



Australian Government
Civil Aviation Safety Authority



FATIGUE—CAO 48.1 INSTRUMENT 2019

1 JULY 2021 TRANSITION POLICY

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1 July 2021 Transition Policy

1. Introduction

1.1 In this document, a reference to:

- (a) an Operator means an AOC holder or Part 141 certificate holder;
- (b) CAO, means Civil Aviation Order 48.1 Instrument (2019) unless the context requires otherwise;
- (c) a minor variation means a limited or minor non-compliance with the requirements of a specified provision of the CAO referred to in sub-section 5A of the CAO;
- (d) Compliance Statement means a document confirming the Operator has taken steps to comply with the CAO by the transition date.

1.2 This document sets our CASA's policy for the transition of industry to the CAO. Additional guidance for transition and details of how to make applications referenced in this policy is available on CASA's website.

1.3 The CAO applies to all Operators, excluding:

- (a) a foreign air transport AOC holder; and
- (b) Part 141 or Part 142 operators that conduct training **solely and exclusively** in-flight simulation training devices (FSTD).

2. Transition principles

2.1 Operators are expected to comply with the CAO by 1 July 2021.

2.2 Operators are encouraged to opt-in to comply with the CAO before 1 July 2021.

2.3 An Operator, who is not a High Capacity Regular Public Transport (HC RPT) Operator, who elects to adopt Appendix 7 (FRMS) must receive approval from CASA by 1 October 2021 for a trial FRMS. A fully complete application must be submitted by 30 June 2021, earlier submission is strongly encouraged. An operator that does not have CASA approval by 1 October 2021 for a trial FRMS must revert to prescriptive limits in Appendices 1-6 of the CAO from 1 October 2021.

3. How to transition to CAO 48.1 (2019)

3.1 There are three routes for transition to CAO 48.1 (2019):

Transition Route	Requirements	CASA approval required	What document/s to submit to CASA and when
Prescriptive	An Operator transitions to prescriptive rules in Appendices 1- 6 of the CAO without modification.	No, not before the transition date (1 July 2021). CASA may undertake assessment of Operations Manual and Compliance Statement. CASA will check compliance during future safety oversight activities.	An Operator is required to submit an updated Operations Manual and a Compliance Statement by 30 June 2021.
Prescriptive with modification	An Operator transitions to prescriptive rules in Appendices 1- 6 of	Yes. An Operator is required to make an application to CASA for	An Operator is required to apply for a minor variation (which includes an

	the CAO with some minor variation.	approval of the minor variation to the prescriptive rules in Appendices 1-6 of the CAO. CASA will then check compliance during future safety oversight activities.	Operations Manual and Compliance Statement). CASA encourages Operators to submit the minor variation application at least 3 months before the minor variation is required to take effect. NB: If the Operator requires the minor variation to take effect on 1 July 2021, the completed application should be submitted by 1 April 2021. Refer to Minor Variations Policy (Annex 1) and Minor Variations Application Form.
Fatigue Risk Management System	An Operator transitions to a trial Fatigue Risk Management System.	Yes. An Operator is required to make an application to CASA for approval of an FRMS. CASA will then check compliance during future safety oversight activities.	An Operator (who is not a HCRPT) is required to apply (with all supporting documents) to CASA for approval of an FRMS by 30 June 2021. An Operator (who is a HCRPT) was required to apply for an FRMS by 30 November 2019 and must obtain approval from CASA by 30 June 2021. Refer to the FRMS Process Manual and FRMS Handbook for in-depth information.

Prescriptive: Operators who elect to comply with prescriptive limits in Appendices 1-6 of the CAO

3.2 Operators are required to:

- (a) review the CAO to identify new obligations applicable to their operations;
- (b) review Appendices 1-6 inclusive of the CAO to identify the most appropriate appendix/cies that corresponds to their operation;
- (c) update their Operations Manual to reflect the CAO and the Appendix or Appendices selected;
- (d) develop and implement fatigue management policies and procedures to reflect the Operations Manual; and
- (e) deliver training to staff on any requirements.

