draft of CASR Part 91.

Action 9-2 Shared responsibility (guidance)

CASA will update guidance material to reflect the dual responsibility provisions and identify considerations for operators and flight crew.

Finding

Recommendation 9

Does this proposal achieve the intended Action 9-1?

Please select only one item

- ☐ yes
- ☐ some change/s required (please specify below)
- ☐ no (please specify below)
- ☐ not applicable

Comments?

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PAGE 13: Consolidation and transitional provisions

This proposal replaces existing fatigue rules to provide clarity of what rules apply and provides a staggered approach to implementation in response to recommendation 9.

CASA Action 18-1: *CASA will update the website to clearly explain which rules and guidance apply. The legislative changes from this review will be incorporated into a single instrument.*

The proposed instrument would repeal all existing fatigue rules while providing transitional provisions for existing operators. The transitional provisions aim to allow operators to continue operating to their current rules until the relevant transition date:

- 30 September 2019 for high capacity regular public transport operators that have not already transitioned to the new rules
- 26 March 2020 for other operators.

New operators would be required to comply with the proposed rules upon commencement of the rules.

Fact bank: Extract from consultation

draft - Clause 4

PART 1 GENERAL

4 Application and effect

- 4.1 This CAO applies, according to its terms, to each of the following:
 - (a) subject to paragraph (b), an AOC;
 - (b) except when subsection 11 applies — an AOC which covers application operations under Part 137 of CASR;
 - (c) a Part 141 certificate;
 - (d) a flight crew member employed by the holder of an AOC or a Part 141 certificate to which paragraph (a), (b) or (c) applies;
 - (e) for the purposes of subsection 16 — a flight crew member mentioned in that subsection.
- 4.2 Subject to paragraph 4.3, this CAO sets out:
 - (a) for paragraph 28BA (1) (b) of the Act — conditions on each AOC mentioned in subparagraphs 4.1 (a) and (b); and
 - (b) for subregulation 11.068 (1) of CASR — conditions on each Part 141 certificate mentioned in subparagraph 4.1 (c); and

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

 - (c) for subregulation 11.068 (1) of CASR — conditions on the flight crew licence of each flight crew member mentioned in subparagraphs 4.1 (d) and (e).
- 4.3 The condition set out in paragraph 16.1 applies to the holder of a flight crew licence whether or not the person is employed by the holder of an AOC or a Part 141 certificate mentioned in paragraph 4.1.

Note Under regulation 11.077 of CASR, it is an offence for a person holding a flight crew licence to contravene a condition of the licence.
- 4.4 This CAO takes effect for the holder of an AOC or a Part 141 certificate (a **holder**) on commencement, unless it takes effect for the holder at a later date in accordance with subsection 5.
- 4.5 This CAO takes effect for a flight crew member as follows:
 - (a) for each flight crew member of a holder — when it takes effect for the holder;
 - (b) for any other flight crew member — on commencement.

Fact Bank: Extract from consultation draft - Clause 5

5 Saving and transitional provisions for this CAO to take effect

5.1 In this subsection:

2013 CAO means the *Civil Aviation Order 48.1 Instrument 2013*, as in force immediately before commencement of this CAO.

2013/2016 CAO means the 2013 CAO as it would have been in force immediately before commencement of this CAO had it been amended by the *Civil Aviation Order 48.1 Amendment Instrument 2016 (No. 1)*.

commencement means 1 February 2019.

grandfathered Part 141 operator means each of the following:

- (a) a Part 141 operator who between the beginning of 30 April 2013 and the end of 31 August 2014 continuously held an AOC;
- (b) a Part 141 operator who, before 30 April 2013, applied for an AOC which was:
 - (i) issued after 30 April 2013; and
 - (ii) continuously held between the date it was issued and the end of 31 August 2014.

grandfathered Part 141 certificate means the Part 141 certificate of a grandfathered Part 141 operator.

had opted in, for a person, means that the person had, before the commencement of this CAO, told CASA, under the relevant terms of the 2013 CAO or the 2013/2016 CAO, that the person intended to comply with the 2013 CAO or the 2013/2016 CAO.

had not opted in, for a grandfathered person, means that the person had not, before the commencement of this CAO, told CASA, under the relevant terms of the 2013 CAO or the 2013/2016 CAO, that the person intended to comply with the 2013 CAO or the 2013/2016 CAO.

this CAO means the *Civil Aviation Order 48.1 Instrument 2019*.

transition date means:

- (a) 30 September 2019 — for the regular public transport operations, in high capacity aircraft, of any AOC holder to whom Civil Aviation Order (**CAO**) 82.5 applies; and

Note A "high capacity aircraft" is defined in subsection 2 of CAO 82.0 as "an aircraft that is certified as having a maximum seating capacity exceeding 38 seats or a maximum payload exceeding 4 200 kg".

- (b) 26 March 2020 — for operations of any AOC holder or Part 141 operator that are not described in subparagraph (a).

AOCs and Part 141 certificates granted after commencement of this CAO

5.2 This CAO takes effect on its commencement for a person who:

- (a) applies, after the commencement, for an AOC or a Part 141 certificate to which this CAO applies; and
- (b) is granted the AOC or certificate.

5.3 This CAO takes effect on 26 March 2020 for a person who:

- (a) before the commencement of this CAO, applied for an AOC or a Part 141 certificate to which this CAO applies; and
- (b) is granted the AOC or certificate after the commencement; and
- (c) until 26 March 2020 — complies with the requirements of the 2013/2016 CAO, as if the CAO had not been repealed.

AOCs and non-grandfathered Part 141 certificates granted between 30 April 2013 and commencement of this CAO

5.4 This CAO takes effect on 26 March 2020 for a person who:

- (a) was granted an AOC or a Part 141 certificate (other than a grandfathered Part 141 certificate) on or after 30 April 2013 but before commencement of this CAO; and
- (b) until 26 March 2020 — complies with the requirements of the 2013 CAO or (if the person had opted in) the 2013/2016 CAO, as if the CAO had not been repealed.

Grandfathered AOC holders and Part 141 operators

5.5 This CAO takes effect from the transition date for a person (a **grandfathered person**) who:

- (a) was an AOC holder immediately before 30 April 2013, or a grandfathered Part 141 operator; and
- (b) had not opted in to the 2013 CAO or the 2013/2016 CAO; and
- (c) until the transition date — complies with the requirements of an applicable CAO mentioned in paragraph 3.1 (including any relevant exemption) as if the CAO had not been repealed.

Opted-in AOC holders and Part 141 operators

5.6 This CAO takes effect from 26 March 2020 for a person who:

- (a) is an AOC holder or a Part 141 operator; and
- (b) had opted in to the 2013 CAO or the 2013/2016 CAO; and
- (c) until 26 March 2020 — complies with the requirements of the 2013 CAO or (if the person had opted in) the 2013/2016 CAO, as if the CAO had not been repealed.

Early opt in to this CAO

- 5.7 A person to whom paragraph 5.3, 5.4, 5.5 or 5.6 applies may tell CASA in writing that the person intends to comply with this CAO from a specified date before 26 March 2020 or the transition date, as applicable, and, if so, this CAO takes effect for the person on and from the specified date.

Fact Bank: Action 18-1: CASA response to independent review recommendation 18**Recommendation 18 - Current version of CAO 48.1 and related documents**

That CASA provides clearer guidance (on the website and elsewhere as necessary) on the current status of, and relationship between, all CAO 48.1 documentation.

Consultation feedback

A majority of respondents supported this recommendation.]

The Industry Technical Working Group endorsed CASA's proposed approach and recommended that CASA incorporate explanatory statements into other communications regarding regulatory change.

CASA response

CASA will update the website to better explain which rules and guidance apply and seek industry feedback on changes to ensure that they achieve the desired effect.

CASA will assign responsibility for ongoing maintenance of the fatigue pages to a single owner. These pages will include links to best practice information and guidance from other regulators.