CASA has published guidance on the CASA website to assist Operators identify the changes required to Operations Manual to comply with Appendices 1-6 of the CAO, develop fatigue management policies and procedures and develop training material.

3.3 Existing Operators will be required to submit a Compliance Statement and their Operations Manual (updated to note the appendix or appendices the operator will comply) to CASA noting the changes from the existing Operations Manual by 30 June 2021.

3.4 Once submitted, CASA will review the compliance statement for completeness and may decide to conduct a detailed assessment to verify the compliance statement. CASA may request further information from an Operator to clarify or confirm the proposed approach to compliance.

- 3.5 The Operator must comply with the Operations Manual (updated to reflect the prescriptive limits specified in the selected Appendix/Appendices) from 1 July 2021.

Prescriptive with modification: Operators who elect to comply with prescriptive limits in Appendices 1–6 of the CAO with minor variation

- 3.6 Operators are required to review Appendices 1-6 inclusive of the CAO to identify the most appropriate appendix that corresponds to their operation.
- 3.7 If an Operator elects to comply with one or multiple of the Appendices 1–6 and has identified that a minor variation is required for their operation, the Operator must obtain approval from CASA for the minor variation.
- 3.8 If the minor variation is required to take effect by 1 July 2021, the Operator must obtain approval from CASA by 30 June 2021.
- 3.9 Operators should consider the Minor Variations Policy (Annex 1) before making an application for approval of a minor variation.
- 3.10 An application for a minor variation must be accompanied by the required information, updated Operations Manual and Compliance Statement. CASA may request further information from an Operator to clarify or confirm the proposed approach to compliance.
- 3.11 Refer to the Minor Variations Policy which outlines the process for applying for a minor variation to the prescriptive rules in the Appendices 2–6 of the CAO.
- 3.12 Operators should allow at least 3 months for CASA to assess an application. Accordingly, Operators should submit an application at least 3 months prior to when the variation is needed.

FRMS - Operators that elect to adopt Appendix 7 (Fatigue Risk Management System (FRMS))

- 3.13 The FRMS processes have not substantially changed under CAO 48.1 (2019).
- 3.14 All Operators proposing to operate under an FRMS must submit a completed FRMS application to CASA. Refer to the FRMS Process Manual and FRMS Handbook for in-depth information.
- 3.15 Once submitted, CASA will review and assess the application. CASA may request further information from an Operator to clarify or confirm the proposed approach to compliance.

Note: If CASA has not issued a FRMS trial implementation approval by the transition date (1 July 2021 for HC RPT Operators or 1 October 2021 for non-HC RPT Operators and Part 141 Operators), the Operator must comply with prescriptive rules (Appendices 1-6 of the CAO) until the approval is issued.

Non-HC RPT Operators and Part 141 Operators must apply by 30 June 2021.

HC RPT Operators will have applied by 30 November 2019.

4. CASA compliance processes

- 4.1 Review and assessment of compliance with the CAO will be conducted during a future surveillance event, regulatory service or certificate renewal for the Operator.
- 4.2 All non-compliances with the CAO instrument will be handled in accordance with CASA's regulatory philosophy and its compliance and enforcement procedures.

5. Early Opt-in

- 5.1 Operators may give CASA written notice that they intend to comply with CAO 48.1 (2019) before the 1 July 2021 transition date. The notice must specify the date the Operator proposes to opt in from (opt-in date), which must be before 1 July 2021.

Annex 1

Minor Variations Policy – CAO 48.1 Instrument (2019)