CASA will introduce the legislative changes from this review into a single legislative instrument that provides clarity regarding which rules apply.

CASA has started incorporating explanatory statements into communications regarding regulatory change.

Action 18-1 Current status of CAO 48.1

CASA will update the website to better explain which rules and guidance apply. The legislative changes from this review will be incorporated into a single instrument.

Fact Bank: Independent review report recommendation 18**4.7 Applicable version of CAO 48.1**

The identification of current or "in force" versions of CAO 48.1 and associated publications on the CASA website was found to lack clarity and create confusion. This is apparent from feedback received during recent industry consultation, where considerable confusion was reported over which document/s represented the currently applicable version/s of CAO 48.1. While the CASA website includes some explanation of this, it is not evident which documents / versions are currently applicable. Industry feedback also noted the problem of having to work with unincorporated amendments, and raised concerns about the complexity and difficulty of having to refer to multiple documents to attempt to fully comprehend the CAO 48.1 rule set. Ideally, the CASA website would provide a clear path for each defined sector rather than a single page of all documents that may or may not be relevant to some sectors.

Recommendation 18

That CASA provides clearer guidance (on the website and elsewhere as necessary) on the current status of, and relationship between all CAO 48.1 documentation.

Does this proposal achieve the intended Action 18-1?

Please select only one item

- ☐ yes
- ☐ some change/s required (please specify below)
- ☐ no (please specify below)
- ☐ not applicable

Comments?

PAGE 14: Other changes

This proposal includes other minor changes.

Fact Bank: Extracts from consultation draft

PART 3 LIMITS and REQUIREMENTS

Operations manual

14.3 The AOC holder must include in the operations manual:

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

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

Note 2 An AOC holder with an FRMS implementation approval must include relevant limits in the operations manual (see subclauses 2.5 and 3.2 in Appendix 7).

- (b) for FCMs conducting a particular operation — each limit mentioned in subparagraph (a) as modified by the AOC holder for the FCMs and the operation, but not so as to exceed a maximum limit, or reduce a minimum limit, set out in the applicable Appendix; and
- (c) where the need to take account of possible hazards arises under subsection 15 — for FCMs conducting a particular operation, each limit mentioned in subparagraph (b) as modified by taking the possible hazard into account.

Records and reports

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

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

Note Thus, the flight time record does not include time spent positioning.

- (c) actual split-duty rest periods, standby periods and off-duty periods;
- (d) any FDP that was extended under the relevant provision (if any) of the Appendix or FRMS which the AOC holder has chosen to comply with, including information about the extensions in such detail as enables the holder to comply with subparagraph 14.8 (a).

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

Operations manual procedures for hazards, multiple Appendices etc.

15.2 The AOC holder must set out the following in the operations manual:

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

Note The procedures mentioned in this paragraph may be met, at least in part, by existing procedures such as those for a safety management system.

APPENDIX 1 — BASIC LIMITS

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; and
- (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.

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

5.2 If the operation is a mustering operation, the cumulative flight time accrued by the FCM during any consecutive 30 day period must not exceed 120 hours if the combined total of his or her flying time in mustering operations as pilot in command and pilot in command under supervision is less than 500 hours.

APPENDIX 7 — FATIGUE RISK MANAGEMENT SYSTEM (FRMS)

- 3.1 The FRMS practical operating procedures must, as a minimum:
- (a) incorporate scientific principles and knowledge; and
 - (b) identify, on an ongoing basis, fatigue-related safety hazards and the risks that result from them; and
 - (c) ensure that remedial actions necessary to effectively mitigate the risks associated with the hazards are implemented properly; and
 - (d) provide for continuous recording and monitoring of, and regular assessment of:
 - (i) fatigue-related safety hazards; and
 - (ii) relevant remedial actions; and
 - (iii) the extent to which mitigation of fatigue-related risks is achieved by remedial actions; and
 - (e) provide for continuous improvement in the effectiveness of the FRMS.