1. Introduction

- 1.1 In this document, a reference to:
 - (a) an Operator means an AOC holder or Part 141 certificate holder
 - (b) CAO, means CAO 48.1 Instrument (2019) unless the context requires otherwise
 - (c) a minor variation means a limited or minor non-compliance with the requirements of a specified provision of the CAO referred to in sub-section 5A of the CAO.
- 1.2 It is anticipated that most Operators will be able to conduct their operations within the prescriptive rules in Appendices 1–6 of the CAO.
- 1.3 CASA recognises that there is diversity in the nature of the operations being conducted across Australia. To support Operators whose operational characteristics necessarily fall outside of Appendices 2–6 of the CAO but are not at a level of complexity to warrant an FRMS, CASA will consider requests for a minor variation from a specified provision of Appendices 2–6 of the CAO.
- 1.4 This document sets out CASA's policy for consideration of a minor variation to Appendices 2–6 under subsection 5A of the CAO.
- 1.5 Applications for a minor variation will be subject to the policy matters set out below, which are intended to reflect CASA's overarching policy that minor variations only be granted to permit limited or minor deviations from the prescriptive rules in the CAO.
- 1.6 Minor variations:
 - (a) are not intended to be used to permit a level of fatigue risk less than that intended under the rules in the CAO
 - (b) are not intended to be used to undermine the integrity of the fatigue-risk management system created by the CAO
 - (c) are not available to re-establish the system of standard industry exemptions that endured under the old fatigue rules
 - (d) for one Operator in a set of circumstances do not set a precedent that guarantees the grant of a variation to another Operator in perceived comparable circumstances.

2. Principles underpinning policy

- 2.1 CASA will consider requests for minor variation having regard to the principles in Schedule 1 that underpin this policy.

3. Scope of minor variations

- 3.1 Minor variations will permit operators to deviate from the prescriptive rules in a narrow range of circumstances where the prescriptive schedules are too restrictive for an operation, but where development of an FRMS is not warranted.
- 3.2 As a starting proposition, CASA expects operators operating without an FRMS to adhere to the rules in Appendices 1–6 of the CAO – minor variations will be reserved for circumstances where specific operational imperatives place flight crew outside the rules in Appendices 2–6 of the CAO, and even then only if a limited or minor deviation is required and an operator can demonstrate arrangements that achieve an equivalent level of safety.
- 3.3 The minor variation process is not available to re-establish authority to conduct operations governed

by the system of standard industry exemptions that endured under the old fatigue rules.

Existing contractual arrangements

- 3.4 With appropriate evidence, CASA will consider applications for minor variations that are necessary to meet minimum requirements of contracts with third parties that were in force on the commencement of the CAO i.e. contracts in force on 2 September 2019.
- 3.5 Such variations will be granted only for the duration of the current term of the contract. CASA would expect that any extension, renewal or re-tender for contracts are negotiated to bring relevant requirements in line with the rules in the CAO.

CASA will require access to a copy of relevant contracts and an explanation of the operational requirements of the contract that necessitate the minor variation.

Future contractual arrangements

- 3.6 Operators are not prevented from seeking minor variations in the future in relation to operations proposed to be conducted under a future contract, for example in connection with a bid for contracted work.

4. Policy limits on the grant of minor variations

- 4.1 CASA considers the deviations to prescriptive limits set out in Schedule 2 are not appropriate for a minor variation and should be considered under an FRMS.

5. Minor variation process

- 5.1 Operators are encouraged to hold a pre-application meeting with their local CASA regional office to confirm minor variation is the right approach.
- 5.2 If the minor variation appears to be an appropriate avenue for the Operator's needs, the Operator completes a minor variation application, having regard to this policy and the Minor Variations Application Form.
- 5.3 Operator submits minor variation application, Compliance Statement and updated Operations Manual to CASA regional office. CASA encourages Operators to make the application at least 3 months prior to when the Operator needs the minor variation to take effect.
- 5.4 The CASA regional office will process the application, undertake an initial review of the request (to identify if complete and includes relevant documentation) and notify the CASA Fatigue Panel of the application.
- 5.5 The CASA regional office will liaise with the CASA Fatigue Panel to progress assessment of the application.
- 5.6 Operators will be notified of CASA's decision regarding the application:
 - (a) if the application is approved, new Instruments will be prepared reflecting the approval (with or without modifications discussed with the applicant) and provided to the Operator;
 - (b) if the application is not approved, the Operator will be provided with a statement of reasons for the non-approval in the form of a decision not to issue letter. The Operator will be required to comply with the with prescriptive rules (Appendices 1–6 of the CAO) unless and until the Operator is successful in an application for a minor variation or progresses to an approved FRMS.

6. Applications for minor variations

- 6.1 Applications for minor variations should be made having regard to this policy document and the Minor Variations Application Form.
- 6.2 Applicants should ensure that all required information is provided, to safeguard an efficient process that supports a timely decision on the application (including the requirement for the applicant to comply with the rules in the CAO if the application is not approved).

- 6.3 Operators should allow at least 3 months for CASA to assess an application. Accordingly, Operators should submit an application at least 3 months prior to when the variation is needed. The intent of the 3-month timeframe is to:
- (a) ensure that the application for a minor variation is given proper consideration, including to ensure consistent and appropriate application of the scheme
 - (b) allow enough time for consultation with relevant CASA staff
 - (c) encourage industry to adopt proper planning and management fallback strategies
 - (d) ensure that a minor variation is necessary rather than a convenient method of complying with the regulations
 - (e) provide enough time for the applicant to comply with the rules in the CAO if the application is not accepted.
- 6.4 Applications should be accompanied by an updated Operations Manual and detail the following matters:
- (a) mitigations to the fatigue risks arising from the operations under minor variations, noting that any deviation from the rules in the CAO will be assumed to create a higher level of risk – see the section on mitigations immediately below
 - (b) a system for fatigue hazard identification
 - (c) evidence of an effective functioning safety management program. The program does not need to be an approved SMS by CASA for a regulatory purpose, and CASA will accept other evidence such as third-party evaluation of the SMS or assessment by CASA solely for the purpose of the minor variation
 - (d) a gap analysis that identifies the nature of the variation from the specified and applicable rules of the applicable appendix of the CAO
 - (e) a system for collecting fatigue risk management related data for FCM conducting operations under a minor variation
 - (f) effective mechanisms for escalating fatigue risk issues within the Operator's organisation and to CASA in circumstances where the minor variation should be reviewed
 - (g) data, or applicable findings from similar operations by third-parties, on fatigue-related impacts, or includes a mechanism to identify fatigue hazards and that provides specific monitoring of proposed variation with appropriate metrics
 - (h) the operational imperative for the variation, that substantiates the cost to the Operator if the variation is not granted (i.e. if the Operator is required to operate to the relevant appendix of the CAO)
 - (i) that the Operator is willing to provide (de-identified) fatigue risk management data to CASA.
- 6.5 Operators may wish to seek minor variations in relation to operations proposed to be conducted under a future contract, for example in connection with a bid for contracted work. CASA will assess applications for minor variations in these circumstances but is less likely to grant a minor variation if the operational parameters are uncertain, consistent with the policy principles in this policy.
- 6.6 Operators should ensure that they provide the maximum amount of detail about the proposed operations and consider early discussions with CASA about proposed applications to manage expectations and risks.

7. Mitigations

- 7.1 An application for a minor variation must demonstrate that appropriate fatigue risk mitigations are in place. This information forms part of the 'safety case' that accompanies the minor variation application demonstrating a comparable level of safety to that intended under the rules of the CAO. Given the currency of those rules, only an equivalent level of safety is 'acceptable' for the purpose of subsection 5A of the CAO.
- 7.2 CASA considers that the level of safety to be achieved is the level sought to be achieved by the new

rules in the CAO. Applications for minor variations to those rules will achieve a comparable level of safety if the application is supported by mitigations that restore the level of fatigue-related risk to a level of safety equivalent to that sought by the rules in the CAO.

- 7.3 Mitigations need to be devised for each specific risk present in the proposed minor variation.
- 7.4 Not all mitigations will be effective in all circumstances: mitigations need to be appropriate for each specific risk present in your proposed operations. The points in Schedule 3 are examples of risk mitigations that could be considered. They are grouped according to whether they relate specifically to flight duty period mitigations, or whether they relate to other matters.
- 7.5 The points are general in nature and do not comprise a complete list of possible mitigations.