Do the minor changes introduce unintended consequences?

Please select only one item

- ☐ yes
- ☐ some change/s required (please specify below)
- ☐ no (please specify below)
- ☐ not applicable

Comments?

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PAGE 15: Policy questions

Several issues were raised during the technical working groups that require further consideration. Industry input is sought to assist in resolving these issues.

TWG issue 19 – Days off when transitioning appendices

Background

The cumulative off-duty periods for operations under appendices 4B, 5 and 5A are less restrictive than other appendices. A problem arises when a flight crew member has been operating under one of these appendices and then seeks to operate under appendix 2 as they may not meet the cumulative off-duty requirements.

The simplest way to enable transitioning between appendices is to always meet the more restrictive cumulative off-duty requirements (ie 7 days off-duty in previous 28 days and 24 days off-duty in previous 84 days).

If this is not possible, Clause 13A provides a discounted method for meeting the 24 days off-duty in previous 84 days requirement.

Industry feedback has highlighted that this approach is overly complex. CASA is seeking industry input of alternative ways to meet this requirement.

Comments?

Alternative approach to transitioning appendices

Some operators have proposed an alternative approach to transitioning appendices by providing an opportunity for a limited flight duty period regardless of prior duty. This would permit flight crew members operating under Subpart 137.Q or appendices 4B, 5 and 5A to conduct limited passenger carrying or training flights without the need for an extended off-duty period. A potential approach is detailed below.

A flight crew member may conduct passenger transport operations following a period of operations under CASR Part 137.Q or Appendices 4B, 5 or 5A if:

- a. the off-duty period undertaken immediately prior to the FDP was at least 12 hours including a local night
- b. the previous FDP was less than 8 hours
- c. the proposed FDP will be less than 8 hours.

CASA is seeking industry feedback on this approach.

Would this approach resolve issues related to transitioning between appendices for a single flight duty period?

Please select only one item

- ☐ yes
- ☐ some change/s required (please specify below)
- ☐ no (please specify below)
- ☐ not applicable

Comments?

TWG issue 22 – Split duty restrictions for charter

Background

A TWG member identified that the 6 hour limit on flight duty period following split duty in Appendix 2 subclause 4.5 was overly restrictive for some charter operations.

CASA is seeking industry feedback on:

- whether this is a broad issue and
- any proposed options for resolution.

Fact Bank: Extract from consultation draft - Appendix 2 Clause 4**4 Increase in FDP limits by split duty**

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

Comments?**TWG issue 26 – Flight crew working on casual day impacts future roster****Background**

A TWG member identified a concern with the cumulative off-duty requirements in Appendix 2 clauses 10.5 and 10.6.

When crew accept a duty on a rostered casual day they may be inadvertently impacting future cumulative off-duty requirements that will prevent them fulfilling the remainder of the roster.

Some TWG members suggested that accepting duty on a casual day should be counted as an off-duty period, as if it were recreational flying. This was not broadly supported; however, CASA is seeking industry feedback.

Comments?

PAGE 16: General response

Are the proposed changes to the fatigue rules appropriate and can they be complied with by industry without undue burden?

Please select only one item

- ☐ yes
- ☐ some change/s required (please specify below)
- ☐ no (please specify below)
- ☐ not applicable

Comments?

Please identify any specific rostering issues that you expect due to these changes. Please provide as much information as possible to assist us to resolve potential issues. If required, attach any supporting documents on the final page of this survey.

Comments?

Are there any significant aviation safety risks which have not been addressed in the draft CAO 48.1 Instrument 2019?

Please select only one item

- ☐ yes (please specify below)
- ☐ no
- ☐ not applicable

Comments?

PAGE 17: Your priorities

When you reflect on the feedback you have provided throughout this consultation, what are the three matters you consider most important?

Priority 1

Priority 2

Priority 3

Additional documentation?

Please attach a copy of any documents you wish to include to this printout.

You may wish to upload a file as part of your submission. Select 'Browse' below and navigate to the file you wish to include. Please note pdf is preferred.