Schedule 1

PRINCIPLES THAT UNDERPIN THE MINOR VARIATIONS POLICY

<p>Principle 1: Limited or minor deviations only</p>	<ul style="list-style-type: none"> • See subsection 5A of the CAO. “Limited” and “minor” to be given their ordinary meaning. • The intention of the minor variation mechanism is to preserve the integrity of the rules in the CAO while recognising that there may be special circumstances where deviations are appropriate outside the framework of an FRMS. • Each request for a minor variation will be assessed on the specific circumstances of the Operator, route and one or more specific aircraft types. The grant of a minor variation for one Operator in a set of circumstances does not set a precedent or otherwise guarantee the grant of a variation to another Operator in perceived comparable circumstances. • Arrangements for minor variations must preserve an equivalent level of safety to that intended under the rules of the CAO – given the currency of those rules, only a comparable level of safety is ‘acceptable’ for the purpose of subsection 5A of the CAO. • Minor variation required processes and metrics may serve as a pathway to the eventual development of an FRMS supporting more significant or complex deviations from the rules in Appendices 2–6 of the CAO.
<p>Principle 2: Safety supported by science</p>	<ul style="list-style-type: none"> • <i>Scientific justification for a variation safety case must be supported by scientific principles and knowledge as well as operational experience (i.e. fatigue associated decrements in work performance identified as manifesting during ongoing operations) and evidenced by data acceptable to CASA.</i> • CASA does not expect a minor variation application to be accompanied by a safety case equivalent to that which would be required for a full FRMS. CASA accepts that the safety case supporting a minor variation would be scaled to deal with the specific risks to the operations presented by the variation sought. Similarly, the ongoing requirements for monitoring and data collection need to provide evidence which demonstrate the operations conducted under the minor variation does not introduce any increase in, or unmitigated, fatigue risk. • The continuous monitoring and evaluation of mitigation strategies and outcomes for approved a variation from an appendix to demonstrate a comparable level of safety is the core rationale for the allowance of the variation.
<p>Principle 3: Limit the acute, cumulative and circadian fatigue which has been shown to result from working duty periods which involve late nights, early morning or that infringe the WOCL</p>	<ul style="list-style-type: none"> • EASA’s 2019 report on the effectiveness of flight time limitations found an increased probability of high fatigue levels, especially during nights and duty periods with late finishes, among both pilots and cabin crew. These findings, along with the endorsement of the CASA TWG on CAO 48.1 changes, formed the foundation of several rules concerning operations that encroach the window of circadian low (WOCL, considered to be between 0200 and 0559). • Consequently, the CAO limits schedules to three consecutive WOCL infringing duties. • This limit may be exceeded for early starts for up to five consecutive early starts (0500-0659) where the maximum flight duty period is reduced by two hours for the fourth duty and four hours for the fifth duty. • Any further exceedances to these limits may only occur with additional mitigations and monitoring in place, ideally within an FRMS.

	<ul style="list-style-type: none"> • Accordingly, based on the extensive consideration of this issue in the development of the CAO, CASA will generally not approve minor variations to rules limiting duty periods involving late nights, early mornings or that infringe the WOCL, unless there are compelling operational reasons. CASA expects the varied arrangements of an ad hoc nature to be accompanied by appropriate mitigations.
<p><i>Principle 4: Strong justification for the departure from the CAO rules</i></p>	<ul style="list-style-type: none"> • Simple convenience to an operator will not justify a departure from the CAO rules. • Operators should demonstrate a compelling commercial case to justify an alternate means of achieving the requisite safety outcome. • A commercial case may be based on the cost of upgrading relevant systems or equipment to meet the CAO rules, where the benefit of the upgrade is minor and can be achieved through other means. • A commercial case may also be based on the cost of rostering changes to meet the CAO rules, where the benefit of the rostering change is minor and the fatigue risks of not making the rostering change can be mitigated through other means.
<p><i>Principle 5: Flexibility</i></p>	<ul style="list-style-type: none"> • In appropriate circumstances (including by reference to the other principles), the minor variation process should be used to provide flexibility for operators to achieve requisite safety outcomes.

Schedule 2

POLICY LIMITS ON THE GRANT OF MINOR VARIATIONS

1. Any increase in an applicable FDP limit by more than 60 minutes.
2. Any increase in FDP limit beyond: (hours indicated is the top limit in the relevant appendix):
 - a. 11 hours – for single-pilot, unless aerial work/MT/EMS [Appendix 4]
 - b. 12 hours – for single-pilot aerial work/MT/EMS, unless daylight aerial work [Appendix 4B, 5]
 - c. 13 hours – for multi-pilot, non-augmented crew [Appendix 2,3]
 - d. 14 hours – for multi-pilot aerial work/MT/EMS [Appendix 4B, 5]
 - e. 14 hours – for daylight aerial work [Appendix 5A]
 - f. 16 hours – for multi-pilot, augmented with 1 additional FCM [Appendix 2]
 - g. 18 hours – for multi-pilot, augmented with 2 additional FCMs [Appendix 2]
3. Any decrease in a calculated minimum off-duty period by more than:
 - a) 2 hours at home base, or
 - b) 60 minutes away from home base, or
 - c) in any case, to a period less than 9 hours.
4. Any variation which could result in a decrease in sleep opportunity to less than 8 consecutive hours within the 12 hours prior to an FDP.
5. Any variation which could result in a period without any sleep opportunity of more than 16 consecutive hours.
6. Any increase in cumulative duty limits.

CASA will reject an application by an Operator for a minor variation if:

1. The variation request is expressed in general terms – requests must be articulated by reference to the specific operation; in the case of RPT operations, requests should be made by reference to the route or pattern, aircraft type and schedule; fixed route charter operations should be articulated by reference to the route and aircraft type; CASA will consider enquiries for how minor variations might be framed for non-fixed route charter and aerial work operations. CASA will apply the limitation in this paragraph more flexibly for emergency services operations.
2. The minor variation request contains no data, or applicable findings from similar operations by third parties, on fatigue-related impacts, or does not include a mechanism to identify fatigue hazards and that does not provide specific monitoring of proposed variation with appropriate metrics.
3. The minor variation request is not assessed by CASA as reasonably likely to achieve a level of fatigue management comparable to the appendix under which the operation would otherwise be regulated for fatigue purposes.
4. The Operator has not been assessed by CASA as complying with the enhanced operator obligations under subsection 15 of the CAO.
5. The Operator has not demonstrated to CASA that it has an effective functioning safety management program. The safety management program does not need to have been approved by CASA for a regulatory purpose. If not approved by CASA, CASA will accept other evidence such as third-party evaluation of the program or assessment by CASA solely for the purpose of the minor variation application.
6. The variation, on its own or collectively with other variations, would increase the complexity of fatigue management outside the validity of the available data.
7. The variation request does not clearly articulate the operational imperative for the variation, or that does not clearly articulate and substantiate the cost to the Operator if the variation is not granted (i.e. if the Operator is required to operate to the relevant appendix of the CAO).
8. The variation request is not accompanied by a gap analysis that identifies the nature of the variation from the specified and applicable rules of the applicable appendix of the CAO.

9. The variation request does not indicate that the Operator is willing to provide (de-identified) fatigue risk management data to CASA.

Schedule 3

MITIGATIONS

Flight and duty time-based mitigations

- The flight duty period is preceded by or followed by a longer sleep opportunity.
- An extended off-duty period is offered before and/or after flight.
- Reduced number of consecutive duty days.
- Reduced (or absence of) exposure to WOCL infringements, late nights, early starts, disruptive schedules and other rostering with heightened fatigue risks.

Other fatigue risk mitigations

- Pilots operating under minor variations are provided additional fatigue management training that specifically covers approaches to sleep and nutrition specific to late nights, early starts and WOCL infringing operations, and any specific matters relevant to the operations under the minor variation.
- Pilots operating under minor variations have training, experience and capability to effectively self-manage fatigue.
- Special rest opportunities and appropriate facilities are offered during the flight duty period to reduce fatigue risks during the operations under a minor variation – see also the Transport Canada and ICAO guidance on inflight controlled rest.
- Operators use fatigue hazard management or SMS provisions to review fatigue reports and adjust schedules or other mitigations accordingly. Operators review fatigue reports that result from disruptive schedules - the absence of a predicted fatigue risk when utilising biomathematical models is not enough justification to discount fatigue risk.